Kentucky Council on Postsecondary Education

Space Utilization Standards & Space Needs Model

June 1999

Paulien & Associates, Inc.

899 Logan Street, Suite 508
Denver, Colorado 80203-3156
(303) 832-3272 · FAX (303) 832-3380

e-mail: dpaulien@paulien.com
web site: www.paulien.com/paulien

Document Prepared by:

PAULIEN & ASSOCIATES, INC.
Denver, Colorado

Daniel K. Paulien, *President*
John R. Bengston, *Senior Associate*
Lisa M. Keith, *Associate II*
Yvonne M. Thibodeau, *Associate*
Anne Clark, *Associate*
Paula Jones, *Data Analyst*
Gloria LeFree, *Project Assistant*
Jeanne Laurent, *Project Assistant*

With Assistance from:

National Center for Higher Education Management Systems
Boulder, Colorado

Dennis Jones, *President*

Acknowledgments to:

KENTUCKY COUNCIL ON POSTSECONDARY EDUCATION

Gordon Davies, *President*
J. Kenneth Walker, *Vice President for Facilities*
Sherron Jackson, *Director of Equal Opportunity and Facilities*

INSTITUTIONAL COMMITTEE

Woody Baldwin, *Kentucky State University*
Roger Burge, *Governor's Office of Policy and Management*
Don Carter, *Kentucky State University*
Ed Carter, *University of Kentucky*
Gary Cloyd, *Kentucky Community and Technical College System*
Mike Curtin, *University of Louisville*
Gary Grogan, *Kentucky Community and Technical College System*
Pat Ingram, *Legislative Research Commission*
Angela Martin, *Morehead State University*
John Osborne, *Western Kentucky University*
Mary Paula Schuh, *Northern Kentucky University*
Larry Sherman, *Eastern Kentucky University*
Charles Shirley, *Legislative Research Commission*
Carson Smith, *Kentucky State University*
Debbie Waggoner, *Murray State University*

KENTUCKY COUNCIL ON POSTSECONDARY EDUCATION

Space Utilization Standards & Space Needs Model

TABLE OF CONTENTS

Section *Page*

SPACE UTILIZATION 2
Classroom Utilization 2
Teaching Laboratory Utilization 2
TECHNICAL ISSUES 3
Definition of FTE Student 3
Technical College Information 3
SPACE NEEDS MODEL 3
INVENTORY OF SPACE BY INSTITUTION 4
SPACE NEEDS GUIDELINES 4
CLASSROOM SPACE 5
TEACHING LABS 6
OPEN LABS 7
RESEARCH LABS 9
OFFICE SUITES 9
LIBRARY 12
PHYSICAL EDUCATION/RECREATION 12
SPECIAL USE AND GENERAL USE 13
SUPPORT SPACE 15
SPACE QUALITY ANALYSIS 16

ATTACHMENTS

Summary of National Survey of Space Utilization Standards and Space Needs Guidelines
Space Utilization Standards and Space Needs Model Overhead Presentation
Facilities Inventory Criteria List
Assignable Square Feet by Institution
Existing and Guideline ASF/FTE
Space Needs Model Comparison to Existing Space Summary
Space Needs Model Comparison to Existing Space by Space Type

KENTUCKY COUNCIL ON POSTSECONDARY EDUCATION
Space Utilization Standards & Space Needs Model

Report prepared by: Paulien & Associates, Inc.
Denver, Colorado

The Kentucky Council on Postsecondary Education (CPE) contracted with Paulien & Associates, Inc. to conduct a nationwide study of existing space utilization and space needs standards and guidelines, to review existing Kentucky data regarding utilization and space needs, and to recommend space utilization standards and a space needs model.

Paulien & Associates used the National Center for Higher Education Management Systems (NCHEMS) of Boulder, Colorado as an advisor in this study. Dennis Jones, President of NCHEMS, attended all major meetings of the Project Committee and advised Paulien & Associates on various issues during the course of the study.

