EAB

Working with Academic Leaders to Improve Space Utilization

Best Practices for Inflecting Behavior Change and Improving Utilization Rates

Facilities Forum

Facilities Forum

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Supporting Members in Best Practice Implementation

Resources Available Within Your Membership

This publication represents only one of our many resources to support members in their drive to improve space utilization. Details about additional resources are provided below.

For additional information about any of these services—or for an electronic version of this publication—please visit our website (eab.com/facilitiesforum), email your institution's dedicated advisor, or email research@eab.com with "Facilities Forum Working with Academic Leaders to Improve Space Utilization Request" in the subject line.

Enhancing Space Data Collection and Validation

Perfecting Facilities Data Collection and Improving Unit-Owned Data Validation

This study helps institutions improve the collection and validation of space data. It outlines strategies to enhance Facilities-led walkthrough of campus space and to improve data validation provided by units. It also previews technologies that support automated collection of space data.

Taking Space Offline

How Bowling Green State University Judiciously Reduced Campus Space and Cut Deferred Maintenance

This brief profiles one university's blueprint to strategically decommission underutilized classrooms to advance academic priorities and better appeal to a changing student profile. It provides tactics to generate executive buy-in and identify the best candidates for decommissioning.

Unlimited Access to Experts

Facilities Forum members may contact EAB researchers at any time to discuss our findings, request networking conversations, or review related resources and practices.

On-Demand Webconferences

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Executive Summary

Higher Ed Facing Genuine Space Crunch

Space management has always been a critical issue for higher education institutions, but recent enrollment trends are making it much more pressing. Nationally, enrollment has grown nearly 12% between 2007 and 2013. Across the same time period, campus space grew only 6%. The resulting tightening space has restricted some institutions' ability to execute on academic and financial priorities, such as launching new research or academic programs.

"Build to Grow" Mentality No Longer Sustainable

In the past, most colleges and universities would have accommodated new faculty or additional students with renovations or construction of new buildings. However, revenue declines in the last decade make this past strategy unsustainable. Instead, institutions must make better use of existing space and improve overall space utilization.

Representative Opportunities to Redeploy Underutilized Space

Departments scheduling fake courses to hold onto classrooms	Faculty with multiple offices	Lab space remains assigned to researchers with declining funding
Only using teaching labs once a day to accommodate faculty preferences	Limited access to departmentally owned conference rooms	Offices with names of faculty no longer at institution still on the door
Guaranteed private offices for adjuncts and emeriti faculty	High-tech classrooms always scheduled, low-tech rooms always free	Departments scheduling courses in rooms based on adjacency, not enrollment

Correcting current misuses and redeploying underutilized space has significant cost-savings potential. One institution estimates that by redeploying just 2% of its general education space, the campus can avoid new construction for several years. At a cost of $300 per square foot, the university will save $45 million in avoided construction fees.

Partnering with Academic Leaders to Improve Space Utilization

To help Facilities leaders improve utilization of existing space, the Facilities Forum recommends a four-part strategy. The first step is to improve space governance to ensure institutions make informed and strategic space decisions. Then, Facilities leaders must work with academic leaders to address the root causes driving underutilization of three space types:

- Recalibrate the allocation and size of faculty offices
- Increase the share of centrally scheduled classrooms with targeted policy changes and incentives
- Use productivity metrics to guide lab allocation decisions

Resources to Improve Space Utilization

To help Facilities leaders improve space utilization, this report provides nine executive best practices to improve space decision making and incentivize better use of existing space.

