

# SPACE PLANNING GUIDELINES

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UNIVERSITY  
*of* HAWAII®  

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MĀNOA

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## I.0 INTRODUCTION

At the University of Hawai'i at Mānoa, physical space is a finite resource. The Planning Office (Planning) within the Office of Planning and Facilities provides professional support to the campus community in space planning and allocation decisions. Pressures on our limited space include increasing enrollment, new faculty hires, and aggressive research aspirations. In addition, adequate surge space is required to permit renovations addressing critical maintenance and repair work of our aging facilities and infrastructure.

Physical space should be allocated, managed and utilized with the oversight and coordination of a budgeted resource such as staff and funding. This would ensure consistency with University-wide goals and objectives and support a centralized clearinghouse for space-related requests and information.

The following guidelines have been developed to assist in planning, allocating and managing space on the campus. These guidelines will assist the UHM community establish equitable, consistent, efficient and flexible planning parameters. They will provide guidance for both new construction and renovations to existing buildings.

The Planning Office has been given the responsibility to administer these guidelines and assist the campus community in their implementation and interpretation.

These guidelines represent a synthesis of similar guidelines at peer universities and national standards. Going forward, they will be continually reviewed and adapted to represent the uniqueness of the University of Hawaii. Therefore, this document should be considered a “living” document that will evolve over time to reflect the latest trends and methods.



## 2.0 FRAMEWORK

### 2.1 Application of Space Planning Guidelines

The guidelines defined in this document have been developed to assist the Planning Office and campus occupants in the efficient and effective planning for space needs. The guidelines will help ensure that space is allocated equitably across the campus and provide a prioritization framework for competing demands.

Given the unique needs of a campus environment, it is understood that these guidelines cannot be applied to all situations and must be flexible. These guidelines are not intended to imply entitlement to space or set rigid standards. Instead, they are meant to provide a starting point for the analysis of current space and the programming of new space.

#### a) Macro-level campus planning

While most users of space on the UHM campus are primarily concerned with space that is allocated to their department/school, The Planning Office is also concerned with the overall allocation of space types across the entire campus. This macro-level analysis allows the Planning Office to determine areas of need for the campus as a whole and to conduct “what-if” analysis relative to increases in enrollment, changes in programs of study, etc. The guidelines outlined in this document provide a basis for the office to conduct this type of analysis

#### b) Planning for new constructions and/or renovations

As requirements for new space or the renovation of existing space are identified, The Planning Office will use these standards in the initiation, feasibility and programming phases. These guidelines outline the expectations for classroom, office and lab/research space that UHM wishes to adhere to. It is understood that deviations from these guidelines will occur as unique situations arise.

#### c) Analysis of existing spaces

These guidelines should serve as a starting point for departments/schools that wish to analyze the suitability of the space they currently occupy. If an increase in enrollment or staffing is planned, these guidelines can help determine if the current space is being used in the most efficient manner possible and if additional space may be required.



## 2.2 Guiding Principles for Space Planning and Management

The following policies and guidelines should govern all space within the University and all the space it occupies.

- a) Space is a valued resource.

Space will be surveyed, managed, and allocated such as budget dollars or staff. Space will be a resource leveraged to achieve University goals and objectives.

- b) All space is owned by the University.

Space is University property to be allocated in a manner which best advances the University's priorities and mission.

Although space is allocated to the faculties, departments and specific users, all space is owned by The University of Hawaii. With this ownership, the University has the responsibility to keep this space in good order in terms of maintenance, services, cleaning, etc., and to provide the appropriate amount and type of space to approved University activities.

- c) Space will be used effectively.

Space needs of the University will be evaluated in the context of quantitative, functional and holistic considerations.

Each space allocated to a department or user shall be used efficiently in terms of space and time. Space will be reviewed periodically. If it is found to be used inefficiently and/or infrequently it may be reallocated for better use.

- d) Allocation and reallocation of space will be managed and/or monitored.

All requests for the assignment or reassignment of space will be evaluated by the Planning office so that all University needs can be balanced. Decisions for the assignment and reassignment of space will generally follow department organizational hierarchies or presented before the Campus Facilities Planning Board for recommendation.



## 2.3 Role of the Planning Office

The Planning office works to provide an integrated approach to facility planning and space allocation. As part of that mission, the office is responsible for the development and application of the space planning guidelines. These guidelines allow for departments/schools to analyze and plan the space they occupy or need. They can also be used to determine if there is a need to employ the services of the Planning office.

Summary of possible services:

- a) Space assessments and determination of need
  - Confirm and assess the current size, assignment, use, type, and utilization of space.
  - Evaluate the amount of space assigned compared to the amount of space needed.
  - Serve as consultant and advisor related to space.
- b) New recruit space consultations
  - Review facilities requested or needed for a potential recruit.
  - Evaluate and recommend space and location options for a potential recruit.
  - Serve as an internal consultant related to the suitability of an existing facility or the amount and quality of space for research to be performed by a potential recruit.
- c) Space programming and conceptual development
  - Explore, determine and document programmatic needs of a school, department or program.
  - Project type of facility and amount of space to accommodate these needs.
  - Explore conceptual space and plan options for how these needs might be accommodated.
  - In consultation with Facilities Management Office, provide rough budgetary allowances for options.
  - Advise with regard to options.