The primary study contacts were J. Kenneth Walker, Vice President for Finance, and Sherron Jackson, Director of Equal Opportunity and Facilities. A number of telephone conference calls and a video conference were held to facilitate communication between the consultants and the CPE staff. A project committee consisting of representatives of each institution met on two occasions to hear presentations by the consultants and to respond to specific suggestions. A sampling of representative institutions was visited by Dan Paulien, the lead consultant, and Sherron Jackson. This provided an opportunity to tour facilities, ask questions of campus officials, and clarify areas where facilities may have been coded in unusual ways. Both doctoral universities, three comprehensive universities, two community colleges, and two technical colleges were visited.

At the time the study began, CPE had conducted a utilization study for the universities and community colleges. Facilities inventory data and space utilization data had not been processed for the technical colleges. During the course of the study time period, the technical colleges submitted a facility inventory which is used for this study. Space utilization for the technical colleges could not be conducted with confidence based on available information. The consultants strongly recommend that this information be gathered and included in the next iteration of planning by CPE.

Since the utilization amounts for the universities and community colleges were an important factor in setting the space needs criteria for classrooms and laboratories. Without utilization data, findings for the technical colleges are influenced greatly by the consultants' recent space modeling work for the technical

colleges in Minnesota. This work should be reviewed during the next iteration of CPE planning if the technical colleges can provide space utilization data. They are providing such data in Minnesota and CPE is strongly urged by the consultants to collect its information in a comparable manner for the technical colleges.

Alternate approaches were discussed regarding the model type. Some models make distinctions for different subject matter. The conclusion was that the Kentucky data currently is not dependable across the entire system to allow those distinctions to be made. Therefore, averages by institution type were looked for in each of the space categories. All educational and general space is included in the model. The approaches used for each type of space are discussed in this report.

SPACE UTILIZATION

Classroom Utilization – The survey of the 50 state systems showed an average utilization of 34 hours per week. Some of the guideline systems are based on day use only and some are based on all hours only. Kentucky had in place an expectation of 38 hours per week based on all hours. The percentage of student station occupancy expectation ranged from 60% to 70%, with most guidelines being either at 60%, 65%, or 67%. The average was 64%. The Kentucky expectation is 67%. Most Kentucky institutions have utilization well below the expectation. Doctoral universities averaged 30 hours at 55%, comprehensive universities averaged 27 hours at 55%, and community colleges averaged 32.5 hours at 62%.

In looking at the Kentucky guideline, a reasonable interpretation is that it calls for 30 hours of classroom use during the day time block which normally consists of 45 hours (8:00 a.m. to 5:00 p.m., Monday through Friday). An additional eight hours of use of the evenings is expected. The institutions have indicated that their real available evening block is from 6:00 p.m. until 9:00 p.m. four days a week, suggesting an availability of 12 hours. The assumption of eight hours of use asks the institution to meet the same 67% class utilization in the evenings as they meet during the day. This is a difficult target to meet for many of the institutions. This study recommends reducing the expectation to 36 hours at 67%. This sets the evening scheduling expectation at 50% of the prime available hours.

Teaching Laboratory Utilization – The survey of the 50 states showed average laboratory use expectations of 22 hours per week, with individual guidelines ranging from 20 hours to 29 hours. The Kentucky standard has been 23 hours.

The most widely used student station occupancy expectation for laboratories is 80% utilization. The numbers range from 70% to 85%. The average is 77%. Kentucky has been using 80% as its guideline. Most Kentucky institutions are significantly below that number. Doctoral universities averaged 17 hours at 78% occupancy, comprehensive universities averaged 14 hours at 70% occupancy, and community colleges averaged 19 hours at 78% occupancy.

The consultants recommend retaining the Kentucky standard since it is just slightly tougher than the average of the national findings.