Current State of Higher Education Space Management

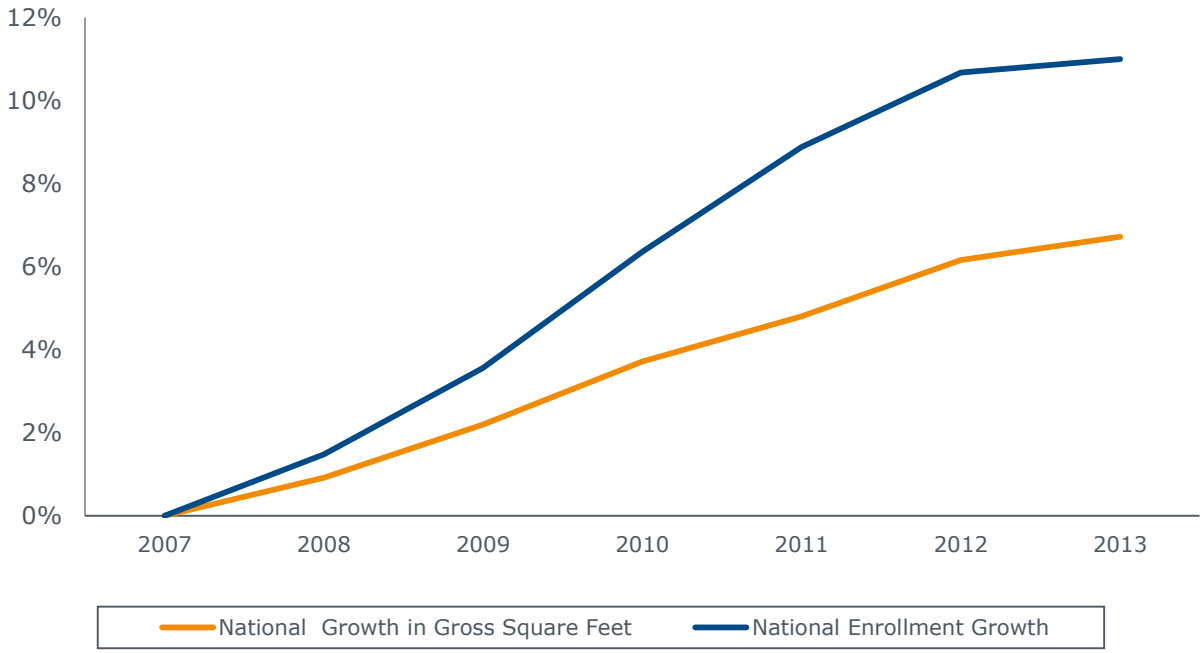
INTRODUCTION

Higher Ed Facing a Genuine Space Crunch

Enrollment Growing Faster Than GSF[1]

Space management has always been a critical issue for higher education institutions, but recent enrollment trends are making it much more pressing. Nationally, enrollment has grown nearly 12% between 2007 and 2013. Across the same time period, campus space grew only 6%. Of course, enrollment trends vary significantly, with some campuses facing flat or declining enrollment and others seeing substantial growth. In most cases, however, campus space has not kept pace with growing enrollment.

Growth in College and University Space and Enrollment, 2007-2013



Notably, recent and long-term trends differ dramatically, with space per student growing drastically in the past half-century. According to one estimate, campus space grew nearly 300% between 1974 to 2009, increasing from 160 square feet per student to 450 square feet per student. This switch, from space outpacing enrollment to the reverse, has negatively impacted operations.

Source: Carlson S, "Campus Officials Seek Building Efficiencies, One Square Foot at a Time," *The Chronicle of Higher Education*, April 17, 2009, http://chronicle.com/article/Campus-Officials-Seek-Building/3292; Sightlines, "State of Facilities in Higher Education: 2014 Benchmarks, Best Practices, & Trends," 2014; Facilities Forum interviews and analysis.

1) Gross square feet.

Tightening Space Impeding Mission and Growth

Tightening space on campus has restricted some institutions' ability to execute on academic and financial priorities. For example, one university was unable to recruit a star researcher because they could not offer compelling research lab accommodations. Another institution had to cap enrollment of a growing Master's program because it could not provide appropriate instructional space. Even more alarming, one university reported that it had to cap enrollment of its entire nursing college due to capacity constraints in the undergraduate introductory biology courses.

Impact of Space Constraints on Recruitment and Program Growth

A private research university was **unable to recruit a star researcher** to campus because leaders could not reclaim underfunded lab space to create a compelling lab setup.

An urban college had to **cap enrollment of a growing program** due to space constraints and an inability to provide the appropriate type of instructional space.

A public masters university had to **limit enrollment in its popular nursing school** due to capacity constraints on biology courses.

Source: Facilities Forum interviews and analysis.

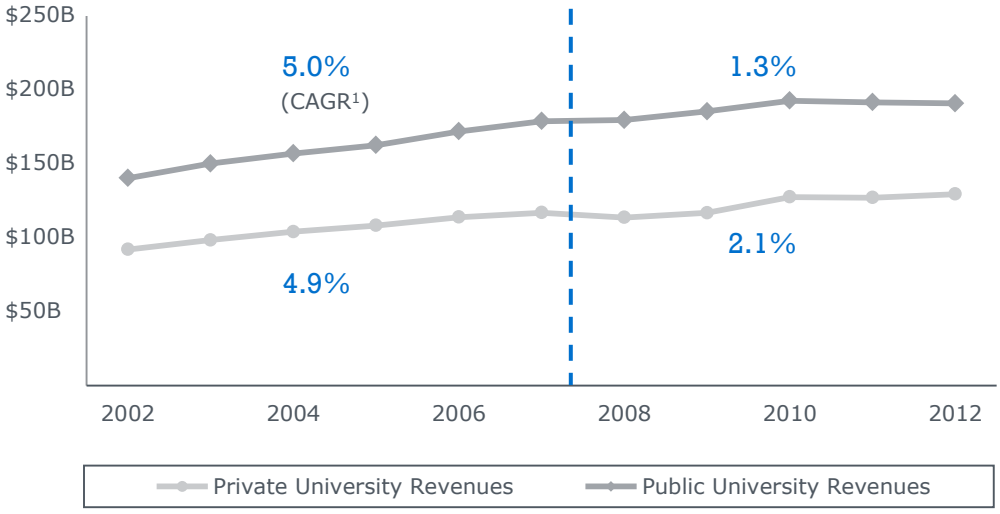
"Build to Grow" Mentality No Longer Affordable

