TENNESSEE
HIGHER EDUCATION COMMISSION

SPACE ALLOCATION GUIDELINES
USER'S MANUAL

REVISED 2013

THEC

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Creating Campus Solutions

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INTRODUCTION

This User's Manual accompanies an Excel spreadsheet, ***THEC - Space Allocation Guidelines - Data Input and Calculation Spreadsheet***. This spreadsheet is used by THEC to collect data pertinent to THEC's *Space Allocation Guidelines* from each THEC constituent.

The Guidelines pertain to E&G space only. All data that you input should be limited to E&G only, so for example, staffing data should represent E&G employees only.

The spreadsheet is divided into the seven "parts", each part representing a category of space use:

Part	Space Use Category	FICM
I	Classroom	100
II	Teaching Laboratory and Studio (scheduled)	210/215
III	Open Laboratory and Studio (unscheduled)	220/225
IV	Research Lab	250/255
V	Office	300
VI	Library, Study, and Information Commons	400
VII	Physical Education and Recreation Space	520/523/525

This manual parallels the structure of the spreadsheet. Each part of the manual also explains the THEC guideline for that particular space category. There are three spreadsheet templates: UT & TBR, CC, and TTC. The technology center (TTC) manual is shown in a separate chapter following the universities and community colleges (see Table of Contents).

FICM Space Use Categories

The THEC Guidelines uses the *Facilities Inventory Classification Manual* (*FICM*) to categorize space use. The system was derived in the 1970's when the Federal Department of Education required colleges and universities to respond to the Higher Education General Information Survey (HEGIS), and most institutions adopted the nomenclature for their own facilities inventory. The HEGIS taxonomy was updated in 2006 by the National Center for Educational Statistics. THEC uses the FICM taxonomy, as it is an essential element in promoting consistency of space use data across institutions.

Centrally scheduled classrooms, seminar rooms, and lecture rooms are all classified as FICM 110, and any room that supports these spaces (storage, media, etc) are classified as FICM 115.

Centrally scheduled teaching laboratories and studios are classified as FICM 210, and any room that supports these spaces (storage, prep rooms, balance rooms, environmentally controlled rooms, stockrooms, etc.) are classified as FICM 215.

Open laboratories and studios - those spaces that are not scheduled by the Registrar but are available for student use throughout the day and evening are classified as FICM 220, and usually include open computer labs, music practice rooms, language labs, writing labs, and other discipline specific unscheduled spaces. Spaces that support this category are classified as FICM 225.

THEC/ TBR codes 230 / 235, Individual-Study Laboratory, are considered to be equivalent to FICM 220 / 225 for purposes of the THEC Guidelines. TBR is phasing out 230 / 235.

Research labs and support are classified as FICM 250 and 255.

Offices are classified as FICM 310 while office support space is categorized as FICM 315. Conference rooms are categorized as FICM 350 and 355.

Library space, study space, and information commons spaces are all in the FICM 400 category.

Physical Education space is the E&G portion of FICM 520, 523, and 525. It does not include intercollegiate athletic space, which is not covered by THEC guidelines.

Definition of Net Assignable Square Feet (NASF)

All of the square foot data, whether provided by the institution or generated in the model, are net assignable square feet (NASF). FICM describes NASF as follows:

> A. Definition. The sum of all areas on all floors of a building assigned to, or available for assignment to, an occupant or specific use.
>
> B. Basis for Measurement. Net Assignable Area is computed by physically measuring or scaling measurements from the inside faces of surfaces that form the boundaries of the designated areas. Exclude areas having less than a 3-foot clear ceiling height unless the criteria of a separate structure are met. (See section 2.3, What to Include in a Building Inventory.) Measured in terms of Net Assignable Square Feet (NASF), NASF = Sum of Areas Designated by the 10 Assignable Major Space Use Categories
>
> C. Description. Included should be space subdivisions of the 10 major space use categories for assignable space—classrooms, labs, offices, study facilities, special use, general use, support, health care, residential, and unclassified—that are used to accomplish the institution's mission.

D. Limitations. Deductions should not be made for necessary building columns and projections. These small areas are excluded as they represent an insignificant percentage of the total area of an average-sized space. Capturing their area would be unduly burdensome relative to the very small contribution they would make toward precision. Areas defined as building service, circulation, mechanical, and structural should not be included.

There is confusion in the FICM description of circulation space and how to count it - whether it should be treated as non-assignable space or whether it should be classified as office support, FICM 315. The FICM definition for circulation is:

A. Definition. The sum of all areas on all floors of a building required for physical access to some subdivision of space, whether physically bounded by partitions or not.
B. Basis for Measurement. Circulation Area is computed by physically measuring or scaling measurements from the inside faces of surfaces that form the boundaries of the designated areas. Exclude areas having less than a 3-foot clear ceiling height unless the criteria of a separate structure are met.

C. Description. Included should be fire towers, elevator lobbies, tunnels, bridges, and each floor's footprint of elevator shafts, escalators, and stairways. Also included are public corridors or walkways, whether walled or not, provided they are either within the outside face lines of the buildings to the extent of the roof drip line or, if covered, to the extent of their cover's drip line. Receiving areas, such as loading docks, should be treated as circulation space. Any part of a loading dock that is not covered is to be excluded from both Circulation Area and Gross Area.

D. Limitations. Deductions should not be made for necessary building columns and minor projections. These small areas are excluded as they represent an insignificant percentage of the total area of an average-sized space. Capturing their area would be unduly burdensome relative to the very small contribution they would make toward precision. When determining corridor areas, only spaces required for public access should be included. Restricted access private circulation aisles used only for circulation within an organizational unit's suite of rooms, auditoria, or other working areas should not be included. A loading dock or a portion thereof that is also used for central storage should be regarded as assignable area and coded as Central Storage (730).

The problem is the definition described in *D. Limitations*, above. A better definition of circulation space is: if the circulation space serves more than one assignable occupied space, and has no other purpose than to serve as a conduit to another space, then it is assigned to circulation space and not office support (315) space.

Please see the definitional diagrams that are included in the Appendix.

Using the *Data Input and Calculation Spreadsheet*

Upon receiving the spreadsheet from THEC, the institution should create a backup of the blank spreadsheet. Make sure the institution name is correct at the top of the spreadsheet. If the data pertains to a particular campus or satellite, label it here.

The spreadsheet uses color-coded cells to indicate where data is to be entered. In all cases, the spreadsheet is arranged with pink cells indicating the THEC guidelines and blue cells indicating where institutional data is to be entered.

Change shaded cells only:		
blue	Data inputs (institutions)	
salmon	Guidelines / planning inputs (THEC)	

Only THEC should make changes to the pink cells, and only when official changes are made to the Space Guidelines. The exception is the inflation factor in **Part IV Research**, which needs to be updated each year, even if there are no other changes to the guidelines. Institutions enter their data in the blue cells. *No changes should be made to any other cells, since doing so could disrupt calculation formulas.* The spreadsheet calculates results automatically as each part's data is entered.

Institutions with satellite campuses should treat these campuses individually. Some consideration for sharing of resources may need to be applied, since most satellite campuses do not operate with complete independence from the main campus. Two resources that are most commonly affected by satellite campuses are the library and physical education. To what extent should they be present on the satellite campus and what is their nature?

The THEC Guidelines are established for data input for the current year. The Guidelines can also be used for informing the campus planning process and should be run a second time using future projections for student enrollment, faculty, and staff. This second run of the Guidelines does not eliminate the need for the detailed analysis that should be included in any campus plan, but it does provide a starting point for the space planning portion of the master planning process.

There is also a space model that will allow simple projections based solely on enrollment increase. This projection model will allow quick "what if" studies based on various enrollment projections. The projections will reflect the same classroom, classlab, and schedule ratios as the base model. When a Master Plan process is ongoing at a campus, the basic THEC Space Guideline model should be run with the appropriate classroom and classlab schedule projections.

INSTRUCTIONS FOR UNIVERSITIES AND COLLEGES

ENROLLMENT DATA

This part of the spreadsheet collects enrollment data that is used in Parts III, VI, and VII below.
For Universities, enter on-ground FTE and headcount, online FTE, and a headcount of students living on campus.

Enrollment Data		
Students	FTE	Headcount
On-ground	22,613	26,005
Online	2,513	
Living on campus		1,830

For colleges, enter on-ground and online FTE.

Enrollment Data	
Students	FTE
On-ground	1,994
Online	758

Data to Use

1. Enrollment FTE and headcounts should be consistent with Fall data reported to THEC.
2. The same enrollment figures are used in Parts III, VI and VII, but need to be entered here only.

PART I - CLASSROOM

Calculation Spreadsheet: Classroom Space

This part of the spreadsheet generates the number of classrooms and their net assignable square footage (NASF) based upon data input from the Registrar's course file. There are two columns of data to enter: the number of sections by size of section, and the associated number of weekly classroom hours.