### 3.0 SPACE GUIDELINES

#### 3.100 Classroom Facilities (100's)

This category aggregates classroom facilities as an institution-wide resource, even though these areas may fall under different levels of organizational control. The term “classroom” includes general-purpose classrooms, but also lectures halls, recitation rooms, seminar rooms, and other rooms used primarily for scheduled non-laboratory instruction. Total classroom facilities include any support rooms that serve the classroom activity. A classroom may contain various types of instructional aids and equipment as long as these do not tie the room to instruction in a specific subject or discipline. (FICM Guidelines)

#### 3.110.1 Classroom

The table below provides a spatial guidelines for various types and sizes of classroom spaces. Actual space per station in a classroom may vary depending on the existing room configuration and type of furniture selected.

Table I. Classroom square footage guidelines.

<i>Type and Size (Capacity)</i>	<i>ASF/Station</i>	<i>Furniture Type</i>
<b>Collaborative/Problem-Based</b>		
<i>Spaces configured to facilitate group work within a classroom environment.</i>		
Small (up to 25 seats)	27	Tables and Chairs
Medium (26 to 50 seats)	25	Tables and Chairs
Large (51 seats and over)	25	Tables and Chairs
<b>Flat, Flexible</b>		
<i>Classroom spaces that can be easily and quickly reconfigured to accommodate different learning pedagogies.</i>		
Small (up to 25 seats)	25	Tables and chairs or Mobile tablet arm chairs
Medium (26 to 50 seats)	23	Tables and chairs or Mobile tablet arm chairs
Large (51 seats and over)	23	Tables and chairs or Mobile tablet arm chairs
<b>Tiered</b>		
<i>Tiered classrooms are spaces traditionally reserved for large lecture format classes that can be used more flexibility for engaged learning pedagogies if innovative furnishing and other design features are incorporated.</i>		
Medium (26 to 50 seats)	20	Fixed Surfaces and Seating
Large (51 seats and over)	17	Fixed Surfaces and Seating





### 3.110.2 Classroom- Sample Layouts

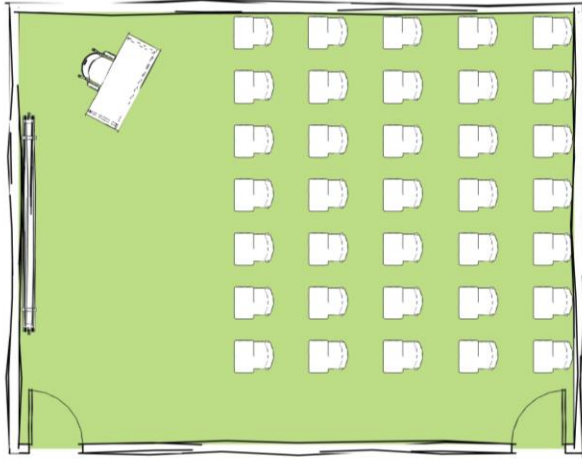


Figure 1. Flat, flexible with tablet arm chairs- 20 sf/station

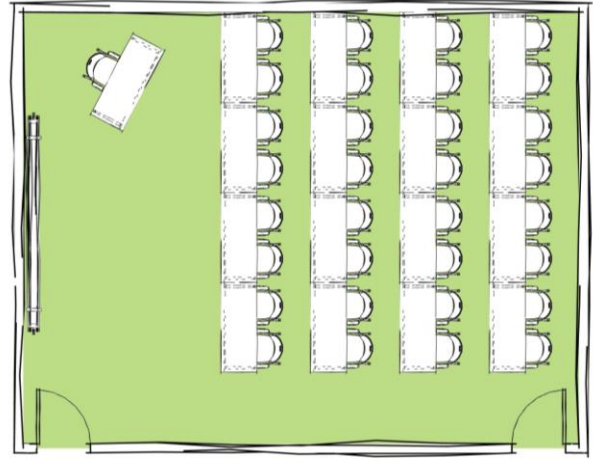


Figure 2. Flat, flexible with tables and chairs- 23 sf/station

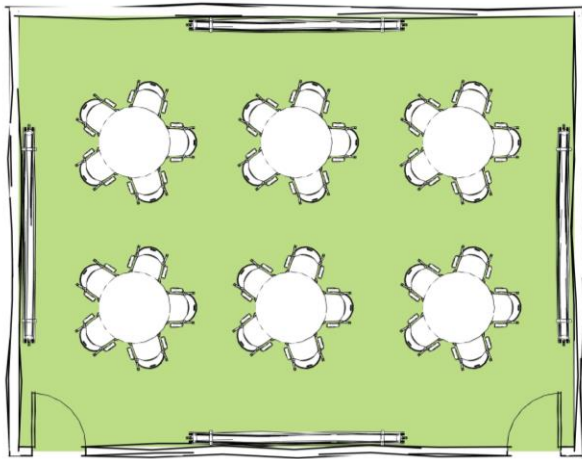


Figure 3. Collaborative/problem-based- 25 sf/station

### 3.110.3 Classroom- Productivity/Utilization

The Office of the Registrar has primary responsibility for the allocation and scheduling of classrooms. The Office of the Registrar will work with the Planning office to conduct regular classroom utilization studies to ensure the University has the appropriate amount, sizes and types of classrooms on campus.