Revenue Growth Stagnating at Public and Private Institutions

Unfortunately, most institutions can no longer afford a "build to grow" mentality. In the past, most colleges and universities would have accommodated new faculty or additional students with renovations or construction of new buildings. However, revenue declines in the last decade make this past strategy unsustainable.

Total Revenue Plateaued Post-Recession

Total Revenues, by Sector, 2012 Dollars



The graph above is divided into pre- and post-recession revenue. Annual revenue growth rates prior to 2008 were approximately 5% for both public and private institutions. By comparison, after 2008, revenue is growing at a rate of 1.3% at public institutions and just over 2% at private institutions. And even as revenues have flattened, most institutions report costs are still growing faster than the rate of inflation.

Source: Carlson, S, "Campus Officials Seek Building Efficiencies, One Square Foot at a Time," *The Chronicle of Higher Education*, April 17, 2009, http://chronicle.com/article/Campus-Officials-Seek-Building/3292; EAB Analysis of IPEDS Data, Enrollment Management Forum; Facilities Forum interviews and analysis.

A Problem of Excess, Not Shortage

Instead of building to grow, institutions must make better use of existing space and improve overall space utilization. This page captures a handful of the most egregious examples of misused space. Many institutions have faculty with multiple offices scattered across campus. At some institutions, faculty insist that instructional labs be used only once a day to ensure lab directly follows lecture. Some Facilities leaders have even uncovered departments scheduling fake courses to box other units out of certain classrooms.

Representative Opportunities to Redeploy Underutilized Space

Departments scheduling fake courses to hold onto classrooms	Faculty with multiple offices	Lab space remains assigned to researchers with declining funding
Only using teaching labs once a day to accommodate faculty preferences	Limited access to departmentally owned conference rooms	Offices with names of faculty no longer at institution still on the door
Guaranteed private offices for adjuncts and emeriti faculty	High-tech classrooms always scheduled, low-tech rooms always free	Departments scheduling courses in rooms based on adjacency, not enrollment

Cost Savings Opportunity from Sample Institution

7.5M	→	2%	×	$300	=	$45M
SF of general education space		Redeployment of space		Cost per SF of avoided new construction		Savings from redeploying existing space

Many of these opportunities are the result of decisions made decades ago when space was expanding faster than enrollment. Institutions now recognize that correcting these misuses and redeploying underutilized space has significant cost-savings potential. One institution estimates that by redeploying just 2% of its general education space, the campus can avoid new construction for several years. At a cost of $300 per square foot, the university will save $45 million in avoided construction fees.

Source: Facilities Forum interviews and analysis.

In Any Other Industry…

Acknowledging the Challenges of Space Management in Higher Education

While identifying and redeploying underutilized space would be a straightforward activity in most industries, space management in higher education is complicated by historical culture and shared governance. In particular, leaders in the higher education industry are often limited in the space management tactics they can deploy. Sample private industry strategies and corresponding limitations in higher education are listed below.