Data to Use

1. From the Registrar's course schedule, the institution should select one week that, to the extent that is practical, represents peak classroom usage. The week should be after drop/add so that enrollments are stable. The data should include any scheduled course including continuing education.
2. This week does not have to be the same week used for Part II Laboratory and Studio, although institutions may find it impractical to use different weeks.
3. The data should represent actual usage of classrooms, e.g. it should not include courses that never met due to cancellation.
4. For Part I, the data should include course sections that have scheduled meetings in classrooms, seminars, and lecture halls (FICM 100 spaces), as well as *lecture-based* courses that meet in spaces classified as auditoria (FICM 610), and conference rooms (FICM 350). Course sections that are not lecture-based and do not meet in a classroom (such as an Acting course that meets in an auditorium) should not be counted.
5. The data should not double-count course sections that will be included in Part II Laboratory and Studio.
6. Institutions should also be careful not to double-count hours for cross-registered courses, or any similar situation where multiple sections are scheduled in the same space at the same time. However, when calculating enrollments, the sum enrollment of all sections meeting in the same space at the same time should be used.
7. **For both Parts I and II**, the data should ***exclude*** course sections that meet:
    - off-campus (i.e. facilities not owned or leased by the institution)
    - outside
    - in offices (usually faculty offices)
    - informally, such as independent study
    - in athletic facilities (FICM 520, 523, and 525)
    - Institutions should be wary of counting hours for meetings with very small enrollments (1-2 students) that are scheduled to meet in classrooms. Often these entries are either erroneous or informally moved to the instructor's office.
    - Computer classrooms are, in fact, laboratories and should be counted as such in both the facilities inventory and the course file.
    - Any section that begins before 7 AM or after 5 PM should be excluded.
    - Saturday and Sunday sections should be excluded.

A typical course file includes the following necessary fields for analysis (same for both Classroom and Lab guidelines):

- Building
- Room
- Days (MTWRF)
- Start Time
- End Time
- Start Date
- End Date
- Enrollment
- Subject
- Course
- Section
- Faculty Name
- CIP Code (Labs only)

This information is used to generate the data that is entered into the blue cells as shown in **Table 1** below. Essentially, the data required are the number of sections distributed by section size, and the number of weekly classroom hours by size. This data automatically generates the amount of space using THEC's current guidelines:

- Classrooms will be scheduled for 30 hours per week *on average* for the day program, or for 17 hours per week on average for the evening program. The day program time window is 7 AM to 5 PM and this indicates *start times.* This means that any course that starts between 7 AM and 5 PM inclusive should be considered for the day program – even if it goes beyond 5 PM. The institution should determine which session, day or evening, generates the greater amount of need for classroom space. This could be done by using the spreadsheet to enter day data and then evening data and recording the results for each. Institutions with very limited evening programs can choose to forgo this comparison.
- Average seat utilization rate should be 60%. The spreadsheet automatically takes this rate into account, so that, for example, section sizes of from 9 to 14 students will require a room with 20 seats. The amount of space per seat varies by the number of seats in a classroom. For the smaller rooms, this number represents the midpoint between space per station for a tablet-arm and table-and-chair arrangement.
- Average NASF per station varies by classroom size as shown in **Table 1** on the following page.

Table 1 – Classrooms

Part I – Classrooms		
Class Size	# of sections	Weekly CR Hours
1-8	423	1,324
9-14	439	1,351
15-20	596	1,764
21-26	1,064	3,512
27-32	361	1,092
33-47	511	1,573
48-74	190	564
75-126	71	213
127+	58	174

Sta util = 60% (fixed) **Hrs per week:** 30 Institutions enter 30 hrs for Day or 17 for Evening.

Classroom Stations	NASF / Sta	NASF per CR	Number of CRs	Total NASF
12	26	312	45	14,040
20	25	500	46	23,000
30	21	630	59	37,170
40	18	720	118	84,960
50	18	900	37	33,300
60	18	1,080	53	57,240
100	17	1,700	19	32,300
150	16	2,400	8	19,200
275	14	3,850	6	23,100
			Total CR NASF:	**324,310**

In the example above in **Table 1**, there are 423 sections that vary in size from 1 to 8 students. These sections with 1 to 8 students will require a room of 12 seats at an average seat utilization of 60%. The spreadsheet will automatically choose a square foot multiplier depending on the number of seats.

For 12 seats (or stations) 26 NASF per seat is selected, and the room will be 312 NASF (12 x 26).

Dividing the weekly classroom hours (1,324 hours is the total amount of scheduled classroom contact time for the 1 to 8 student sections) by the 30 hour average that a room should be scheduled, indicates a need for 44.13 rooms – rounded up to 45 rooms. At 312 NASF, the total amount of space required for rooms of this size is 14,040 NASF.

Classroom Space Guidelines

There are three ways to measure how classrooms are used:

- the number of hours per week that the room is scheduled
- the proportion of seats that are filled when the room is scheduled
- the amount of space allocated to each student station

Classroom Utilization – Hours per Week

Classrooms, because they are generic, should be scheduled more fully than laboratories and studios. If we assume a 7:00 AM to 5:00 PM window, then 50 hours are available per week for scheduling.

The Guidelines recognize that not all institutions have this scheduling window. Some colleges and universities reserve certain times during the day for meetings, special programs and events, or other activities so that fewer than 50 hours are available - typically, it is a 40 to 45 hour period for scheduling.

Using a typical week of 45 hours, the Guidelines recommend a utilization rate of 67 percent — or 30 hours per week.

For those institutions with strong evening programs and a heavy scheduling pattern in the evening, i.e. 5:00 PM until 9:00 PM, a window of 25 hours per week is available for scheduling. The same 67 percent utilization rate would apply and the guideline would be 17 hours per week.

Sometimes, the evening program generates a greater need for classroom space than the day program. The institution should run the calculations for both scenarios to see which generates the greater need for space.

Classroom Utilization – Percent of Seats Occupied
The second measure for classrooms focuses on the percent of seats that are occupied when the room is scheduled. Most of the state guidelines call for an average of 60 percent occupancy. Since this is an average, some rooms will have less, others more. This rate gives the Registrar some flexibility in scheduling and recognizes the mismatch in section size and classroom size.

On a typical campus, the smaller classrooms usually have a higher percent of the seats occupied while the larger spaces, large lecture rooms and auditoriums, usually have a lower rate.

Classroom Utilization – Space per Seat
The amount of space allocated to a classroom seat is dependent on the number of seats, the furniture, and the layout of the space. The area per seat in a classroom is less as the number of seats increases. The reason is the prorated amount of space for circulation and for front-of-the room functions is shared by more seats.

Table 2 shows the amount of space per seat, in net assignable square feet (NASF), for two types of room layouts: a room with tables and chairs, and a room with tablet-arm seating. The NASF also varies by the number of seats. As mentioned above, the more seats, the less space per seat is required. For planning targets, an average NASF, shown in the last column, can be used. The spreadsheet is set to use the average of the square foot multipliers for table and chair and tablet-arm.

Table 2: Classroom Square Foot Multipliers

Room Capacity	NASF/Seat Tables & Chairs	NASF/Seat Tablet-arm Chairs	Average NASF Per Seat
10 – 19	25 – 35	20 – 22	**26**
20 – 29	25 – 35	18 – 20	**25**
30 – 39	20 – 30	16 – 18	**21**
40 – 49	18 – 22	14 – 16	**18**
50 – 59	18 – 22	14 – 16	**18**
60 – 99	18 – 22	14 – 16	**18**
100 – 149	16 – 20	12 – 14	**17**
150	14 – 18	10 – 12	**16**
275	14 – 18	10 – 12	**14**

PART II - TEACHING LAB AND STUDIO (Scheduled)

Calculation Spreadsheet: Teaching Lab and Studio Space

This part of the spreadsheet generates the number of teaching labs and studios and their net assignable square footage. The concept for deriving the amount of space required is similar in concept to the classroom model, but different in detail.

This part of the spreadsheet also uses data available from the Registrar's course file. In this case, there are three columns of data to enter:

- number of sections by discipline (disciplines are grouped into five different categories – each with their own square foot multiplier)
- number of weekly lab and studio hours
- total enrollment for these sections.

Data to Use

1. From the Registrar's course schedule, the institution should select one week that, to the extent that is practical, represents peak lab and studio usage.
2. This week does not have to be the same week used for Part I Classroom, although institutions may find it impractical to use different weeks.
3. The data should represent actual usage in labs and studios, e.g. it should not include courses that never met due to cancellation.
4. For Part II, the data should include course sections that have scheduled meetings in laboratories and studios (any FICM 200 spaces) including open labs and studios (FICM 220/230) and research labs (FICM 250).
5. The data should not double-count course sections already included in Part I Classroom.
6. Institutions should also be careful not to double-count hours for cross-registered courses, or any similar situation where multiple sections are scheduled in the same space at the same time. However, when calculating enrollments, the sum enrollment of all sections meeting in the same space at the same time should be used.
7. **For both Parts I and II**, the data should ***exclude*** course sections that meet:
    - off-campus (i.e. facilities not owned or leased by the institution)
    - outside
    - in offices (usually faculty offices)
    - informally, such as independent study
    - in athletic facilities (FICM 520, 523, and 525)
    - Computer classrooms are, in fact, laboratories and should be counted as such in both the facilities inventory and the course file.
    - Any section that begins before 7 AM or after 5 PM should be excluded.
    - Saturday and Sunday sections should be excluded.
8. When multiple sections meet in the same space at the same time, and the registration information spans course level or discipline type, the meeting should be attributed to the category that is more space intensive. For example, if a meeting incorporates both

lower- and upper-division sections, assume it is upper division. If it incorporates both Category B and Category C sections, assume it is Category C. Do not double-count.