The efficient utilization of classrooms is important due to the critical nature of these rooms, despite the low percentage of overall square footage they occupy on campus. Pressure on these spaces are consistent and their connection to the learning experience and effectiveness is strong.

There are two key components to our classroom productivity evaluation; 1) total weekly room hours and 2) room capacity. The available weekly room hours are assumed at (40) for each classroom and room capacity is the total number of students accommodated not including professors and/or teaching assistants. The time of day in which classes are scheduled is purposely omitted from the analysis. The reason for this was to minimize the perpetuation of peak usage pressures, view all hours as equally available, and simplify the analysis of classroom efficiency and resultant metric.



The metric is calculated as:

$$\frac{(\text{Weekly room hours} \times \text{by course enrollments})}{(\text{Room station count} \times 40 \text{ hours})}$$

“Theoretically, the numeric metric has a value between 0 and 1.000. But like baseball batting averages or SAT scores, the extreme values are likely not achievable in practice. No one bats 1.000; SAT scores range from 200 to 800. Even if every classroom is scheduled for 40 hours per week, no institution can perfectly match classroom sizes with section sizes. No institution can (or should) fill every seat in every classroom every time a class is scheduled. We have so far observed scores in the .200 to .800 range—with .800 likely representing operating at, or very close to, capacity.”<sup>1</sup>

The score can also be represented with an easy to read graphic. The field (gray) of the graph represents the entire capacity and hours available of a given classroom. The hours are represented on the x-axis and station count (capacity) on the y-axis. Scheduled classes (green) are then ordered from largest to smallest with duration on the x-axis and their enrollment on the y-axis.

The target utilization score for general use classrooms is between .500 and .700

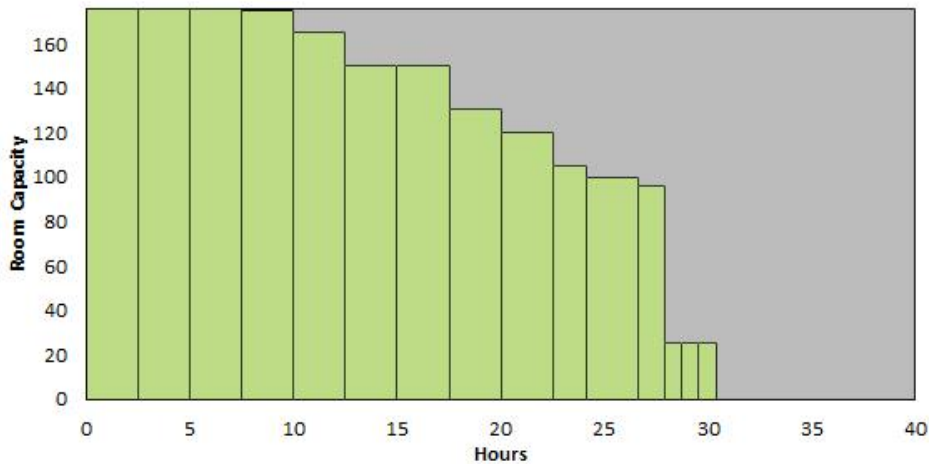


Figure 4. Sample classroom graph with a utilization score of .581.

<sup>1</sup> The University System of Georgia and Sasaki. *The University System of Georgia Space Utilization Initiative*, July 2013. Atlanta, GA.



### 3.110.3 Classroom- Supported Trends

The move toward flexible and collaborative instructional spaces is one that we support and encourage. While this approach requires more square feet per station, the institutional effectiveness is enhanced by these spaces.

Campus example: Sakamaki Hall



### 3.200 Laboratory Facilities (200's)

A laboratory is a facility characterized by special purpose equipment or specific room configuration, which ties instructional or research activities to a particular discipline or a closely related group of disciplines. These activities may be individual or group in nature, with or without supervision. Laboratories may be found in all fields of study and can be subdivided into three categories: class, open, and research laboratory (FICM Guidelines).

#### 3.210.1 Classroom Laboratory

This standard applies to “210” Class Lab space only. It is defined as a room used primarily for formally scheduled classes that require special purpose equipment or a specific room configuration for student participation experimentation, observation or practices in an academic discipline.

The table below outlines square feet per station guidelines for classroom laboratories based on the corresponding CIP categories. Actual space per station may vary depending on the existing room configuration and type of furniture selected.