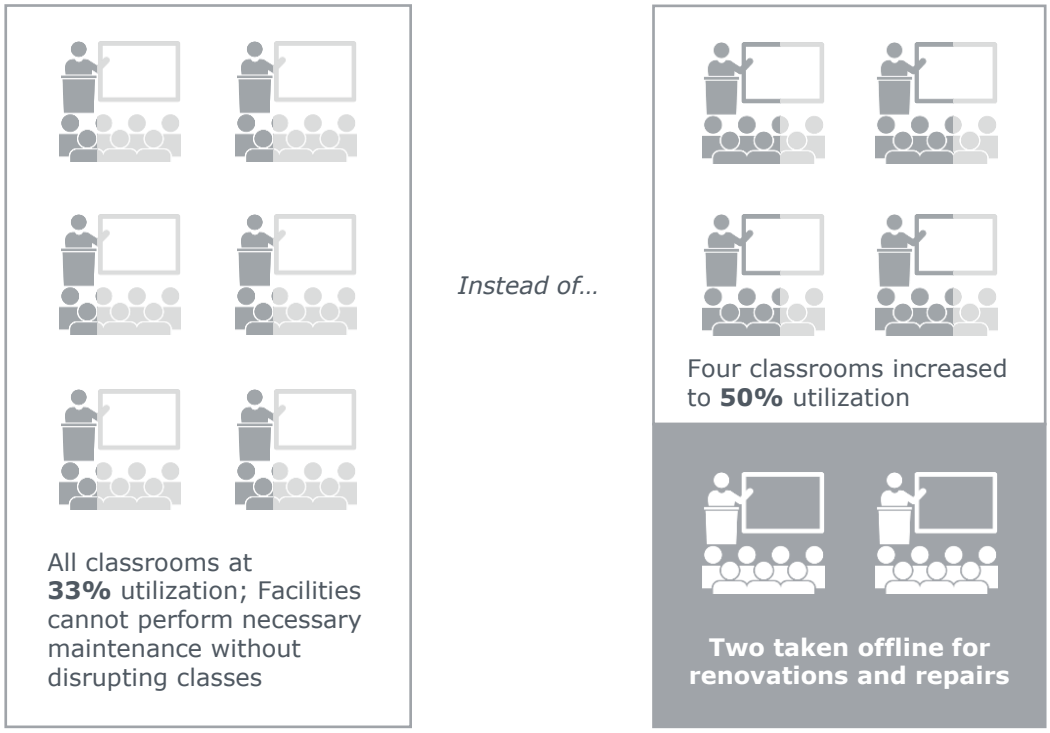
Corporate Facilities Solution		Higher Ed Defense
Leaders decide to move departments and dedicate entire floor to growing division	>>	Shared governance requires space decisions be made in large space committee
Company introduces open floor plan to maximize seating arrangements	>>	Faculty insist on right to private offices, despite minimal usage
All departments have ability to schedule meetings in shared conference rooms	>>	Departments claim ownership of certain spaces and restrict access
Reassign lab space based on grant funding or anticipated ROI	>>	Lab assignments viewed as permanent, despite changing grant arrangements

Source: Facilities Forum interviews and analysis.

Poor Utilization Exacerbating Deferred Maintenance

Most Classrooms Used Just Enough to Prevent Necessary Facilities Access

Beyond the difficulty in identifying space management strategies appropriate for higher education, there are a number of developing challenges making better space management more urgent. The first challenge is the connection between space use and deferred maintenance. The current approach to space management exacerbates deferred maintenance by preventing Facilities from accessing rooms to make necessary repairs and renovations, illustrated below.



This institution has a 33% utilization rate across six classrooms. In theory, it could increase the utilization rate of some classrooms to 50% and take two classrooms temporarily offline for repairs. Unfortunately, due to decentralized classroom ownership or strong faculty preference for certain spaces, this rarely happens, and necessary repairs are delayed.

Source: Facilities Forum interviews and analysis.

Looming "Renovation Boom" Requires Swing Space

Piecemeal Renovations Dramatically More Expensive

The second major challenge is a looming renovation boom. Approximately 40% of campus buildings were built in the post-war construction boom between 1950 and 1975, meaning a significant portion of campus space is due for major renovations and upgrades. Campus leaders approach major building renovations in one of two ways, outlined on the right. The first is a floor-by-floor approach, only displacing the units and departments on the affected floors. The second approach is an entire building renovation.

40%

Percentage of buildings constructed from 1950 to 1975; many now due for major renovations and repairs

Sure, I've Got Swing Space

"I have 50,000 square feet of unoccupied space. But it's spread across multiple buildings!"

Facilities Leader
Private Research University

Two Science Building Renovation Scenarios at Sample Institution

$3M Cost of floor-by-floor renovation Time: 2-3 years	*vs.*	**$1M** Cost of comprehensive renovation Time: 1 year

Facilities leader used cost projections to convince university leaders to take a comprehensive renovation approach, despite faculty protests

One institution estimated that renovating their science building using the floor-by-floor approach would take three years and $3 million to complete. By comparison, a whole-building renovation would take $1 million and a single year. To complete this speedier and less costly renovation, however, institutions need swing space to accommodate displaced units. Better managing existing space will help leaders create the swing space necessary to execute quicker, cheaper whole-building renovations.

Source: Sightlines, "State of Facilities in Higher Education: 2014 Benchmarks, Best Practices, & Trends," 2014; Facilities Forum interviews and analysis.

Space Issues Increasingly Politicized

Underutilize Space at Your Own Peril

The third challenge making space management more urgent is its increased political importance and scrutiny. The list on the left highlights states and provinces requiring public institutions to report space utilization data. In fact, the bolded states and provinces explicitly tie capital funding decisions to whether an institution is above or below a predetermined utilization threshold.