9. If a CIP code falls into two lab categories, use the larger multiplier.
10. If a course meets in a classlab because no classroom was available, it should be considered a classroom. If the pedagogical objective includes both classroom and classlab activities in the same hour it should be considered a classlab.

This information is inserted into the appropriate blue cell and the amount of space is automatically generated.

In part of the spreadsheet the guidelines differentiate the lower division (100- and 200-level courses) from the upper division and graduate level (300+-level courses) to reflect different expectations of lab and studio use. The guideline for the day program is that labs and studios are scheduled, on average, for 20 hours per week for the lower division; labs and studios are scheduled for 15 hours per week for the upper division and graduate level, assuming a 45 hour scheduling window. The difference takes into account set-up and take-down time for experiments, leaving experiments up for long periods of time, the increased complexity of instrumentation and equipment, and the need for students to work within the lab beyond the scheduled timeframe.

There is also a slight difference in the guideline for the average percentage of stations occupied: 80% and 75%.

In **Table 3** on the following page, in the example for *Discipline E*, 48 sections have a total enrollment of 1,040 students. The model automatically divides 1,040 by 48 to derive the average section size of 22. Twenty-two students represent an average of 80% of capacity – so that the lab or studio is sized for 28 stations.

Table 3 – Teaching Labs and Studios

Part II - Scheduled Labs and Studios Lower Div (100+200 level)			
Discipline	# of sections	Weekly Lab Hours	Total Enrollment
A	48	101	1,040
B	30	159	360
C	29	128	772
D	24	118	345
E	86	200	2,760

Upper Div + Grad (300+ level)			
Discipline	# of sections	Weekly Lab Hours	Total Enrollment
A	61	166	744
B	97	97	1,316
C	58	256	613
D	16	74	152
E	49	180	882

Sta util:	80%		Hrs per week:	20				
Section Size	Stations per Lab	NASF / Sta	NASF per Lab	Number of Labs	Lab+Studio NASF	Support Allocation	Support NASF	Total NASF
22.0	28	150	4,200	6	25,200	40%	10,080	35,280
12.0	15	100	1,500	8	12,000	35%	4,200	16,200
27.0	34	75	2,550	7	17,850	30%	5,355	23,205
14.0	18	60	1,080	6	6,480	25%	1,620	8,100
32.0	40	40	1,600	10	16,000	20%	3,200	19,200
				Total Lower Div NASF:	77,530		24,455	**101,985**

Sta util:	75%		Hrs per week:	15				
Section Size	Stations per Lab	NASF / Sta	NASF per Lab	Number of Labs	Lab+Studio NASF	Support Allocation	Support NASF	Total NASF
12.0	16	150	2,400	12	28,800	40%	11,520	40,320
14.0	19	100	1,900	7	13,300	35%	4,655	17,955
11.0	15	75	1,125	18	20,250	30%	6,075	26,325
10.0	14	60	840	5	4,200	25%	1,050	5,250
18.0	24	40	960	12	11,520	20%	2,304	13,824
				Total Upper Div NASF:	78,070		25,604	**103,674**

Grand Total Scheduled Lab and Studio NASF: 205,659

The size of the space is generated by the number of stations (in this case 28) multiplied by a square-foot-per-station factor that is determined by the category of disciplines. The number of labs is determined by dividing the weekly lab/studio hours by 20 hours (or 15 hours) – which is then multiplied by the size of the space to obtain the NASF allocation.

Laboratory and Studio Support

Laboratory and studio support space (storage areas, prep rooms, instrumentation spaces, autoclave rooms, stockrooms, cold rooms, etc.) varies from an additional 40% to an additional 20% depending on the discipline category of the labs.

Teaching Lab and Studio Space Guidelines

Like classrooms, the same measures apply. Laboratory and studio utilization is a measure of time that a room is scheduled during a typical week. Station utilization is the proportion of laboratory stations that are occupied when the lab is scheduled. Square feet per station is the amount of space allocated to a student's work area. However, the guideline for laboratory and studio utilization is significantly different from that for classroom utilization.

Labs are scheduled for fewer hours than the 30 hours per week that are expected for classrooms because of lab set-up time, the expectation that students will work in the lab beyond the scheduled timeframe, the need for specialized equipment, and to protect one lab from contamination from another. Furthermore, lab hours are specific to a discipline and course, and are not the generic classroom hour where any classroom hour is interchangeable with another and any classroom can be scheduled as long as it is the proper size.

The percentage of stations that are occupied can be higher for labs than for classrooms because section size can be mandated, and because lab space is expensive and a more efficient utilization is important.

The number of students in a lab section should be set by the discipline and by several factors including pedagogy, safety, complexity of the activities, and whether the students will work in small groups or individually. Some courses may enroll relatively few students because of the nature of the course and the discipline, while introductory courses may be relatively large. Research has shown that labs with more than 24 stations have an increased level of accidents over those with fewer stations.

The recommended NASF per station varies by discipline as well as within the discipline, and between lower division and upper division.

Teaching Laboratory Utilization – Hours per Week
For a typical week, the Guidelines recommend a utilization rate of 20 hours per week for lower division courses and 15 hours per week for upper level labs. The second utilization rate is in recognition of the fact that not all labs can be scheduled at the same level of intensity. The lower rate for advanced labs is based on the expectations that these students will be required to continue their lab work beyond the scheduled time, that experiments will extend over more than one lab period, that the lab will require special equipment and setup, and that the work may need to be separated from other courses to prevent contamination of experiments.

Teaching Laboratory Utilization – Percent of Seats Occupied
The second measure for teaching labs focuses on the percent of stations that are occupied when the lab is scheduled. Most of the state guidelines call for 80 percent station utilization. Rather than one guideline, however, two are recommended: 80 percent for lower division courses and 75 percent for upper division courses.

Teaching Laboratory Utilization – Space per Seat
The amount of space allocated to a laboratory station varies according to discipline category. See Table 4.

Table 4 shows multipliers by the five discipline categories that apply to universities and community colleges.

Table 4: Teaching Lab and Studio Multipliers - Universities and Community Colleges, with CIP Codes				
Category A	**150 NASF / Station**	14.02 Aeronautical, Aviation & Aerospace Automotive 46 Construction	14.17,15.06 Industrial Machinery and Equipment 14.19 Mechanical Engineering 15.0611 Metal, Shop, & Welding	Power and Energy 14.31 Materials Science 51.24 Veterinary Medicine
Category B	**100 NASF / Station**	01 & 02 Agriculture 14.06 Ceramic 50.03 Dance 50.05 Dramatic Arts	51.04 Dentistry 51.2306 Occupational Therapy 51.17 Optometry	51.2308 Physical Therapy 14.08 Structural Engineering
Category C	**75 NASF / Station**	40.0502 Analytical Chemistry 26.04 Anatomy, Gross 04 Architecture 40.0202 Astrophysics 26.02 Biochemistry 26.02 Biophysics 26.04 Cell Biology 14.08 Civil Engineering 51.06 Dental Hygiene	14.01 Engineering, General 15.13 CAD/CADD Technology 01.10 Food Science and Technology 26.08 Genetics (lab-based program) 40.06 Geophysics, and Seismology 26.04 Histology 21 Tech Ed / Industrial Arts 50.04 Interior Design 04.06 Landscape Architecture 26.05 Microbiology	26.1302 Marine Biology 26.02 Molecular Biology 50.09 Music Performance 30.24 Neurosciences 51.16 Nursing - Practical and RN 40.0504 Organic Chemistry 51.2 Pharmacy 10.03 Printing and Lithography 42 Psychology (lab-based) 51.0911 Radiology
Category D	**60 NASF / Station**	45.02 Anthropology 40.0201 Astronomy 26.01 Biology, General 40.05 Chemistry, General 09.01 Communication 11.07 Computer Science	50.07 Drawing, Painting 26.13 Ecology 16 Foreign Languages 26.08 Genetics (lecture-based program) 40.06 Geology 09.04 Journalism	26.07 Pathology 40.08 Physics, General 51.22 Public Health
Category E	**40 NASF / Station**	52.03 Accounting 05.01 Afro-American Studies 50.07 Art History and Appreciation 52.08 Finance 45.06 Economics 13 Education	13.06 Educational Statistics and Research 54 History 23&45 Humanities and Social Sciences 22 Law **Learning Support** 27 Mathematics	50.09 Music History and Appreciation 45.10 Political Science and Government 42 Psychology (lecture-based program) 45.11 Sociology 45.12 Urban Studies

PART III - OPEN LAB AND STUDIO (Unscheduled)

Calculation Spreadsheet: Open Lab and Studio Space, Informal Student Collaboration Space

Each university and college has a variety of spaces that fall into the category of open labs and studios. These are spaces that are unscheduled and are available for use throughout the day and evening.

Included in this category are:

- computer labs
- writing labs
- language labs
- art studios
- practice studios, etc
- informal student collaboration spaces.

These types of spaces are usually coded in facilities inventories as FICM 220/225 and 230/235. This space is allocated on a simple per-FTE basis. Currently there is no open lab allocation for online students. See **Table 5** below.