Table 2. Classroom laboratory square footage guidelines.<sup>2</sup>

Group	2013 CIP Code	Major CIP Groups	ASF/Station
A	01 04 50	Agriculture, Agriculture Operations and Related Sciences Architecture and Related Services Visual and Performing Arts	65
B	03 14 15 21 46 47 48 49	Natural Resources and Conservation Engineering Engineering Technologies/Technicians Technology Education/Industrial Arts/Technology Education Construction Trades Mechanic and Repair Technologies/Technicians Precision Production Transportation and Materials Moving	55
C	09 10 11 19 26 32 40 41 42 51 60	Communication, Journalism and Related Programs Communications Technologies/Technicians and Support Services Computer and Information Sciences and Support Services Family and Consumer Sciences/Human Services Biological and Biomedical Sciences Basic Skills Physical Sciences Science Technologies/Technicians Psychology Health Professions and Related Clinical Sciences Dental, Medical and veterinary Residency Programs	45
D	05 12 13 16 22 23 24 25 27 28 29 30 31 33 34 35 36 37 38 39 43 44 45 52 53 54	Area, Ethnic, Cultural, and Gender Studies Personal and Culinary Services Education Foreign Languages, Literatures and Linguistics Legal Profess and Studies English Language and Literature/Letters Liberal Arts and Sciences, General Studies and Humanities Library Science Mathematics and Statistics Reserve Officer Training Corps Military Technologies Multi/Interdisciplinary Studies Parks, Recreation, Leisure and Fitness Studies Citizenship Activities Health-Related Knowledge and Skills Interpersonal and Social Skills Leisure and Recreational Activities Personal Awareness and Self-Improvement Philosophy and Religious Studies Theology and Religious Vocations Security and Protective Services Public Administration and Social Service Professions Social Sciences Business, Management, Marketing, and Related Support Services High School/Secondary School Diplomas and Certificates History	35

<sup>2</sup> Closely based on the Texas Higher Education Coordinating Board - Academic Space Projection Model. Fall 2013.