States and Provinces Tracking Space Utilization

Bolded states/provinces link utilization to capital funding

Alberta
British Columbia
California
Colorado
Florida
Georgia
Iowa
Kentucky
Louisiana
Maryland
Minnesota
Missouri
Montana
New Mexico
North Carolina
North Dakota
Oklahoma
Ontario
Pennsylvania
Saskatchewan
Texas
Virginia
West Virginia

Sample of 665 Institutions Signing Presidents Climate Commitment

Some schools choosing to cap or shrink campus physical footprint

American University
Auburn University
Butler University
Clemson University
Cornell University
Davidson College
Duke University
Ithaca College
George Mason University
Ohio University
Pomona College
Simon Fraser University[1]
Syracuse University
Temple University
Texas Christian University
University of Dayton
University of Delaware
University of Florida
University of Illinois
University of Maryland
University of Memphis
University of New Mexico
University of Utah
University of British Columbia[1]

In another example, the list on the right calls out just a handful of the 665 institutions that have signed the Presidents Climate Commitment. One of the first steps some institutions have taken after signing the pledge is to cap the campus at its current footprint.

1) All British Columbia universities are covered under the province's Carbon Neutral Government initiative.

Source: Second Nature, "Reporting Institutions," rs.acupcc.org; Facilities Forum interviews and analysis.

Getting Space Targets Right a Worthwhile Effort

Facilities Forum Analysis of Average Office, Instructional Space Targets

Of course, improving space management is easiest in newly constructed or renovated spaces. Leaders can better hardwire desired space behavior with smaller offices or shared labs. While this approach cannot be the full solution, since only 20% of the average campus's inventory is renovated or constructed each decade, it is an important opportunity for Facilities to leverage. More importantly, leaders should create space targets that will be strictly enforced in all renovations and construction. To assist this effort, the Facilities Forum benchmarked space targets for offices and instructional spaces.

Average Office Space Square Feet (SF) by Position

Title	Institutions with Target	Average (SF)	Range (SF)
President	15%	343	225-400
Provost	36%	260	150-400
VP	55%	231	150-320
AVP	36%	186	125-250
Dean	64%	215	120-320
Associate Dean	36%	170	140-225
Chair	45%	175	140-200
Full-Time Faculty	100%	130	80-186
Director/Manager	42%	154	120-240
Professional Staff	58%	116	64-186
Adjunct	30%	71	35-120
Visiting	15%	100	72-130
Emeritus	21%	65	30-110
Doctoral Student	27%	81	30-140
Graduate Assistant	55%	66	30-120

Ranges include workstation allocations, not just private offices

Average Net Assignable Square Feet (NASF) by Room Type

	Average	Range
Classrooms	17 NASF/ student	9-23 NASF/ student
Labs	63 NASF/ workstation	19-125 NASF/ workstation

Breakdown of Approach to Instructional Space Targets[1]

51% **Size**: classrooms sorted by size (e.g., small, large) or student capacity

23% **Discipline:** classrooms and labs sorted by academic department

13% **Pedagogy**: classrooms and labs sorted by instructional category

10% **Uniform**: single set of standards for classrooms and labs (usually a minimum)

1) In most cases, institutions define separate targets for classrooms and lab spaces.

Source: Facilities Forum interviews and analysis.

Executive Framework

To help Facilities leaders improve utilization of existing space, the Facilities Forum recommends a four-part strategy. The first step is to improve space governance to ensure institutions make informed and strategic space decisions. The second step is to recalibrate the allocation and size of faculty offices and identify opportunities to redeploy office space to better use. Third, Facilities leaders must increase the share of centrally scheduled classrooms with targeted policy changes and incentives. The final step is to use productivity metrics to guide lab allocation decisions.

The framework below presents the four-part strategy and nine best practices to partner with the academy and improve space utilization.

1

Improving Space Governance Efficacy and Decision-Making Processes

Practice 1
Tiered Space Request Resolution

Practice 2
Standardized New Space Request Form

Practice 3
Facilities-to-Academic-Leaders Space Communication Tools

2

Recalibrating Allocation and Size of Faculty Offices

Practice 4
Enforceable No-Office Protocols

Practice 5
Voluntary Office Withdrawal Incentive

Practice 6
Unit-Level Office Utilization Bonus/Penalty

3

Increasing Share of Centrally Scheduled Classrooms

Practice 7
Classroom Centralization Incentives

Practice 8
Specialized Classroom Recalibration

4

Increasing Research Lab Productivity

Practice 9
Revenue-Driven Lab Allocation

Source: Facilities Forum interviews and analysis.