Table 5 – Open Labs and Open Studios

Part III - Open Labs, Studios, Collaboration		NASF / FTE	Total NASF
Student enrollment, on-ground (FTE)	22,613	5	113,065
Student enrollment, online (FTE)	2,513	0	0
	Grand Total Open Labs, Studios, Collaboration NASF:		113,065

Data to Use

1. No input is required.

PART IVa – RESEARCH SPACE BY RESEARCH EXPENDITURE

Calculation Spreadsheet: Research Space by Research Expenditure

There are two approaches for determining the amount of research space. One is based on research expenditure while the other is based on the number of people (FTE) actually doing research. The method that results in the greater amount of space will be used.

In the example below, **Table 6** demonstrates the research expenditure method.

Table 6 – Research Space by Research Expenditure

Part IVa Research – by Res Expenditure			Inflation since 2012:	0%	NASF		
	3-year Average Research Expenditure $			Inflation-Adjusted	On-campus Factor	Off-campus Factor	
Discipline	On-campus	Off-campus	NASF / $1M	NASF / $1M	100%	25%	Total NASF
A	$37,700,000		6,350	6,350	239,395	0	239,395
B	$26,300,000		5,250	5,250	138,075	0	138,075
C	$16,000,000		3,450	3,450	55,200	0	55,200
					Total Research Lab NASF by ResS:		432,670
D	$6,400,000		2,600	2,600	16,640	0	16,640
					Total Research Office NASF by ResS:		16,640

Data to Use

1. Institution assembles research expenditures for the previous 3 years.
2. For each year, break down expenditures into 3 categories: A) highly space-intensive, B) space-intensive, or C) moderately space-intensive as per **Table 7** located on the following page.
3. Further break down data into on-campus and off-campus expenditure.
4. Find the 3-year average for each of these 6 categories and enter data in spreadsheet as shown in **Table 6** above.

The spreadsheet generates the amount of space automatically by using square foot multipliers for each of the categories.

The template allows THEC to insert an inflation factor over time. The base year for inflation is 2012 (2012 = 0%). The cumulative amount of inflation since 2012 should be updated by THEC each year.

Research Space by Research Expenditure Space Guidelines

Table 7: Research Space Use Categories with CIP Codes

Space-Use Intensity	Discipline		
A Highly Space-Intensive	14.02 Aero Engineering 14.05 Bioengineering 14.07 Chemical Engineering 40.05 Chemistry	14.08 Civil Engineering 14.10 Electrical 14.01 Engineering Industrial Engineering 14.18 Materials	14.31 Materials Science 14.19 Mechanical, Medical 51.2 Veterinary Science
B Space-Intensive	01 & 02 Agriculture 26.04 Anatomy 1.09 Animal Science 45.02 Anthropology (lab-based) 40.02 Astronomy 26 Biology 26.02 Biochemistry 26.0102 Biomedical	40 Chemistry 14.09 Computer Engineering 1.03 Crop Science 51.04 Dentistry 15.03 Electrical Engineering 1.1 Food Science 40.06 Geology	14.19 Mechanical Engineering 26.05 Microbiology 30.24 Neuroscience 40.08 Physics 26.03 Plant Pathology 42 Psychology (lab-based)
C Moderately Space-Intensive	52.03 Accounting 4.02 Architecture, Art 50 Fine & Performing Arts 11.07 Computer Science Earth Science	54 History 23 & 45 Humanities 22 Law 27 Math 50.09 Music	51.16 Nursing 51.2 Pharmacy 45.10 Political Science 45 Social Science
D Office-based	45.02 Anthropology (office-based) 52 Business 11 Computer Sci. (office-based) 13 Education 22 Law Foreign Languages	27 Math 42 Psychology (office-based) 23 & 45 Social Sciences & Humanities 44.07 Social Work 27.05 Statistics	

PART IVb – RESEARCH SPACE BY RESEARCH PERSONNEL

Calculation Spreadsheet: Research Space by Research Personnel

This part of the spreadsheet generates the amount of research space by allocating an amount of space per researcher, depending on the category of researcher and discipline. See **Table 8** below.

Departments and disciplines with CIP codes are grouped into four categories as indicated in **Table 9.** Each category has a specific set of space multipliers as shown in **Table 10**.

Data to Use

1. The number of FTE engaged in research (faculty, PhDs, Post-docs, non-faculty, graduate students, undergrads, visitors, adjuncts).
2. The FTE quantity is entered into the blue cells by personnel category and by discipline group.
3. Each institution should enter data based either on teaching load or by contract.

Table 8 – Research Space by Research Personnel

Part IVb Research – by Research FTE

FTE by Teaching Load

Personnel Category	Discipline Group – FTE				Research Lab NASF / FTE				Research Lab NASF	Lab Support NASF	Total Lab + Supt NASF
	A	B	C	D	A	B	C	D			
Faculty					600	450	300	50	0	0	0
PhD, Post Doc					300	225	150	50	0	0	0
Non-Faculty					300	225	150	50	0	0	0
GRA / GTA					100	75	75	50	0	0	0
Undergrad					50	50	50	50	0	0	0
Vis / Adj					300	225	150	50	0	0	0
Support Allocations:					40%	35%	25%	20%			

Total Research NASF by Res Personnel Teaching Load FTE: 0

FTE by Contract

Personnel Category	Discipline Group – FTE				Research Lab NASF / FTE				Research Lab NASF	Lab Support NASF	Total Lab + Supt NASF
	A	B	C	D	A	B	C	D			
Faculty	8.7	118.8	60.5	32.6	600	450	300	50	78,460	25,663	104,123
PhD, Post Doc	3.6	59.8	56.7	2.5	300	225	150	50	23,165	7,293	30,458
Non-Faculty	22.0	349.2	162.8	279.6	300	225	150	50	123,570	39,041	162,611
GRA / GTA	10.5	188.1	119.4	20.4	100	75	75	50	25,133	7,800	32,933
Undergrad	5.4	196.8	94.7	39.7	50	50	50	50	16,830	5,133	21,963
Vis / Adj	0.0	2.5	1.0	1.5	300	225	150	50	788	249	1,037
Support Allocations:					40%	35%	25%	20%			

Total Research NASF by Res Personnel Contract FTE: 353,125

Table 9: Research Space Use by Discipline with CIP Codes

Space-Use Intensity	Discipline		
A Highly Space-Intensive	14.02 Aero Engineering 14.05 Bioengineering 14.07 Chemical Engineering 40.05 Chemistry	14.08 Civil Engineering 14.10 Electrical 14.01 Engineering 14.18 Materials	14.31 Materials Science 14.19 Mechanical, Medical 51.2 Veterinary Science
B Space-Intensive	01 & 02 Agriculture 26.04 Anatomy 1.09 Animal Science 45.02 Anthropology (lab-based) 40.02 Astronomy 26 Biology 26.02 Biochemistry 26.0102 Biomedical	40 Chemistry 14.09 Computer Engineering 1.03 Crop Science 51.04 Dentistry 15.03 Electrical Engineering 1.1 Food Science 40.06 Geology	14.19 Mechanical Engineering 26.05 Microbiology 30.24 Neuroscience 40.08 Physics 26.03 Plant Pathology 42 Psychology (lab-based)
C Moderately Space-Intensive	52.03 Accounting 45.02 Anthropology (office-based) 4.02 Architecture, Art 50 Fine & Performing Arts 11 Computer Sci. (office-based) 11.07 Computer Science	54 History 23 & 45 Humanities 22 Law 27 Math 50.09 Music	51.16 Nursing 51.2 Pharmacy 45.10 Political Science 42 Psychology (office-based) 45 Social Science
D Office-based	52 Business 13 Education 22 Law 27 Math	23 & 45 Social Sciences & Humanities 44.07 Social Work 27.05 Statistics	

The spreadsheet automatically generates the amount of research space. The pink cells show the square foot multipliers by category and discipline group as shown in **Table 10** on the following page. The Personnel FTE times the multiplier yields the research lab NASF. This number is multiplied by varying percentages to derive the quantity of additional support space. The two numbers, lab and support, are then totaled.

Research Space by Research Personnel Space Guidelines

The multipliers for the four Research Personnel categories are shown in **Table 10** below**.**

Table 10: Research Personnel Multipliers

Personnel Category	A	B	C	D
Faculty	600	450	300	50
PhD	300	225	150	50
Non-Faculty	300	225	150	50
GRA/GTA	100	75	75	50
UGs	50	50	50	50
Visitor/Adjunct	300	225	150	50

In addition to the space generated by research, support space, such as storage rooms and equipment rooms, will need to be added. The amount of additional space for support by category is:

- A - 40%
- B - 35%
- C - 25%
- D - 20%

PART V – OFFICE

Calculation Spreadsheet: Office Space

The Office part of the spreadsheet generates the amount of office and office-related space by assigning a per-FTE or per-headcount multiplier by personnel category. The multiplier ranges from 350 NASF per FTE for President and Chancellor to 40 NASF per Graduate Research Associate (GRA). A factor of 30% is added for office support which includes workrooms, conference rooms, file rooms, office storage, etc. (usually FICM 300 space in facilities inventories). See **Table 11** for a listing by personnel description.