TECHNICAL ISSUES

Definition of FTE Student – The current Kentucky definition of undergraduate FTE is 16 student credit hours. The most widely used figure is 15 student credit hours. This means that Kentucky generates approximately 7% less undergraduate FTE than would have been achieved if the more widely used figure had been adopted in Kentucky. Kentucky may wish to consider whether to adjust the FTE for future applications, since the comparative statistics utilized from other states were all based on 15 student credit hours for an undergraduate FTE. Kentucky currently uses 12 student credit hours for graduate work. Some jurisdictions use 10 student credit hours, and some even eight student credit hours for advanced graduate work. Twelve student credit hours is a widely used figure used for graduate FTE generation and there is not the same level of concern regarding this figure as the undergraduate FTE definition.

Technical College Information – At the time the study began, the technical colleges had not submitted either facility inventory data or course data. CPE has not attempted to do classroom and lab utilization for the technical colleges. This study uses the best facilities data available as of June 1, 1999, which was submitted for this study. Kentucky Community and Technical College System (KCTCS) staff continues to refine the technical college facilities data. This is the first time that the Technical College Branch has compiled facilities inventory data. The models should be run again using refined data as it becomes available. The utilization findings for the doctoral universities, the comprehensive universities, and the community colleges played a significant role in setting the space needs model findings for classrooms and teaching labs. Since this data is not available for the technical colleges, the recently developed space guidelines used for the Minnesota technical colleges are presented here as the initial space planning guidelines for Kentucky. These guidelines should be reviewed when refined data becomes available.

SPACE NEEDS MODEL

In developing a space needs model for Kentucky, the consultants surveyed existing models in all 50 states. About 20 states do not have higher education space utilization or space needs guidelines. Some models use aggregated information across a wide variety of space categories. Some models make significant distinctions based on the Classification of Instructional Programs (CIP). After reviewing the data available in Kentucky, it seemed most appropriate to not go to that further level of detail since accurate reliable data is not available across the entire system.

Another aspect that needs to be considered is whether all educational and general space would be included, or only specific categories. Some other formulas use only major categories such as classrooms, teaching labs, research labs, offices, and library. This model includes all types of educational and general space. Deleted

are residential facilities, facilities utilized exclusively by athletics, public museums, laboratory school, and health care facilities. Specific categories of space have also been removed such as athletic seating, food service facilities, merchandizing facilities, health care facilities, and residential facilities.

INVENTORY OF SPACE BY INSTITUTION

The amount of space varies substantially, depending on the specific institution type and campus. Detailed information as to the findings by individual room types will be discussed in the relevant sections of the report. The overall findings for educational and general space including classrooms, all laboratories, all office space, all library space, all special use, physical education and recreation, assembly, support space, and some general use space, with food service and merchandising space generally removed from the analysis, and residential and health care removed from the analysis, is as follows.

FINDINGS

Type of Institution	*ASF per FTE Student*
Doctoral Universities	178
Comprehensive Universities	128
Community Colleges	68
Technical Colleges	137
Systemwide Average	**131**

The findings by type of space can be quite different. They are particularly dramatic for teaching laboratory space where the technical colleges have much more space per student than the other types of institutions. This is also true for library, where doctoral and comprehensive universities have much more space than the other types of institutions, and physical education and recreation, where the comprehensive universities have much more space than the other types of institutions.

SPACE NEEDS GUIDELINES

Since the Kentucky guideline system will be used for capital development planning, it seemed desirable to come up with an approach that is fairly aggregated and that does not have a great deal of complexity, yet takes into account that there are real differences by type of institution in terms of amounts of space that are needed to conduct the activities of the programs.

The facilities inventory files available at CPE allowed the development of a complete database of all the space for all of the institutions. This allowed the

calculation of space per student factors for each major type of space at each campus and a summary table by institutional type.