Improving Space Governance Efficacy and Decision-Making Processes

SECTION 1

- Practice 1: Tiered Space Request Resolution
- Practice 2: Standardized New Space Request Form
- Practice 3: Facilities-to-Academic-Leaders Space Communication Tools

Struggling to Get Space Governance Right

Culloden College[1] Still Tweaking Membership of Space Committee

Space committees can be an important decision-making body on university campuses, helping generate consensus among senior leaders and drive change in space management policies. However, they often fail to drive better space decision making. Institutions struggle to pinpoint the right membership and ensure the right conversations take place. Culloden College is one of many schools that has struggled to assemble the right group, launching three space committees in as many years.

Evolution of Culloden College Space Committee

Three Years Ago: Too Senior

- Composed of vice chancellors
- Membership lacks interest and time to thoroughly consider all space requests

Two Years Ago: Too Junior

- Composed of academic representatives appointed by vice chancellors
- Appointees lack authority and perspective to make strategic decisions

Today: Just Right?

- Composed of associate vice chancellors
- Members have authority and bandwidth to make space management decisions

Reasons Space Governance Fails

- Committee asked to make decisions that are too routine (e.g., replacing carpeting in classroom) or too broad for current membership
- Committee lacks the necessary data to make an informed decision
- Members aren't bought into better space management and deprioritize committee attendance

There are three main reasons that the typical approach to space governance fails. First, space committees often consider requests that are too routine. Members, particularly senior leaders, may disengage when asked to consider requests that are too narrow, such as replacing classroom carpeting. Second, committees sometimes lack the data necessary to make an informed decision. Finally, the committee will quickly fail if members are skeptical of the value or efficacy of the space governance process. Members who have not bought in to the value of a space committee often deprioritize committee attendance, and the committee becomes defunct. This section details three practices to rectify these common issues.

1) Pseudonym.

Source: Facilities Forum interviews and analysis.

Practice 1: Tiered Space Request Resolution

Practice in Brief

Institutions establish a formalized process to triage all space requests to the most appropriate decision makers. The goal is to create a more efficient review process and protect senior-level committee members' time from low-importance requests that do not require their input.

Rationale

Many institutions do not have a clearly defined process for evaluating space requests. This often leads to space committees considering poorly scoped requests or requests that do not align with the committee's purview. In some cases, unclear processes drive confused or frustrated applicants to circumvent the process altogether and make rogue space changes on their own. A clearly defined process for reviewing space requests enables institutions to quickly triage and direct incoming space requests to the appropriate recipient for further review.

Implementation Options

Option 1: The Gatekeeper Model

Institutions appoint a single person to triage all space requests, filtering out requests that can be addressed by Facilities and sending only the most strategically important or costly requests to a senior space committee for review.

Option 2: Bicameral Space Committee

Institutions develop a two-committee review process in which a junior committee screens every space request, addressing any requests within their purview and only sending requests that require further review to a senior-level committee.

Option 3: Email-Only Renovation Committee

Institutions send all space requests to an email-only space committee. Committee members review, discuss, and approve requests via email, allowing projects to be considered and reviewed more quickly.

Practice Assessment

The first two strategies protect the time of senior committee members from low-importance requests that do not require their input. Institutions should only consider pursuing the third option once they have a well-established, trusted space request evaluation process.

Anatomy of a Space Committee

The first step in establishing a successful space committee is selecting the right membership. Based on a Facilities Forum survey, the table below outlines how frequently various stakeholders are members of the space committee. The provost, chief business officer, and head of facilities are the most common members. The Facilities leader often serves as the co-chair with the provost or as an ex officio member. Most space committees are made of up five to 10 members and meet monthly or quarterly to review space requests.

Frequency of Committee Membership by Job Title

Committee Member	Frequency
President	7%
Provost	64%
Chief Business Officer	50%
Head of Facilities[1]	50%
Director of Planning	29%
University Architect	28%
Deans	21%
Facilities Representative	36%