Data to Use

1. **Count only staff requiring office space.** Institutions will probably want to define "requiring office space" by category.
2. Most staffing categories use FTE, but three categories use headcount. Be sure to use the correct number. The headcount categories are GTA, GRA, and Other Students.
3. Use E&G and Restricted staffing numbers only. Do not count Auxiliary employees. If an individual employee is split between E&G and Auxiliary, use only the E&G portion of that employee's FTE.
4. Do not count volunteers. Include paid staff and students only.
5. Employee data should correspond to the point in time used for other staffing data submissions to THEC.
6. For student employees, the number should represent the typical peak headcount number for this type of employee at any one time, not the cumulative total over the course of a year.

Table 11 – Offices – by Personnel Category

Part V - Personnel Requiring Office Space			
Personnel Category	Total FTE	NASF / FTE	Total NASF
President, Chancellor	1.0	350	350
Provosts, Vice President	14.7	240	3,528
Dean	15.7	180	2,826
Assoc. Dean, Dept. Chair	185.4	150	27,810
Professor, Assoc, Asst	1,035.0	150	155,250
Other Faculty	302.9	100	30,290
Professional Staff	1,095.7	130	142,441
Clerical	1,404.4	120	168,528
Staff, Technician	517.2	100	51,720
GTA (Headcount)	464.4	60	27,864
GRA (Headcount)	29.5	40	1,180
Other Students (Headcount)	911.4	10	9,114
Other: Auditor, etc.	0.0	100	0
		Subtotal NASF:	620,901
		Support Allocation: 30%	186,271
		Total Office NASF by FTE:	807,172

Academic and Administrative Office Space Guidelines

Rather than basing the office space that a campus needs on the number of students, as in the current Tennessee model, the new guidelines will base the amount of office space on the actual number of faculty and staff. It will be important for the campuses to be able to deflate the long list of titles to a smaller, more manageable list for the purposes of creating guidelines.

The following space multipliers are recommended in **Table 12** below:

Table 12: Office Multipliers **Personnel Category**	**UT and TBR: Universities (NASF per FTE)**	**TBR: Community Colleges (NASF per FTE)**
President	350	240
Provost, Vice President	240	200
Dean	180	180
Assoc. Dean, Department Chair	150	140
Faculty: Professor, Associate, Assistant, Emeriti	150	120
Other Faculty: Adjuncts, Visitors, Lecturers, Post Docs	100	90
Professional Staff	130	120
Clerical / Reception	120	120
Staff, Technician	100	90
GTA (Headcount)	60	60
GRA (Headcount)	40	40
Other Student (Headcount)	10	10
Other: vendors, auditors, accreditation teams, etc.	100	100
Allocation for office support: workrooms, file,	30%	30%

Note that three categories, GTA, GRA, and Other Student use headcount rather than FTE. These headcounts should represent peak numbers during the year, not a cumulative total.

PART VI – LIBRARY AND STUDY

Calculation Spreadsheet: Library and Study Space

The Library and Study part of the spreadsheet uses five institutional data items:

- total volume equivalents
- total volumes in compact shelving
- cartographic items
- student enrollment and number of students living on campus

Data for specialized libraries for art, music, science, engineering, education, etc. should all be calculated within this category. Space in the specialized libraries should have a FICM number in the 400s and should be totaled with the main library. Volumes housed at these libraries should also be totaled with the main library.

The spreadsheet automatically generates the square footage for the three major library space components:

- space for volumes (and volume equivalents such as CDs, DVDs, etc.)
- space for readers (which can be individual/quiet or group/active - with or without technology)
- space for library operations - the technical services and administration.

Data to Use

1. Student enrollment and number of students living on campus do not need to be re-entered because the spreadsheet gets the data from enrollment input at the top of the spreadsheet.
2. Volume equivalent calculation: using the ARL definition for volume counts (except cartographic items - see below) is suggested. Most items are counted on a simple 1-to-1 basis. Microforms are counted 10 microforms equal one volume. See **Table 14A** on page 28.
3. The Total Volumes and Volume Equivalents line should *include* the number from Total Volumes in Compact Shelving.
4. The Total Volumes and Volume Equivalents line should *exclude* the number from Cartographic Items.
5. Include volumes and items housed in all libraries (FICM 400) campus-wide.

See **Table 13** on the following page.

Note: The community college spreadsheet differs from the above only in that there is no NASF allocation for students living on campus.

Table 13 – Library – by Collections and Enrollment

Part VI - Library and Study	
Total volumes and volume-equivalents	4,030,912
Tot volomes in compact shelving	377,099
Cartographic collection	378,400
Student enrollment, on ground (FTE)	22,613
Student enrollment, online (FTE)	2,513
Students living on campus (HC)	1,830
Total Student enrollment, on-ground (HC)	26,005
Headcount-to-FTE conversion factor	0.87
Estimated FTE living on campus	1592

	Volumes	NASF per Volume	Total NASF
First 150,000 Volumes:	150,000	0.10	15,000
Next 150,000 Volumes:	150,000	0.09	13,500
Next 300,000 Volumes:	300,000	0.08	24,000
Next 600,000 Volumes:	600,000	0.07	42,000
Next 1,200,000 Volumes:	1,200,000	0.06	72,000
Next 2,400,000 Volumes:	1,253,813	0.05	62,691
Above 4,800,000 Volumes:	0	0.04	0
Compact Shelving	377,099	0.03	11,313
Cartographic Collection	378,400	0.02	7,568
		NASF for Volumes:	248,072

Number of Tables, Carrels, and Groups

	% of FTE Enrollment	Number of T, C, & Gs
Living on-campus:	25.0%	398
On ground, off-campus:	5.0%	1,052
Online:	5.0%	126
	Total T, C, & Gs:	1,576

NASF for Tables, Carrels, Groups

	% of T, C, & Gs	Number of T, C, & Gs	NASF per Station	Total NASF
% Standard:	45%	709	25	17,730
% Enhanced / Group:	25%	394	35	13,790
% Reserved / Assignable:	20%	315	35	11,032
% Group Study:	10%	158	35	5,516
			NASF for Readers:	48,068

Space for Technical Services

	Sub-total Books and Reader Space:	296,140
Add'l NASF, % of Sub-total for Technical Services:	12.5%	37,018
	Total Library and Study NASF:	**333,158**

Library Space Guidelines

The amount of space per volume is dependent on the number of volumes — and the amount per volume declines as the volume count increases. See **Table 14** below. **Table 14A** can be used to determine volume equivalents.

Table 14: Library Multipliers	
Volumes	**NASF per Volume**
First 150,000 Volumes	0.10
Next 150,000 Volumes	0.09
Next 300,000 Volumes	0.08
Next 600,000 Volumes	0.07
Next 1,200,000 Volumes	0.06
Next 2,400,000 Volumes	0.05
Above 4,800,000 Volumes	0.04
Compact Shelving	0.03
Cartographic	0.02
Tables, Carrels, Group Study	**NASF per Station**
Standard (assumes a wireless)	25
Enhanced, Group	35
Reserved/Assignable	35
Group Study	35
Administration/Technical Services	
12.5% of Volumes NASF + Reader NASF	

Table 14A: Volume Equivalents	**Quantity**	**VUE (Volume Equivalent)**
Volume (definition: physical unit of work which has been printed or otherwise reproduced, typewritten, or handwritten, contained in one binding or portfolio, hardbound or paperbound, which has been cataloged, classified, or otherwise prepared for use)	1	1
Microfilm	3 reels	1
Microform - other	80	1
Audiovisual (cassettes, films, disks)	5 items	1
Sound recordings, filmstrips, loops, slide-tape sets, graphic materials including maps and computer software packages	1 item	1
Other, flat library materials	8 items	1
CDs DVDs	3 items	1

The number and character of reader spaces in libraries has changed dramatically over the past decade as libraries have changed from warehousing books to technology enhanced group collaboration space and a melding of IT and Library Science. As the number of computers has increased in libraries, the size of the workstation has increased as well.

The number of reader stations for UT and TBR universities is established by assigning a seat for 25% of the on-campus student population, 5% for off-campus students, and 5% of online students. For community colleges, 10% of on-ground enrollment plus 5% of online students generate the reader quantity.

An amount of space is then applied for each seat category: standard, data capable, and reserved/assignable. THEC's guideline is 45% standard seating, 25% enhanced group, 20% reserved/assignable, and 10% for group study spaces.

Library support space includes offices and work space for the library administration and technical services. The required amount is proportionate to the space allocated for volumes and readers.

Satellite Campuses - To what extent should a satellite community college campus have an allocation of space for the library? The allocation will depend on the satellite's distance from the main campus library, enrollment, programs, and the extent to which appropriate space is provided on the main campus. Whether a library is present on the satellite campus may require further discussion and justification.

PART VII – PHYSICAL EDUCATION AND RECREATION SPACE

Calculation Spreadsheet: Physical Education/Recreation Space

1. There is no data to enter in this part. Student FTE does not need to be re-entered. The spreadsheet gets the FTE from earlier input.
2. The amount of space generated represents the need for physical education and recreation, and does not include space for intercollegiate athletics.
3. In **Table 15** below, *per-institution minimum* refers to universities only. Community colleges do not receive a minimum NASF allocation as universities do.