CLASSROOM SPACE

The utilization of classrooms is less than would be expected by traditional utilization targets and significantly less than the proposed Kentucky target of 36 hours per week at 67% student station occupancy. The space per full time equivalent student by type of campus in classrooms is as follows.

FINDINGS

Type of Institution	*ASF per FTE*
Doctoral Universities	10
Comprehensive Universities	16
Community Colleges	12
Technical Colleges	26
Systemwide Average	**15**

Those states which have used square feet per full-time equivalent student for classroom space generally provide less space than the Kentucky average. Since they usually assume utilization of 30 hours per week or greater, this is understandable as part of the reason for a lower number. Those which have used the space per FTE method include Texas – 12 asf per FTE; Utah – 9 asf per FTE; Florida – 12 asf per FTE for community colleges and 13.5 asf per FTE for four-year colleges and universities.

It should be noted that there has been a significant change in the way classrooms are utilized (see the article, 'The Changing College Classroom,' by Daniel K. Paulien, Facilities Manager, November 1998, APPA: The Higher Education Facilities Association, Alexandria, VA). As campuses have been teaching more and more adult students, there has been a desire to get away from the awkward tablet armchairs and into a more comfortable seating method. As more instructors want to involve students in class activities, often asking two or more students to work together on class projects, the need for more space per person has been apparent. In addition, the use of technology adds space in selected situations in assuring appropriate sight lines and additional space for computers where those are involved. The Americans With Disabilities Act has resulted in additional space in some instances, to assure access for the disabled.

After analyzing the utilization factors and the existing space per FTE, the consultants recommend the following classroom application for all of the Kentucky institutions.

RECOMMENDATION

Type of Institution	*ASF per FTE*
Doctoral Universities	10
Comprehensive Universities	10
Community Colleges	10
Technical Colleges	13
Systemwide Average	**N/A**

TEACHING LABS

The space in teaching labs varies substantially. The teaching lab space is much more intensive in the technical colleges than in any of the other types of institutions. The space per full time equivalent student is as follows.

FINDINGS

Type of Institution	*ASF per Full Time Equivalent Student*
Doctoral Universities	9
Comprehensive Universities	13
Community Colleges	9
Technical Colleges	28
Systemwide Average	**13**

It is clear that for teaching labs a distinction needs to be made among the types of institutions. As background, here is what some other states have done. Utah used a factor of 10 asf per FTE for teaching labs, with an additional 8 asf per FTE for those institutions with vocational/technical programs. The Texas Coordinating Board uses a core allocation of 8 asf per FTE (plus, it is reasonable to allocate two gsf per FTE of the service space they provide, resulting in 10 asf per FTE). They provide additional space based on specific degree programs, so that university programs in agriculture, sciences, visual and performing arts would get additional space, either 15 or 30 square feet per FTE depending on the specific program. The Texas Coordinating Board goes further for the technical colleges. There are factors as high as an additional 75 asf per FTE for the heavy technology programs including auto machinery, construction, fire, and cosmetology, with smaller amounts for other programs, for example 45 asf per FTE for vocational nursing, allied health, and printing and graphics.

This approach is not being recommended for Kentucky because it requires accurate data by subject field and this information is not currently available from the Kentucky institutions.

Considering that the utilization is less than the targets, the consultants recommend the following for teaching labs.

RECOMMENDATIONS

Type of Institution	*ASF per FTE Student*
Doctoral Universities	8
Comprehensive Universities	10
Community Colleges	8
Technical Colleges	24
Systemwide Average	**N/A**

KCTCS representatives have informed the consultants that they believe all of the technical college space currently coded as Open Lab should be changed to Teaching Lab. This has not yet happened. If it does, the open lab factor should be adjusted accordingly. The consultants found in Minnesota that the usage of teaching labs space per FTE students in the technical colleges was 58 after the consultants had moved a sizable amounts of teaching lab space to open lab. The original figure for teaching labs was in the range of 70 square feet per student. This seems to the consultants to be a reasonable figure for technical colleges for all laboratory categories. The two model findings proposed here put the technical colleges in that range.