Common Characteristics of Space Committees

5-10 members

Chaired by provost and/or facilities leader

Meets monthly to quarterly to review space requests

Seeks executive approval for strategic or costly decisions

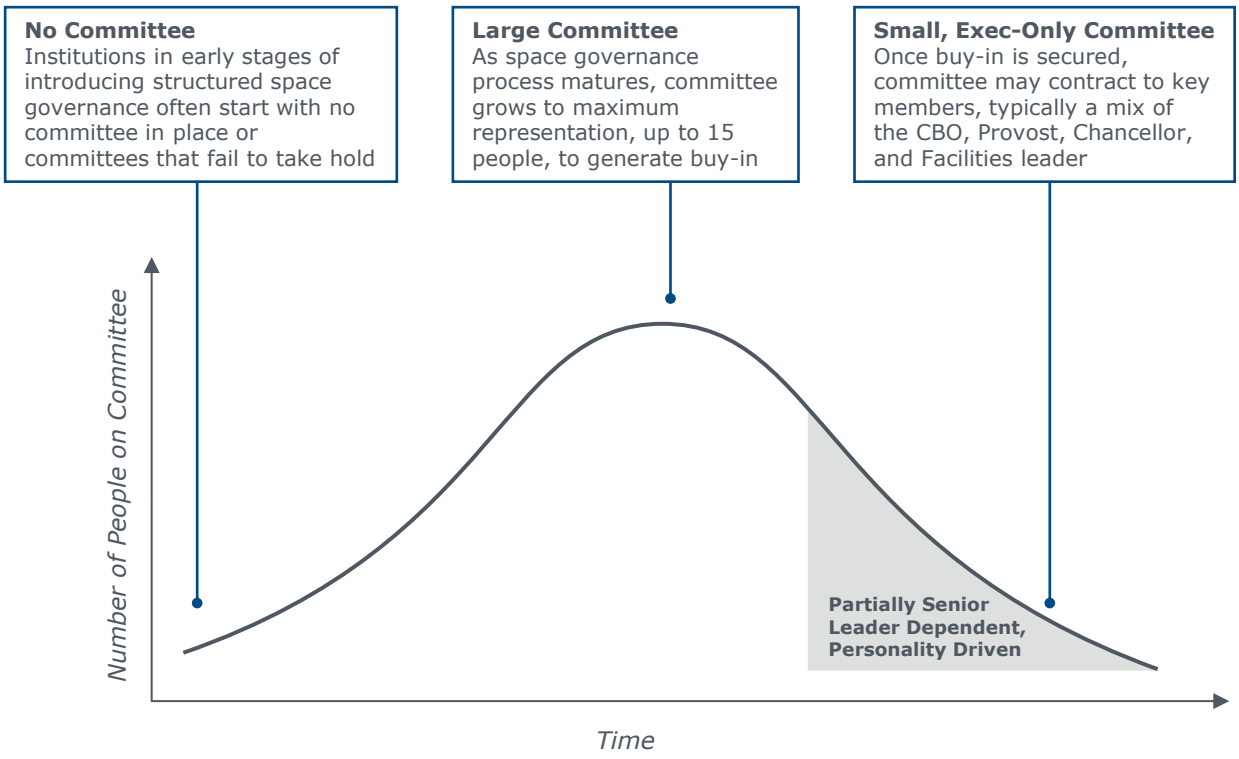
Facilities leader, if not formal member, serves as secretary or advisor

1) Facilities leader often serves as ex officio committee member.

Source: Facilities Forum interviews and analysis.

The Space Committee Maturity Curve

Institutions with more mature space committees observe that membership will naturally expand and contract over the committee's lifetime. Campuses in the early stages of establishing a rigorous space governance process are likely to have larger space committees as a means of generating buy-in. As committee members develop confidence in the established space governance processes, the committee typically begins to shrink to only the most essential decision makers.



Institutions should aim to consolidate committee membership as their governance process matures. However, the final size, structure, and membership of an institution's space committee will vary according to an institution's preference for consensus-driven or top-down decision making. At more decentralized institutions, the space committee is likely to include the president, provost, chief business officer, and a core group of deans. In contrast, committees at more centralized institutions may contract even further to include just two or three senior decision makers.

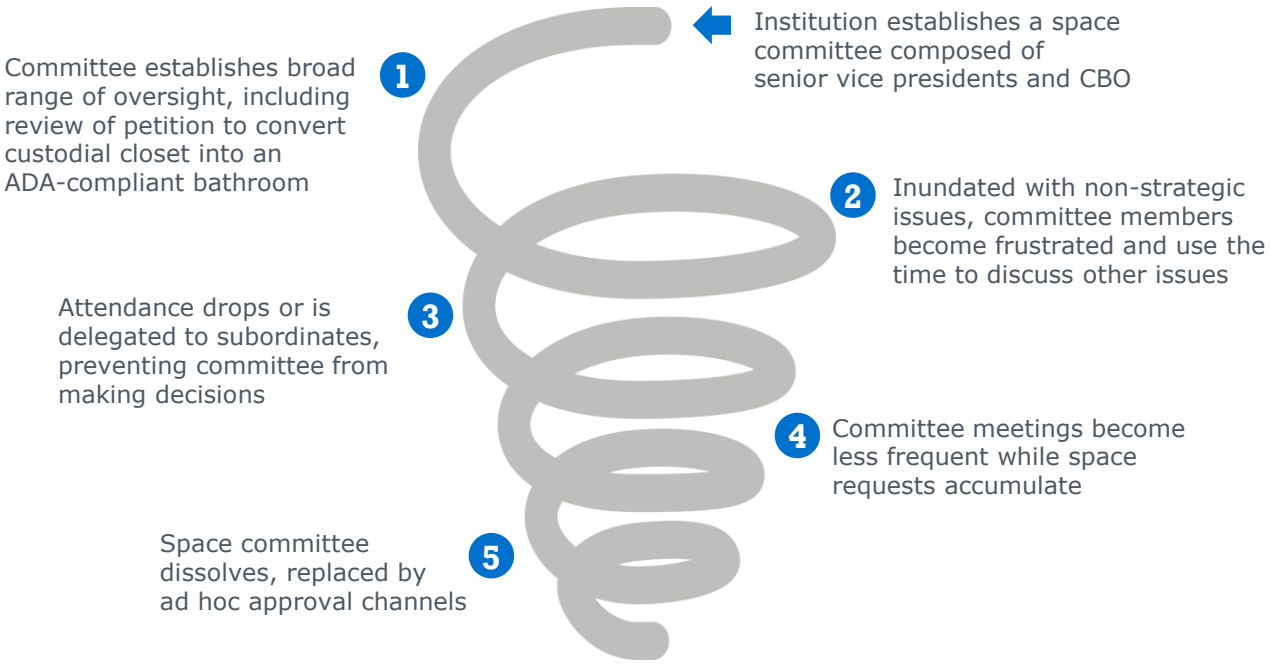
Source: Facilities Forum interviews and analysis.