### 3.210.2 Classroom Laboratory- Sample Layouts

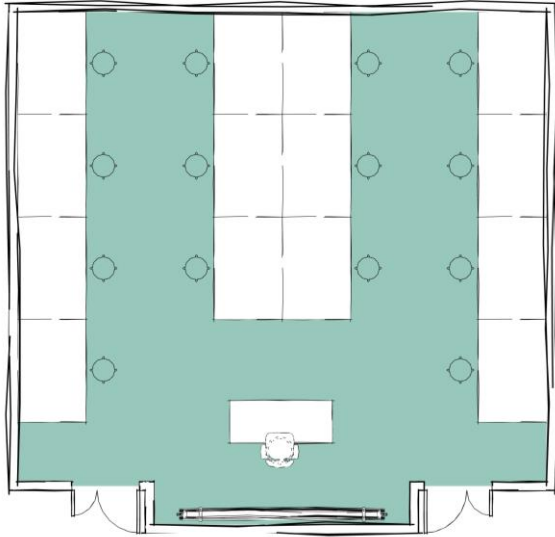


Figure 5. Classroom laboratory- 65 sf/station

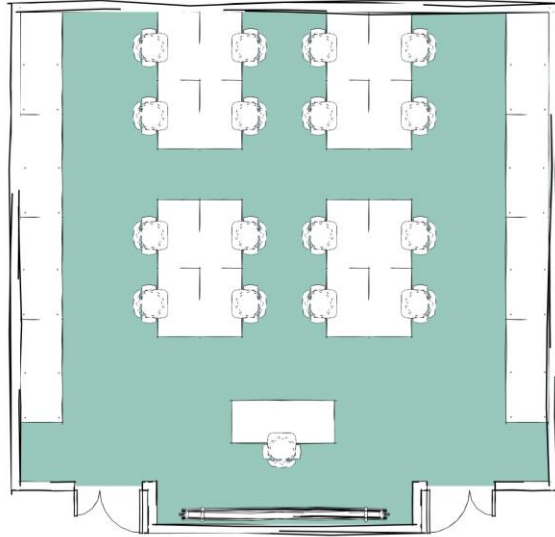


Figure 6. Classroom laboratory- 55 sf/station

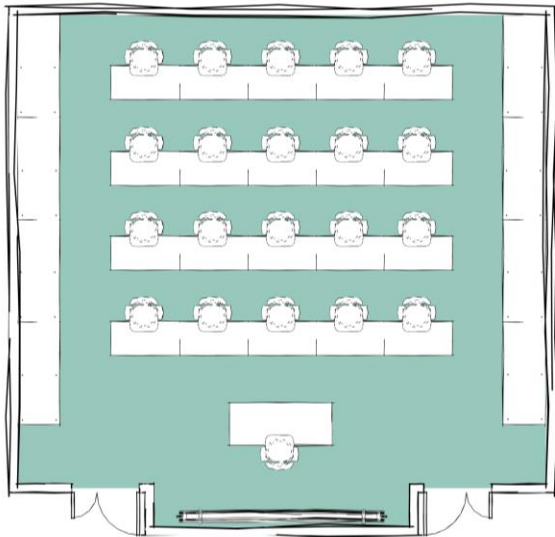


Figure 7. Classroom laboratory- 45 sf/station

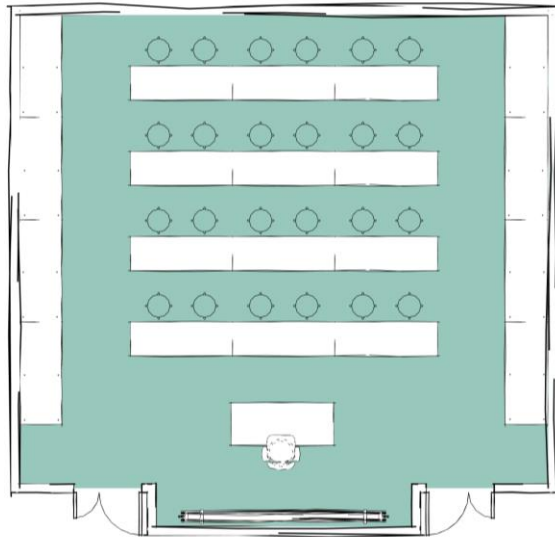


Figure 8. Classroom laboratory- 35 sf/station

### 3.210.3 Classroom Laboratory- Productivity/Utilization

The utilization metric for classroom laboratory spaces is calculated the same as for classrooms:

$$\frac{\text{(Weekly room hours multiplied by course enrollments)}}{\text{(Room station count x 40 hours)}}$$

The target utilization score for classroom laboratories is between .400 and .500.

Several factors result in a lower targeted utilization score as compared to general use classrooms. First, while station capacity will likely be higher than in general use classrooms the subject specific layout and equipment will lower its possible class hours. Second, there is a need to provide setup and cleaning time for certain laboratory and workshop spaces.



### 3.250.1 Research Laboratory

This standard applies to “250” Research Lab and “255” Research Lab Service space. It is defined as a room used primarily for laboratory experimentation, research or training in research methods; or professional research and observation; or structured creative activity within a specific program.

The allocation of research and laboratory space within schools and departments is typically determined by the department head in collaboration with the Dean. When additional space is needed and/or major renovations are requested for research functions, the UHM Planning Office will assist schools in defining the specific types of space required.

The following space guidelines focus on breaking apart the traditional laboratory module into its component pieces. The bench space comprises a bulk of the space allocation and is the heart of the laboratory. The write-up space is office style desk space for laboratory occupants to complete write

Table 3. Research laboratory square footage guidelines.

<i>Laboratory Occupancy</i>	<i>Bench</i>	<i>Write Up</i>	<i>Dedicated Support</i>	<i>Shared Support</i>	<i>Total NASF</i>
Single	625	50	50	50	775
Paired	475	50	75	100	700
Multiple	325	50	100	150	625