Table 15

Part VII - Physical Education and Recreation	
Student Enrollment, on-ground (FTE)	22,613
Per-institution Minimum NASF, <4000 FTE Students:	40,800
Per-institution Minimum NASF, 4000+ FTE Students:	68,000
Additional NASF Per FTE :	11
Institution Mimimum NASF:	68,000
Per FTE Allocation:	248,743
Total Physical Education and Recreation NASF:	**316,743**

Physical Education/Recreation Space Guidelines

The amount of physical education and recreation space at a college or university is very much a product of the sports and teams that the institution supports. It also is a factor of student enrollment.

There are two minimum figures:

- 40,800 NASF for universities of less than 4,000 students
- 68,000 NASF for universities with enrollments of 4,000 and greater.

To the minimum NASF, universities should add 11 NASF per FTE student. Community colleges are allocated 3 NASF per FTE student, with no minimum allocation.

Table 16: Physical Ed/Recreation Multipliers

FTE Enrollment	NASF/FTE Student
Universities	11
Community Colleges	3

Satellite Campuses - A community college satellite campus should have an allocation of space for physical education/recreation if there is a specific demonstrated need. Whether it is present may require further discussion and justification.

SUMMARY NASF

At the bottom of the spreadsheet is a table that summarizes the results of the model for each category of space, and compares those results with existing space.

Summary NASF				
Part	Modeled	Exist E&G	Difference	Equiv FICM
I - Classrooms	0		0	1xx
II - Lab / Studio	0		0	210, 215
III - Open Lab	0		0	220, 225
IV - Research	0		0	250, 255
V - Office	0		0	3xx
VI - Library	0		0	4xx
VII - Phys Ed	0		0	520, 523, 525
Totals:	0	0	0	

In the blue cells the user fills in existing NASF data from the institution's most recent physical facilities inventory (PFI).

Data to Use

1. Enter data that corresponds to the input data used for all of the parts in the model. If model input data was for a particular campus or satellite, the existing NASF entered should correspond to that campus or satellite.
2. Enter E&G NASF only. In PFIs, this corresponds to Revenue Producing = 0.
3. The righthand column of the table instructs the user as to the corresponding FICM categories. So for example, "1xx" means all space in the FICM 100 series.

INSTRUCTIONS FOR TENNESSEE TECHNOLOGY CENTERS

PARTS I AND II - CLASSROOMS, SCHEDULED LABS, AND STUDIOS

The calculation spreadsheets for TTC classrooms and TTC labs have been combined to provide a more discipline-specific approach to space modeling and planning.

Calculation Spreadsheet: TTC Classroom Space

In the technology centers, the classroom variables remain constant with the exception of the number of classrooms. The number of classrooms required will determine the total amount of net assignable square footage (NASF).

In this part, enter the number of existing classrooms at the TTC in the blue cell as shown in **Table 17** on the following page.

If the classroom is used exclusively by one program, enter the number in the "Exclusive" column. If the classroom is shared between two programs, enter the number in the "Shared" column for *each* program that the classroom serves.

The NASF is automatically generated.

Calculation Spreadsheet: TTC Teaching Lab and Studio Space

This part of the spreadsheet generates the number of teaching labs and studios and NASF. It uses data available from the Registrar's course file. There are only two columns of data to enter.

Data to Use

1. From the Registrar's course schedule, enter the number of labs
2. Enter the average section size for each discipline, separating average on-ground section size from average online section size.
3. The data should represent actual usage in labs and studios, e.g. it should not include courses that never met due to cancellation.

This information is inserted into the appropriate blue cell and the amount of space is automatically generated.

The spreadsheet uses a different lab and studio model from the universities and community colleges based on an allocation that differs by discipline and program. See **Table 17** on the following page.

Table 17: Technology Centers

Parts I and II - Classrooms, Scheduled Labs, and Studios

	Classrooms		Laboratories and Studios						
			Station Utilization:			90%			
Program	Exclusive	Shared	Number of Labs	Section Size - On Ground	Section Size - Online	Stations per Lab	NASF / Station	NASF per Lab	Total NASF
Aeronautic Technology						0	150	0	0
Architectural Drafting/CAD						0	60	0	0
Automotive						0	350	0	0
Building Technolgoy						0	180	0	0
Business Systems						0	40	0	0
CNA						0	80	0	0
Computer Operations Tech						0	60	0	0
Cosmetology						0	90	0	0
Electricity & Electronics						0	60	0	0
Dental Assistant						0	120	0	0
Diesel Repair						0	200	0	0
HVAC						0	200	0	0
Industrial Maintenance						0	100	0	0
Industry Training						0	60	0	0
Machine Tool						0	100	0	0
Mech Engineering Tech						0	100	0	0
Millwright						0	160	0	0
Pipefitting & Plumbing						0	140	0	0
Practical Nursing						0	80	0	0
Surgical Technology						0	60	0	0
Tech Foundations / General						0	40	0	0
Welding						0	160	0	0
						0		0	0
						0		0	0
Total Classrooms:	0	0						Total Lab NASF:	0
NASF @ 1,000/Classroom:	0	0						**Support Allocation:**	30%
Grand Total Classroom NASF:		0						Additonal Space for Lab Support, NASF:	0
								Grand Total Teaching Lab + Support NASF:	**0**

TTC Teaching Lab and Studio Space Guideline

Table 18 shows multipliers by discipline for the Technology Centers.

Table 18: Lab and Studio Multipliers – Technology Centers		
Discipline with CIP Code		**NASF/Station**
15.08	Aeronautic Tech	150
15.13	Architectural Drafting/CAD	60
47.06	Automotive Tech	350
46.04	Building Tech	180
52	Business Tech	40
51.16	CNA	80
11	Computer Operations Tech	60
12.04	Cosmetology	90
51.06	Dental Assistant	120
47.06	Diesel Repair	200
47.06	Electricity & Electronics	60
47.02	HVAC Tech	200
47.03	Industrial Maintenance	100
15.06	Industry Training	60
48.0501	Machine Tool Tech	100
15.08	Mechanical Eng. Tech	100
	Millwright	160
46.05	Pipefitting & Plumbing	140
15.16	Practical Nursing	80
51.09	Surgical Tech	60
15	Tech Foundation	40
48.0508	Welding Tech	160

PART V – OFFICE

Calculation Spreadsheet: TTC Office Space

The Office part of the spreadsheet generates the amount of office and related space by assigning a per-FTE multiplier by personnel category. A factor of 30% is added for office support which includes workrooms, conference rooms, file rooms, office storage, etc. (usually FICM 300 space in facilities inventories).

Data to Use

1. Count only staff requiring office space.
2. Use E&G staffing numbers only. If an individual employee is split between E&G and Auxiliary, use only the E&G portion of that person's FTE.
3. This data should correspond to the point in time used for other staffing data submissions to THEC.
4. For student employees, use headcount, not FTE. Use the typical peak number at any one time, not the cumulative total for the year.

Table 19 – Offices – by Personnel Category

Part V - Personnel Requiring Office Space			
Personnel Category	Total FTE	NASF / FTE	Total NASF
Director	1.0	180	180
Assoc/Assist Director	1.0	140	140
Faculty: Prof, Assoc, Asst	21.0	120	2,520
Other Faculty: Adjuncts, Visitors, Lecturers	1.0	60	60
Professional Staff	3.0	100	300
Staff, Technician	3.0	100	300
Clerical/Reception	1.0	100	100
Student Worker (Headcount)		10	0
Other: Vendors, auditors, accreditation teams		100	0
		Subtotal NASF:	3,600
		Support Allocation:	30%	1,080
		Total Office NASF by FTE:	4,680

TTC Academic and Administrative Office Space Guidelines

Rather than basing the office space that a campus needs on the number of students, as in the current Tennessee model, the new guidelines will base the amount of office space on the actual number of faculty and staff. The following space multipliers shown in **Table 20** are recommended:

Table 20: TTC Office Multipliers

Personnel Category	TBR: Technology Centers (NASF per FTE)
Director	180
Associate or Assistant Director	140
Faculty: Professor, Associate, Assistant, Emeriti	120
Other Faculty: Adjuncts, Visitors, Lecturers, etc.	60
Professional Staff	100
Staff, Technician	100
Clerical / Reception	100
Student Worker (Headcount)	10
Other: vendors, auditors, accreditation teams, etc.	100
Allocation for workrooms, files, storage, conference, reception	30%

SUMMARY NASF

At the bottom of the spreadsheet is a table that summarizes the results of the model for each category of space, and compares those results with existing space.

Summary NASF				
Part	Modeled	Exist E&G	Difference	Equiv FICM
I - Classrooms	0		0	1xx
II - Lab / Studio	0		0	210, 215
V - Office	0		0	3xx
Totals:	0	0	0	

In the blue cells the user fills in existing NASF data from the institution's most recent physical facilities inventory (PFI).

Data to Use

1. Enter data that corresponds to the input data used for all of the parts in the model. If model input data was for a particular campus or satellite, the existing NASF entered should correspond to that campus or satellite.
2. Enter E&G NASF only. In PFIs, this corresponds to Revenue Producing = 0.
3. The righthand column of the table instructs the user as to the corresponding FICM categories. So for example, "1xx" means all space in the FICM 100 series.