OPEN LABS

This category consists of laboratory space which is irregularly scheduled or unscheduled. Students may work on a self-paced basis. They may schedule themselves in at specific hours of each day, but a class does not meet in a formal setting with a given start time and stop time. Some labs could be in this category because they are dedicated to a particular course which may have a specific meeting time, but students also come into the lab at other hours and utilize the lab in a way that prevents it being used by other courses. The actual space per FTE in these categories is as follows.

FINDINGS

Type of Institution	*ASF per FTE Student*
Doctoral Universities	9
Comprehensive Universities	9
Community Colleges	6
Technical Colleges	51
Systemwide Average	**13**

It is again worth noting that the greatest amount of space is at the technical colleges, with the community colleges/technical colleges having the second highest space on an FTE basis.

As noted under Teaching Labs, KCTCS indicates that they expect to reclassify all the technical college space currently shown as open lab space to teaching lab space. When this happens, the model amounts need to be looked at again. The consultants believe there will be some laboratories in the technical colleges that fit the open lab category best. When KCTCS provides CPE with the course data to allow laboratory utilization to be done for the technical colleges, this will become clearer. The needs model amount of space for the technical colleges when teaching labs and open labs are put together equals approximately the amount of lab space shown as needed in the study for the Minnesota technical colleges.

Other states that have used this method have allocated seven or eight square feet per full-time equivalent student. Utah allocated seven asf. Texas technically allocates six asf, but a reasonable interpretation of its service space category would provide two asf for the open labs, for a total of eight asf per FTE.

The consultants make the following recommendation for the Kentucky institutions.

RECOMMENDATIONS

Type of Institution	*ASF per FTE Student*
Doctoral Universities	8
Comprehensive Universities	8
Community Colleges	7
Technical Colleges	45
Systemwide Average	**N/A**

RESEARCH LABS

The space coded as research/non-class lab space, which used to have the federal coding title Non-Class Lab space, includes small amounts of space at community colleges and at technical colleges. These add up to less than one-half square foot per student. The consultants recommend that this space for those institutions be included with open labs in the analysis of space need for that category.

For the doctoral universities and the comprehensive universities, the IPEDS research expenditures number for FY '98 was used since it included the Fall 1997 base term. IPEDS was used, rather than National Science Foundation (NSF) R&D expenditures since only the doctoral institutions and three of the comprehensive institutions had amounts in the NSF database. All of them show research expenditures in the IPEDS reporting.

The states which use research expenditures to generate square feet in their space need models are Texas and Virginia. Texas has a dollar amount, which is adjusted regularly for inflation. At present, it provides 9,000 assignable square feet per approximately $1,175,000 in research expenditures. Virginia uses a slightly different approach. For lab intensive disciplines, it provides 800 asf per $100,000 of research expenditures. For non-lab intensive disciplines, it provides 450 asf per $100,000 of research expenditures. In addition, Virginia provides 10 asf per FTE graduate student.

In reviewing these factors, the consultants recommend for Kentucky a figure which can be used on a campuswide basis be utilized. After looking at information available about the research expenditures, the consultants recommend 700 asf per $100,000 of research expenditure campuswide.

RECOMMENDATIONS

Doctoral Universities	700 asf per $100,000 of Research Expenditures
Comprehensive Universities	700 asf per $100,000 of Research Expenditures
Community Colleges	Space in this category should be combined with Open Lab Space
Technical Colleges	Space in this category should be combined with Open Lab Space

OFFICE SUITES

Office space analysis usually consists of at least three types of space: 1) the offices and workstations; 2) conference rooms; and 3) office service space which includes work rooms, supply rooms, reception areas, and other portions of an office suite.