### 3.250.2 Research Laboratory- Sample Layouts

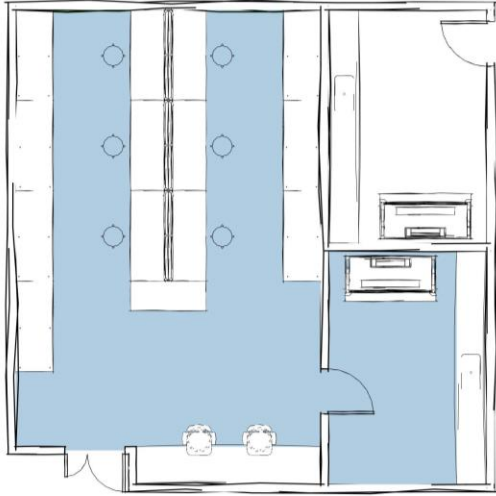


Figure 9. Research laboratory- Single

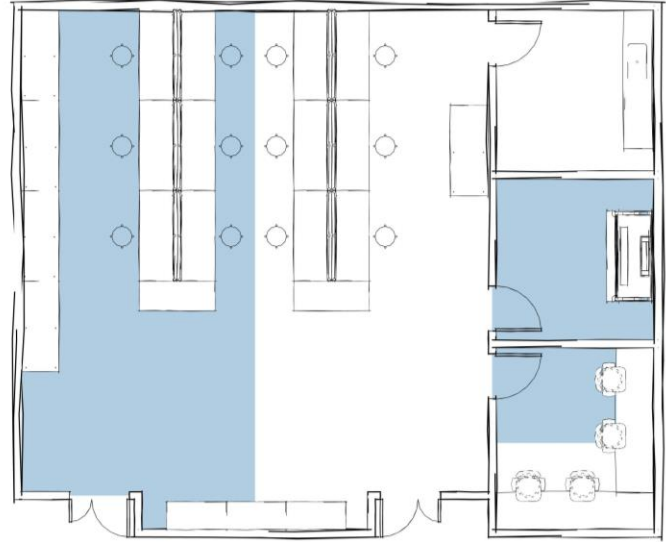


Figure 10. Research laboratory- Double

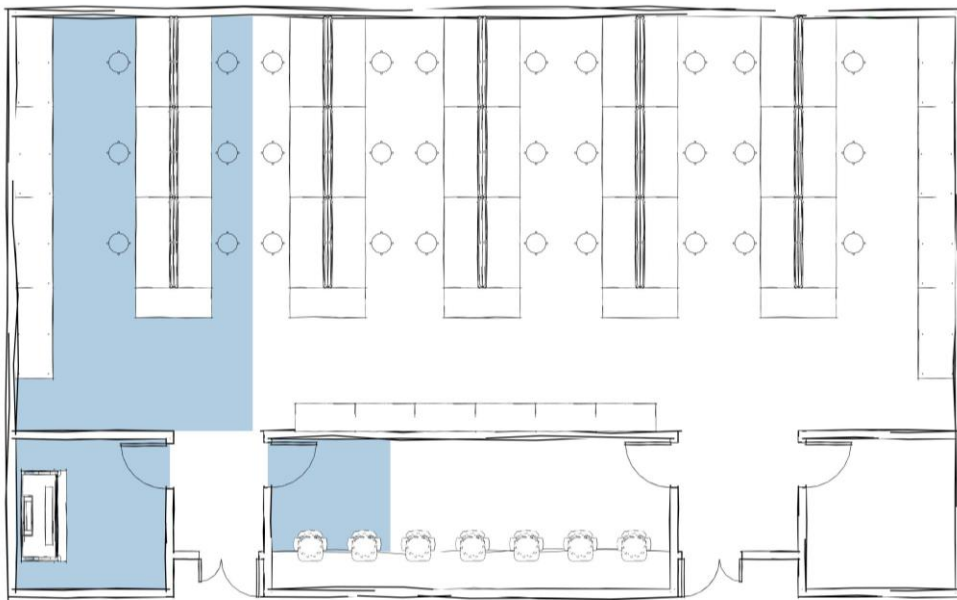


Figure 11. Research laboratory- Multiple

### 3.250.3 Research Laboratory- Productivity/Utilization

The responsible department has primary responsibility for internal allocation of their controlled research laboratory spaces. The department will work with the Office of Planning office to conduct regular classroom utilization studies to ensure the University has the appropriate amount, sizes and types of classrooms on campus.

The efficient utilization of research space is imperative to our University's success. Classified as having "very high research activity" according to the Carnegie Foundation classification, research space accounts for Therefore, it is essential that research space is appropriately allocated for productive use. The productivity of research laboratories is evaluated by three elements; a) allocated space, b) research dollars, and c) scholarly activity.

a) *Allocated space:*

The space allocated to Faculty conducting research shall align with the previously stated guidelines for research laboratories. The delta between actual and guideline allocation values is the measure of space efficiency.

b) *Research dollars:*

Research productivity is evaluated as the differential from a blended target of \$500 in costs (direct and indirect) per assignable square foot. Specific research needs may require larger or specialized spaces. These needs will be factored into space allocations.

c) *Scholarly activity:*

The importance, impact and nature of research, and relevancy to the academic mission of the University will be assessed. Scholarly activity such as publications, intellectual property, pending awards, etc., will be considered in the determination of effective use.

"Additional lab, office, and other space will be provided, given a reasonable use plan and a compelling need for growth, provided current space is effectively used. Effective use is a measure of productivity, which includes the consideration of extramural grant funds being generated proportionate to the square footage involved, as well as, scholarly activities. The following guidelines will be used as benchmarks in the determination of effective use. The total direct cost and indirect cost calculations are target goals for effective use."<sup>3</sup>

### 3.250.4 Research Laboratory- Supported Trends

The move toward large shared laboratory spaces is one we support and encourage. Efficiencies are gained in regards to infrastructure, space flexibility, and waxing/waning of grant activity, etc.

Campus example: Edmondson Hall

<sup>3</sup> Significant alignment with JABSOM Central Business Office Procedure: 2.2 *Research Space Utilization Procedure*



### 3.300 Offices (300's)

This category includes rooms that are used as individual, multi-person or workstation space that is used by faculty, staff or students when working at one or more desks, tables or workstations. It also includes service support rooms for those offices as well as conference rooms and their service/support rooms.

The assignable square feet (ASF) guidelines represent the standard that The University of Hawaii strives to achieve for each category. For existing buildings, it is understood that predefined configurations impact the ability to adhere to these guidelines. For new buildings, these guidelines will represent the standard for programming new space. Sample layouts are included as a demonstration and not as a guarantee or expectation of exact dimensions and furnishings.

Applies to all office spaces: “310” Office and “315” Office Services.

#### 3.310.1 Office

The table below provides a range of guidelines for different types and sizes of office allocations. Actual space per person may vary depending on the existing room configuration and type of furniture selected.