APPENDIX

Definition of Space Type

Gross Area (Gross Square Feet—GSF) (see Gross Area Drawing)

A. **Definition.** The sum of all areas on all floors of a building included within the outside faces of its exterior walls, including all vertical penetration areas, for circulation and shaft areas that connect one floor to another.

B. **Basis for Measurement.** Gross Area is computed by physically measuring or scaling measurements from the outside faces of exterior walls, disregarding cornices, pilasters, buttresses, etc., that extend beyond the wall faces. Exclude areas having less than a 3-foot clear ceiling height unless the criteria of a separate structure are met.

Measured in terms of Gross Square Feet (GSF) -

GSF = Net Usable Area + Structural Space

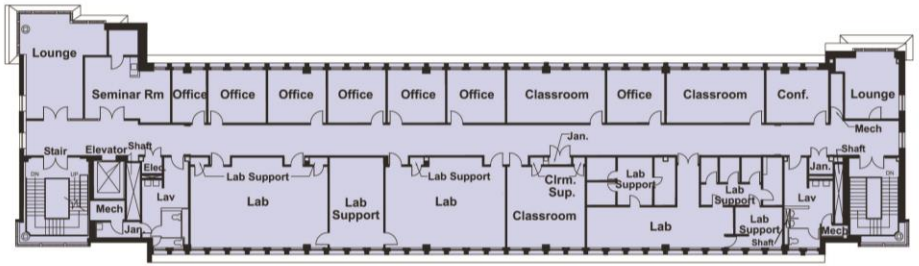
C. **Description.** In addition to all the internal floored spaces obviously covered above, Gross Area should include the following: excavated basement areas; interstitial space (i.e., mechanical floor or walkways), mezzanines, penthouses, and attics; garages; covered porches, whether walled or not; inner or outer balconies to the extent of a drip line from a roof or balcony immediately above, whether walled or not, if they are utilized for operational functions; and corridors or walkways, whether walled or not, provided they are either within the outside face lines of the building to the extent of the roof drip line or, if covered, to the extent of their cover's drip line. The footprints of stairways, elevator shafts, and vertical duct shafts are to be counted as gross area on each floor through which they pass.

D. **Limitations.** Exclude open areas such as parking lots, playing fields, pools, courts, light wells, and portions of upper floors eliminated by spaces or lobbies that rise above single-floor ceiling height. Exclude unexcavated basement areas.

E. **Exception.** Include top, unroofed floor of parking structures where parking is available.

Gross Area of a building by floor

THIRD FLOOR



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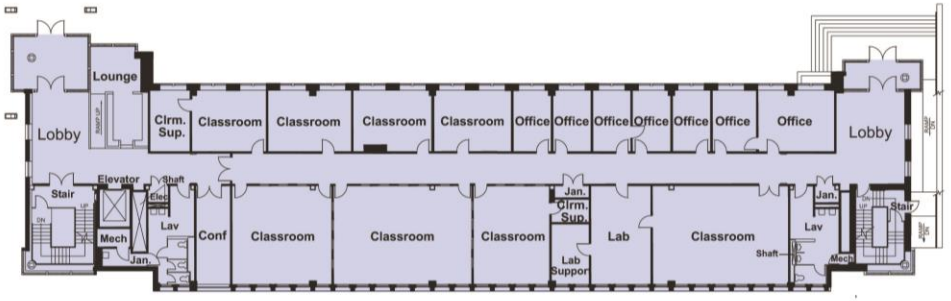


Net Assignable Area (Net Assignable Square Feet—NASF) (see Net Assignable Area Drawing)

A. **Definition.** The sum of all areas on all floors of a building assigned to, or available for assignment to, an occupant or specific use.

B. **Basis for Measurement.** Net Assignable Area is computed by physically measuring or scaling measurements from the inside faces of surfaces that form the boundaries of the designated areas. Exclude areas having less than a 3-foot clear ceiling height unless the criteria of a separate structure are met.

Measured in terms of Net Assignable Square Feet (NASF) -

NASF = Sum of Areas Designated by the 7 Assignable Major Space Use Categories

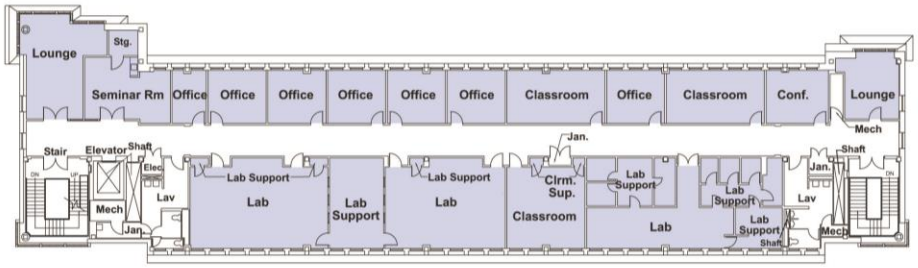
C. **Description.** Included should be space subdivisions of the 7 major space use categories for assignable space -

I. Classrooms
II. Teaching Lab and Studio (scheduled)
III. Open Lab and Studio (unscheduled)
IV. Research Lab
V. Office
VI. Library and Information Commons
VII. Physical Education and recreation Space

D. **Limitations.** Deductions should not be made for necessary building columns and projections. These small areas are excluded as they represent an insignificant percentage of the total area of an average-sized space. Capturing their area would be unduly burdensome relative to the very small contribution they would make toward precision. Areas defined as building service, circulation, mechanical, and structural should not be included.

Net Assignable Area of a building by floor

THIRD FLOOR



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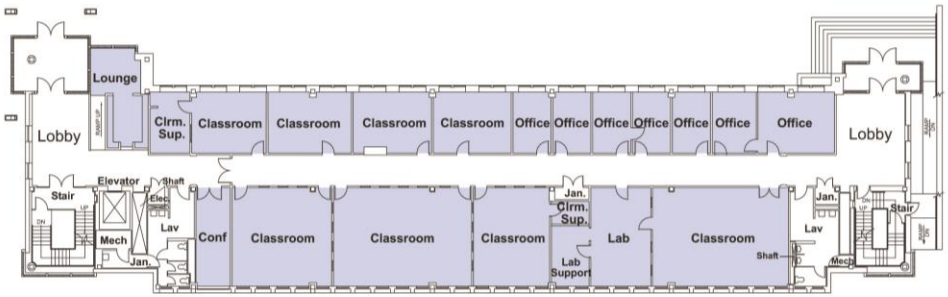


Circulation Area (see Circulation Area Drawings 1 and 2)

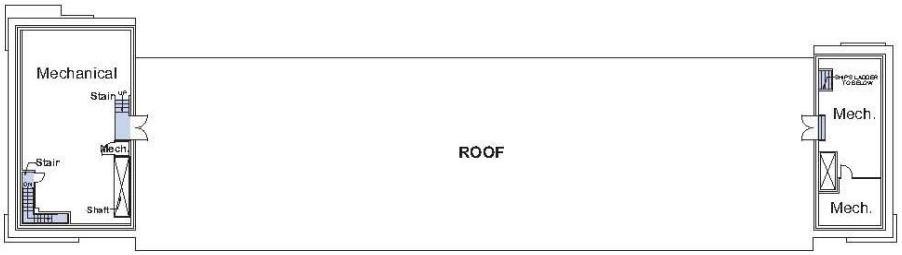
A. **Definition.** The sum of all areas on all floors of a building required for physical access to some subdivision of space, whether physically bounded by partitions or not.

B. **Basis for Measurement.** Circulation Area is computed by physically measuring or scaling measurements from the inside faces of surfaces that form the boundaries of the designated areas. Exclude areas having less than a 3-foot clear ceiling height unless the criteria of a separate structure are met.

C. **Description.** Included should be fire towers, elevator lobbies, tunnels, bridges, and each floor's footprint of elevator shafts, escalators, and stairways. Also included are public corridors or walkways, whether walled or not, provided they are either within the outside face lines of the buildings to the extent of the roof drip line or, if covered, to the extent of their cover's drip line. Receiving areas, such as loading docks, should be treated as circulation space. Any part of a loading dock that is not covered is to be excluded from both Circulation Area and Gross Area.

D. **Limitations.** Deductions should not be made for necessary building columns and minor projections. These small areas are excluded as they represent an insignificant percentage of the total area of an average-sized space. Capturing their area would be unduly burdensome relative to the very small contribution they would make toward precision. When determining corridor areas, spaces required for public access should be included. Also, if the circulation space serves more than one assignable occupied space, and has no other purpose than to serve as a conduit to another space, then it is circulation and not office support (see Circulation Drawing 2). A loading dock, or portions thereof, that are also used for central storage should be regarded as assignable area and coded as Central Storage (730).