The amount of space needed for offices can be influenced by whether the offices are arranged along public double-loaded corridors or whether they are in suites, which are separated from the public corridors, where all of the floor area

inside the suite is normally considered assignable square footage. The most appropriate way to evaluate the need for office space is on a space per FTE employee basis. It is necessary to remove individuals in crafts, trades, and service functions that are not normally office-based.

In looking at how other states approach this category, those that do space on a square foot per full-time equivalent employee basis include New Jersey which provides 160 asf per FTE, and Utah which provides 195 asf per FTE for the research universities, 170 asf per FTE for the state universities and for rural community colleges (true junior colleges), and 150 asf per FTE for urban community colleges (comprehensive, including vocational/technical two-year programs).

The Texas Coordinating Board uses 190 asf per FTE for faculty and 170 asf per FTE for non-faculty individuals.

When original findings were reviewed with the campus representatives, there was a view that the square feet per staff FTE numbers of office space seemed high. The field trips showed that there are non-institutional agencies housed on many of the campuses. The campuses have been asked to identify such space so it can be removed from this analysis. This has been done and the revised numbers shown reflect any changes submitted by the institutions during the course of this study.

The original findings also showed that for the University of Kentucky, the employees who are housed in the hospitals need to be removed since the health care space is not incorporated into this analysis. Revised numbers for such individuals and individuals housed off-campus in cooperative extension programs were provided by both the University of Kentucky and Kentucky State University. The University of Louisville also checked to make sure that its staff number appropriately reflected the people housed in the educational and general facilities included in this space planning process.

The square foot per staff member numbers remain very high. CPE should do further analysis regarding existing space in this category.

FINDINGS

Type of Institution	*ASF per FTE Staff*
Doctoral Universities	210
Comprehensive Universities	241
Community Colleges	155
Technical Colleges	210
Systemwide Average	

Kentucky State Higher Education
Office Guideline Analysis

	Full-Time Faculty & Staff	Part-Time Employees	Factor	Part-Time FTE Equivalent	Total FTE	Proposed Office Guideline	Guideline Office Space	Existing Office Space	Surplus or (Deficit)	Actual ASF per FTE Faculty & Staff
Doctoral										
UK	5,598	1,856	0.33	619	6,217	195	1,212,250	1,320,218	107,968	212
UL	3,381	1,721	0.33	574	3,955	195	771,160	816,343	45,183	206
Subtotal Doctoral	8,979	3,577	0.33	1,192	10,171	195	1,983,410	2,136,561	153,151	210
Regional										
EKU	1,313	711	0.33	237	1,550	170	263,500	300,668	37,168	194
KSU	388	41	0.33	14	402	170	68,283	108,757	40,474	271
MoSU	796	277	0.33	92	888	170	151,017	188,726	37,709	212
MuSU	855	200	0.33	67	922	170	156,683	291,646	134,963	316
NKU	832	561	0.33	187	1,019	170	173,230	220,327	47,097	216
WKU	1,197	241	0.33	80	1,277	170	217,147	363,033	145,886	284
Subtotal Regional	5,381	2,177	0.33	726	6,107	170	1,038,133	1,473,157	435,024	241
Community Colleges (No split out available) **Subtotal Community Colleges**	2,028	1,503	0.33	501	2,529	150	379,350	392,529	13,179	155
Technical Colleges	1,048		0.33		1,048	150	157,200	219,742	62,542	210
SYSTEMWIDE TOTAL	**17,436**	**7,257**		**2,419**	**19,855**		**3,558,093**	**4,221,989**	**663,896**	**213**

The recommendations are as follows.

RECOMMENDATIONS

Type of Institution	*ASF per FTE Staff*
Doctoral Universities	195
Comprehensive Universities	170
Community Colleges	150
Technical Colleges	150
Systemwide Average	**N/A**

LIBRARY

Library space is included in the model. It was determined not to apply a traditional library space needs guideline in Kentucky because, with the development of the Kentucky Virtual Library, it is assumed that the need for additional library space will have been substantially met. Administrators of the Kentucky Virtual Library note that the Virtual Library may in some cases increase the need for reader station space. For the Kentucky space needs model, the recommendation is that existing library space be utilized as the guideline in the model and that any additional needs for library would have to be separately and specifically justified by the institution.