Table 4. Office square footage guidelines.

	<i>Position</i>	<i>Private Office</i>	<i>Shared Office</i>	<i>Workstation</i>	<i>Net Assignable Square Feet</i>
Administrative	Vice Chancellor	X			225
	Associate/Assistant Vice Chancellor	X			200
	Dean	X			200
	Associate/Assistant Dean	X			175
	Department Head/Chair	X			175
Academic	Faculty- Tenure/Tenure Track	X			120
	Faculty- Adjunct/Lecturer	X	X		80
	Post-Doctoral Student		X	X	64
	Graduate Student			X	48
	Researcher			X	48
Professional	Director	X			140
	Manager	X	X		120
	Professional Staff, Administrative		X	X	80
	Professional Staff, Technical		X	X	80
	Administrative Support, Clerical			X	64
	Temporary Staff/Student			X	25



**3.310.2 Office- Sample Layouts**

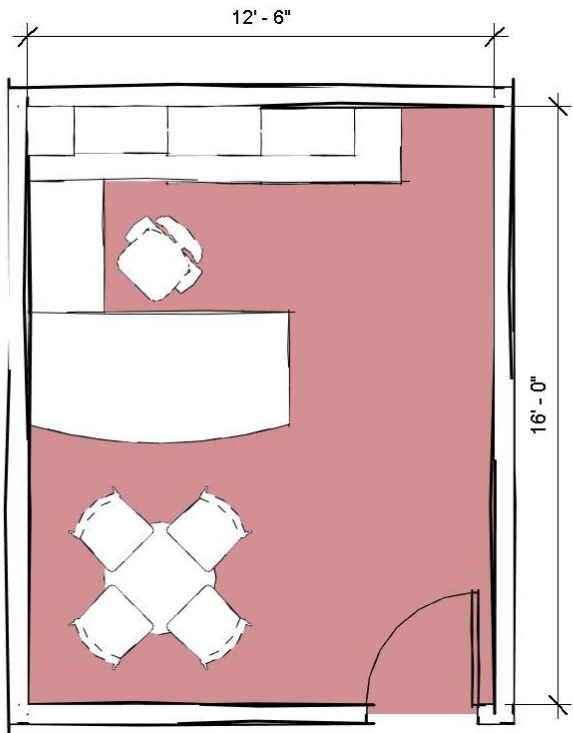


Figure 12. Office- 200 sf

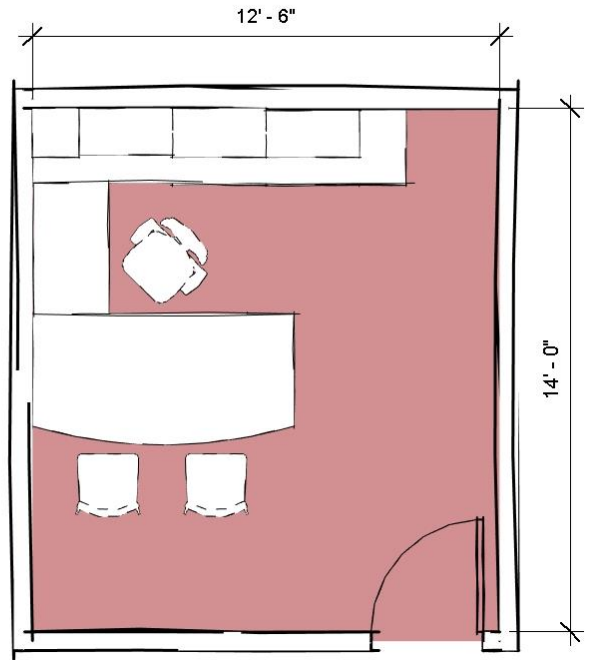


Figure 13. Office- 175 sf

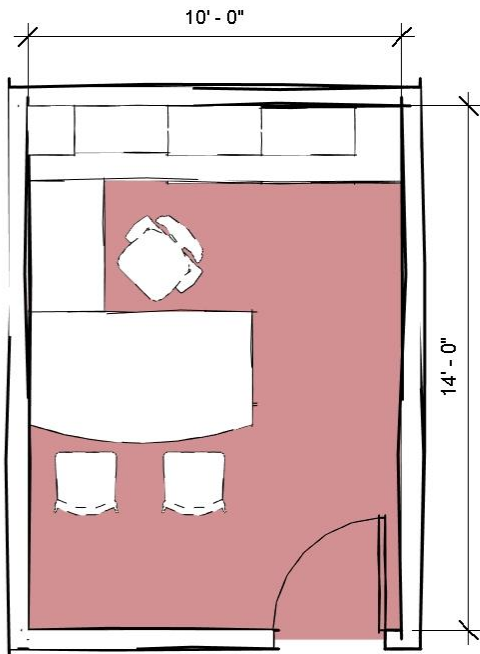


Figure 14. Office- 140 sf

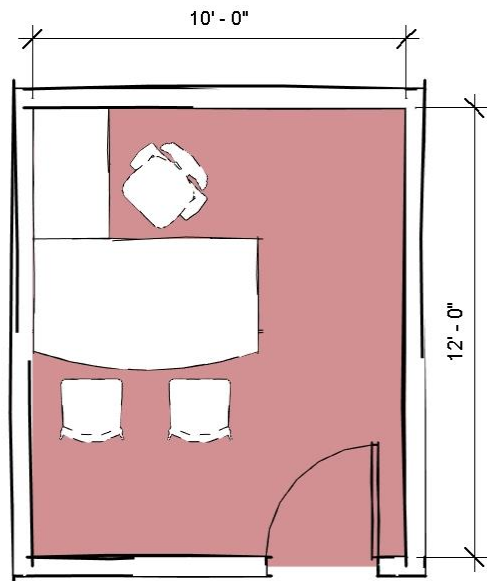


Figure 15. Office- 120 sf



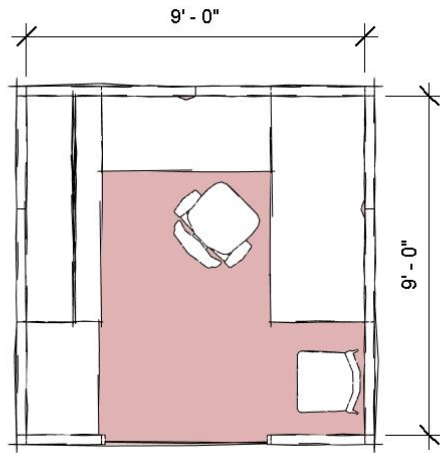


Figure 16. Workstation- 80 sf

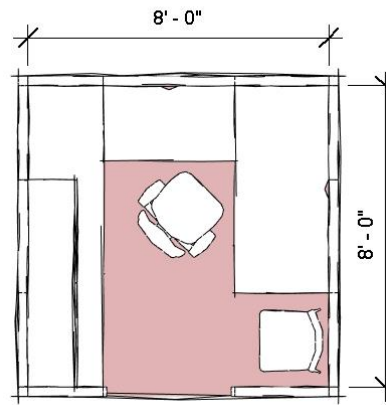


Figure 17. Workstation- 64 sf

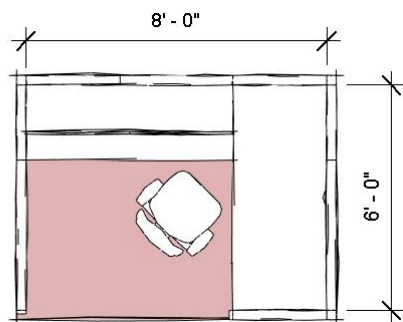


Figure 18. Workstation- 48 sf

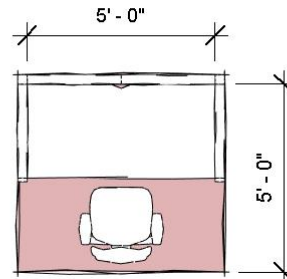


Figure 19. Workstation- 25 sf

### 3.310.3 Office Productivity/Utilization

Office productivity is best measured as the differential between the guideline sizes and actual square footage.

### 3.310. Office- Supported Trends

The move toward workstation based spaces is supported. Office spaces utilizing a larger degree of workstations offer flexibility and equity amongst their occupants.

Campus example: IT Center