Drawing 1 - Circulation Area of a building by floor



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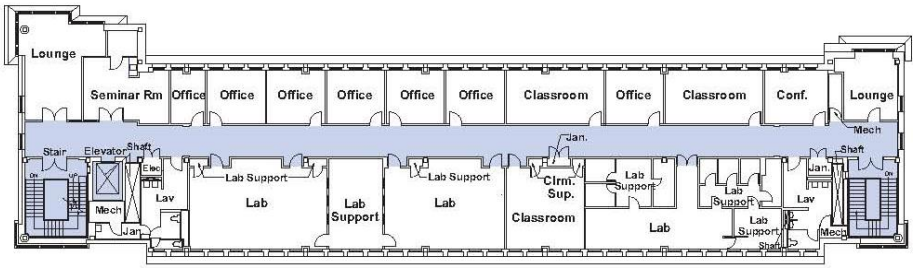

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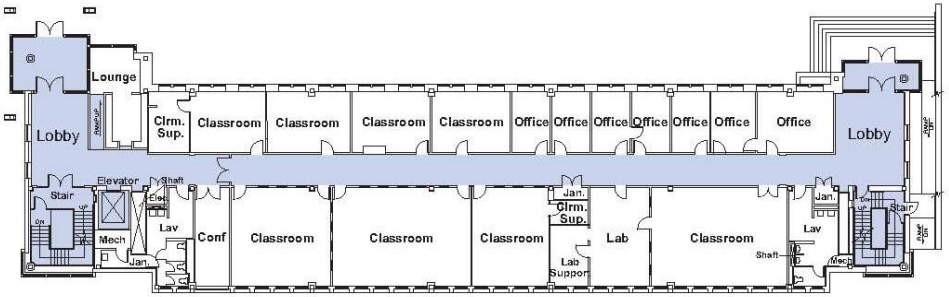
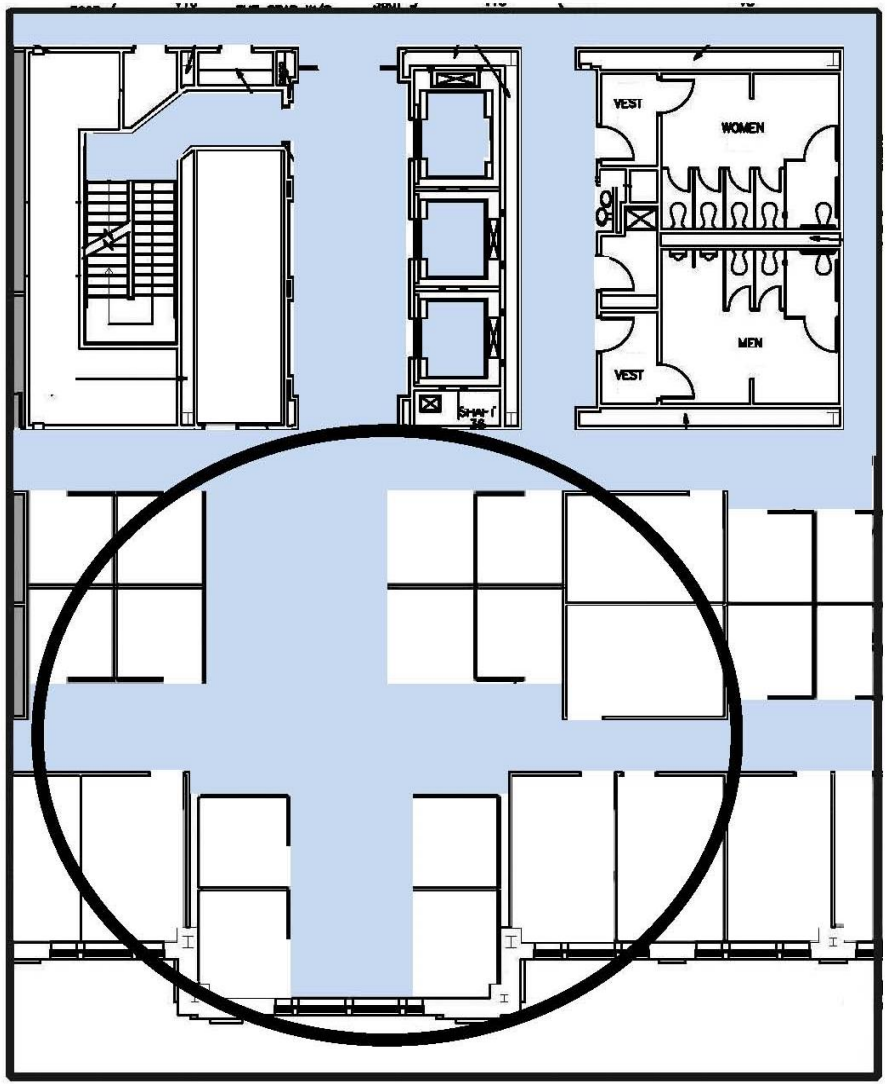


Drawing 2 – Circulation Area within a cubicle office area



Building Service Area (see Building Service Area Drawing)

A. **Definition.** The sum of all areas on all floors of a building used for custodial supplies, janitorial sink rooms, janitorial closets, and public rest rooms.

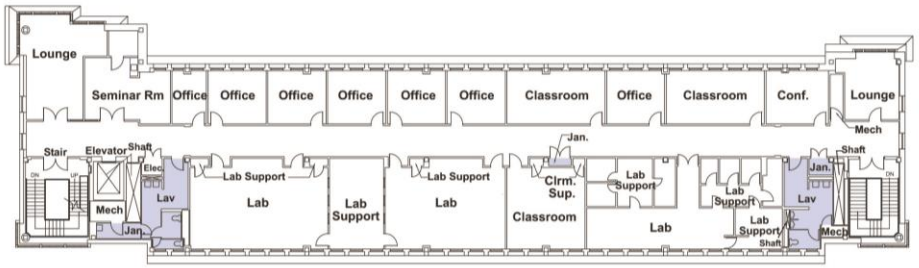
B. **Basis for Measurement.** Building Service Area is computed by physically measuring or scaling measurements from the inside faces of surfaces that form boundaries of the designated areas. Exclude areas having less than a 3-foot clear ceiling height unless the criteria of a separate structure are met.

C. **Description.** Included should be janitor closets or similarly small custodial spaces, maintenance material storage areas, trash rooms exclusively devoted to the storage of nonhazardous waste created by the building occupants as a whole, and public rest rooms.

D. **Limitations.** Deductions should not be made for necessary building columns and minor projections. These small areas are excluded as they represent an insignificant percentage of the total area of an average-sized space. Capturing their area would be unduly burdensome relative to the very small contribution they would make toward precision. Assignable areas classified as Shop (720), Central Storage (730), Central Supplies (870), or special purpose storage or maintenance rooms such as linen closets and housekeeping rooms in residence halls should not be included. Do not include private rest rooms that should be classified as Office Service (315).

Buidling Service Area of a building by floor

THIRD FLOOR



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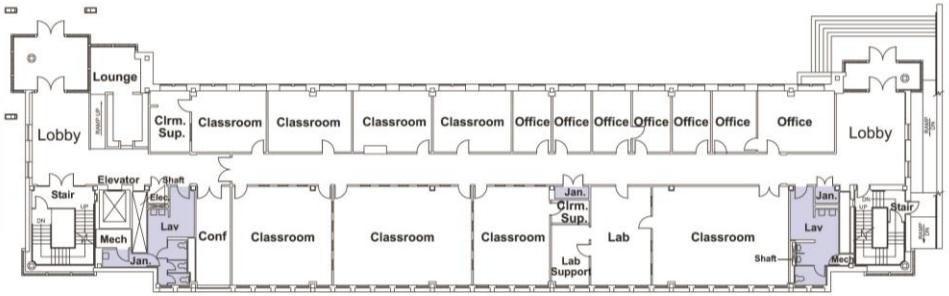


Mechanical Area (see Mechanical Area Drawing)

A. **Definition.** The sum of all areas on all floors of a building designed to house mechanical equipment, utility services, and shaft areas.

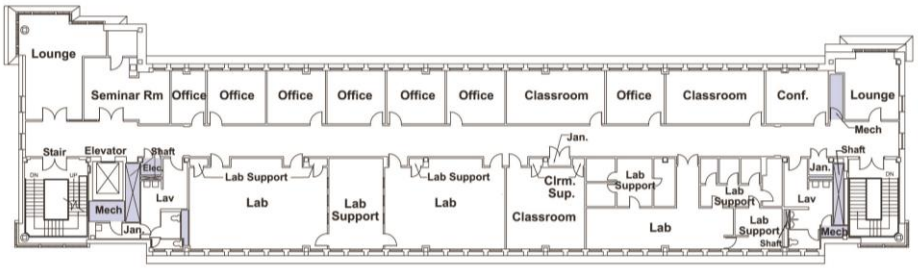
B. **Basis for Measurement.** Mechanical Area is computed by physically measuring or scaling measurements from the inside faces of surfaces that form the boundaries of the designated areas. Exclude areas having less than a 3-foot ceiling height unless the criteria of a separate structure are met.

C. **Description.** Included should be mechanical areas such as central utility plants, boiler rooms, mechanical and electrical equipment rooms, fuel rooms, meter and telecommunications closets, and each floor's footprint of air ducts, pipe shafts, mechanical service shafts, service chutes, and stacks.

D. **Limitations.** Deductions should not be made for necessary building columns and projections. These small areas are excluded as they represent an insignificant percentage of the total area of an average-sized space. Capturing their area would be unduly burdensome relative to the very small contribution they would make toward precision. Areas designated as public toilets are not included in this category but are included under Building Service Area.

Mechanical Area of a building by floor

THIRD FLOOR



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