RECOMMENDATIONS

All Institution Types	Existing Library Space Carried Forward

PHYSICAL EDUCATION/RECREATION

A decision was made early in the planning process to exclude athletics from this category. Space at all institutions coded as Athletic Seating has been removed from the space needs model. For the doctoral universities, facilities which are 100% used for athletics have been identified on a building-by-building basis and excluded from the model. For the comprehensive universities, where athletics tends to use facilities on a time of day basis that are also used for physical education and recreation, no adjustments have been made to the space inventory for this category.

The consultants have found that the most reliable physical education/recreation model is one developed at the University of Illinois in the 1960s by Harlan Bareither and Jerry Schillinger, and published in their book University Space Planning. This model said that for all active physical education users, a total of 12.1 square feet should be provided for both activity space and support space such as locker rooms. They proposed that this model amount be

applied to all undergraduates, to 25% of the graduate students, and to 15% of the employees at the institution.

A 75,000 asf minimum was utilized for the doctoral universities and the comprehensive universities. The minimum was the amount utilized at Kentucky State University and Morehead State University. All others generated more than the minimum.

Less than half the community colleges showed space in this category, and in most places it was just one or two rooms all under 2,500 asf, with the exception of Paducah Community College which has a full gymnasium. None of the technical colleges show any space in this category. Therefore, for the community colleges, existing space was carried forward. If any community college or technical college propose additional space in this category, they will need to justify it specifically.

RECOMMENDATION

Doctoral Universities	12.1 asf for 100% Undergraduate FTE; 25% of Gradute FTE; 15% of Faculty Staff
Comprehensive Universities	12.1 asf for 100% Undergraduate FTE; 25% of Gradute FTE; 15% of Faculty Staff
Community Colleges	Existing Space Carried Forward
Technical Colleges	No Standard Recommended

SPECIAL USE AND GENERAL USE

These categories consist of a wide variety of space. They include the following:

SPECIAL USE FACILITIES	
Room Use Code (service codes not shown)	
510	Armory
520	Athletic or Physical Education
523	Athletic Facilities Spectator Seating (excluded)
530	Media Production
540	Clinic
550	Demonstration
560	Field Building (excluded)
570	Animal Quarters
580	Greenhouse
590	Other Special Use

GENERAL USE FACILITIES	
Room Use Code (service codes not shown)	
610	Assembly
620	Exhibition
630	Food Facility (excluded)
640	Day Care
650	Lounge
660	Merchandising (excluded)
670	Recreation
680	Meeting Room

Field buildings were excluded if they appear on a main campus. All farm sites were fully removed.

A number of general use categories were removed from this analysis since they are primarily auxiliary facilities. These included food facility and merchandising. The findings for this category is as follows.

FINDINGS

Type of Institution	*ASF per FTE*
Doctoral Universities	21
Comprehensive Universities	18
Community Colleges	12
Technical Colleges	7
Systemwide Average	**16**

The consultants have found that the results in this category vary widely from campus to campus, and from space type to space type when these are compared across state lines. The findings the consultants proposed in Utah and Minnesota were influenced heavily by specific local conditions in those states. The findings from those states would be very different than the existing spaces at the institutions in Kentucky. Therefore, the recommendations for these types of facilities are based primarily on analysis of the existing amounts of space for the Kentucky institutions. The recommendation is as follows.