### 3.315.1 Office Service

Offices services represent room(s) that directly serves an office or group of offices as an extension of the activities of those rooms. This includes file rooms, break rooms, kitchenettes serving office areas, copy rooms, office supply rooms, etc. The space requirements for office services can vary depending on the type of work being performed and the availability of other spaces in the surrounding area.

As a general rule, The Planning Office recommends using the following calculation to estimate common office services elements according to faculty and staff full time equivalents (FTE).

Table 5. Office service square footage guidelines.

<i>Position Type</i>	<i>Space Type</i>	<i>ASF per staff #</i>
Administration	Conference Room	30
	Service Area	20
Academic	Conference Room	30
	Service Area	20
Professional	Conference Room	20
	Service Area	10

### 3.350.1 Conference Room

For conference rooms use 25 nsf per seat to determine total size.

### 3.350.2 Conference Room Sample Layouts



### 3. WWW Circulation

“Determining an organization’s space needs typically begins by itemizing the various space types, their area, and quantity. The subtotal of this calculation, also known as Net Area, is then adjusted to take into account pathways leading to and in-between the different types of spaces. This is accomplished by applying a Circulation Multiplier, which takes the form of 1.## (e.g., 1.50), to the Net Area. The resulting subtotal becomes the total Usable Area for the organization and forms the starting point in the design and planning for a new workplace.”<sup>4</sup>

The range of Circulation Multiplier we recommend is between 1.4 - 1.6.

This results in a circulation factor between 29% and 38% of the total net Usable Area.

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<sup>4</sup> GSA and Gensler. *Circulation: Defining and Planning*. Washington, DC. May 2012.