RECOMMENDATION

Type of Institution	*ASF per FTE Student*
Doctoral Universities	21
Comprehensive Universities	18
Community Colleges	12
Technical Colleges	6
Systemwide Average	**N/A**

SUPPORT SPACE

This category consists of central computer and telecommunications facilities, central storage facilities, indoor vehicle storage, central services, and hazardous materials facilities. This space is often looked at as a percentage of other campus space, so that as the campus space inventory increases, the need for support space would also increase. The need for such space can vary depending on whether there are power plants on the campus or whether utility services are purchased from public utilities. Indoor vehicle storage has been removed from the analysis. The amounts of space tend to be greater at more complex institutions. The amounts of space in this category for the Kentucky types of institutions are as follows.

FINDINGS

Type of Institution	*ASF per FTE Student*
Doctoral Universities	18
Comprehensive Universities	10
Community Colleges	4
Technical Colleges	5
Systemwide Average	**10**

When looked at as a percentage of the space at the institutions, the factor works out as follows.

FINDINGS

Type of Institution	*% of Total Ed & Gen ASF*
Doctoral Universities	10%
Comprehensive Universities	8%
Community Colleges	5%
Technical Colleges	4%
Systemwide Average	**9%**

Space guidelines have suggested as much as 9% in the state of Texas and 8% from the Council of Educational Facility Planners, International. However, the consultants have found that these almost always overstate the case. In looking at average data from other four-year institutions run by the consultants, the average has been 5.2%. The recommended guideline is on a space per FTE student basis to keep the same concept throughout the model.

The doctoral universities data in this category is substantially affected by the large amount of central storage space (over 330,000 asf) at the University of Kentucky. At looking through the extent to which this is distributed among almost all campus buildings, the consultants believe that the University may well be coding storage space that is not central storage, but is in unit's office suites, as part of the central storage space and may similarly be coding certain service facilities related to labs as central storage. The University does have an unusually large amount of storage space in the Reynolds Warehouse Complex.

The finding for Kentucky is more than twice the percentage of existing space, as was found in Minnesota State Colleges and Universities study. For each institutional type, the Kentucky institutions have a higher percentage of space in this category than was found in Minnesota.

RECOMMENDATION

Type of Institution	*Physical Plant ASF per FTE*
Doctoral Universities	8
Comprehensive Universities	8
Community Colleges	4
Technical Colleges	4
Systemwide Average	**N/A**

SPACE QUALITY ANALYSIS

The consultants were asked to advise as to how space quality could be folded into the space modeling exercise. Dennis Jones of the National Center for Higher Education Management Systems played a strong role in the evaluation of this topic.

The Kentucky institutions have provided building record information that lists a particular building as in good quality or needing renovations up to 25% of building replacement cost, up to 50% of building replacement cost, etc. This information is not viewed as being reliable and a better method needs to be found. Virginia has focused on an approach which rewards those institutions that keep their deferred maintenance figures below 5% of replacement cost. Virginia is still refining this concept, as very few institutions have achieved that percentage.

In Kentucky, there has been no real incentive for institutions to aggressively address deferred maintenance since state funds have been available when deferred maintenance became serious.

The consultants recommend the following. Kentucky should look at reclassifying deferred maintenance as an ongoing operating expense. New accounting practices will require public institutions to depreciate facilities in the future. The institutions should be putting aside an appropriate percentage of replacement value to handle deferred maintenance. This allows the state capital construction process to focus on new construction and major remodeling of facilities.

The consultants recommend that the institutions regularly calculate replacement costs for all their facilities. The institutions are urged to look at techniques currently being used for insurance purposes to see if they might have applicability to this process. Once replacement cost figures have been produced for which there is some confidence that they have been developed in an appropriate way, an annual inflation adjustment to those factors can be made. Once the total replacement cost figure is known, the percentage that should be set aside to appropriately address ongoing maintenance of the facilities can be determined. It may be necessary for the state to make a one-time budget adjustment to reflect the change to incorporating deferred maintenance within the operating budget assumptions. After that, it would be the institutional responsibility to allocate appropriate operating funds to handle deferred maintenance of their facilities.