Right Membership Necessary but Not Sufficient

Filtering Space Requests More Important Than "Right" Membership

Selecting the right membership is important but not sufficient to guarantee a committee's success. Institutions must also carefully scope the types of issues the committee reviews to ensure they are relevant to members. Without a sufficiently scoped focus, committees can stall and ultimately fail, as in the example below.

The Devolution of Representative Space Committee



First, an institution forms a space committee composed of senior leaders. The committee reviews all space requests regardless of project size or scope, inundating members with non-strategic issues. They become frustrated with questions they see as non-strategic and use the time to discuss more urgent issues instead. Eventually, members delegate attendance to subordinates. The new committee lacks decision-making authority, stalling decisions and postponing important projects.

Source: Facilities Forum interviews and analysis.

Two Different Gatekeepers

Academic or Facilities Leader Screens Requests Before Sending to Committee

Option 1: The Gatekeeper Model

Institutions keep space committees on track by creating a tiered review process to vet and send the most important requests to the senior space committee for review. The first option for creating a tiered space request resolution process is to appoint a single person, or gatekeeper, to review all space requests. The gatekeeper vets each request, approving small projects and sending certain requests to the space committee for further review. Pennsylvania State University and Brown University each utilize the gatekeeper model, although they have different people filling the role.

	Penn State University	Brown University
Space Request Filter	Facilities Director	Associate Provost
Advantages	Works with deans and vice presidents to vet space requests; proposes solutions for review	Evaluates strategic importance of request together with the provost based on academic priorities
Request Outcomes	• Request approved or denied • Large capital requests or reassignments of space sent to Facilities Resources Committee • Changes to classroom space sent to University Committee for Instructional Facilities	• Request approved, denied, or put on hold • Projects generally under $1M sent to the Space Committee • Large capital requests sent to Capital Planning Committee

At Penn State, the Facilities Director serves as the gatekeeper, able to vet the viability and cost of every space request. By comparison, Brown uses an Associate Provost to screen space requests against academic priorities. In both models, the space committee only receives requests that pass the gatekeeper's screening process. This protects the committee's time and ensures senior-level members focus on the most important space decisions.

Source: Brown University, Providence, RI; Pennsylvania State University, State College, PA; Facilities Forum interviews and analysis.

A Bicameral Approach

Junior Committee Screens Requests for Senior Committee at Boston University

Option 2: Bicameral Space Committee

The second option for establishing a tiered space request resolution process is to establish a bicameral space committee. In this model, a junior space committee reviews all space requests, approving routine requests and small projects, and only sends the most important decisions to the senior committee.

BOSTON UNIVERSITY

sub-SPACE[1] Committee

- **Role/Purpose:** Reviews routine/small projects and filters space requests
- **Size:** 8
- **Seniority:** Staff to AVP level
- **Composition:** Includes representatives from the Provost's Office, Operations, Facilities Maintenance & Planning, and Budget & Planning
- **Time Commitment:** Biweekly meetings
- **Agenda:**
  - Respond to routine requests and small projects under $1M
  - Advise the SPACE committee on changes to the use, design, layout and condition of campus space and buildings

SPACE[1] Committee

First Line of Defense: Protects time of senior executive by only releasing projects that are costly or complex

Intentionally Small: Few members helps promote consensus on priority setting

Ability to Act: Includes all Facilities and Finance staff needed to vet, approve requests

Cost Filter: Informal $1M cap helps differentiate between projects sub-SPACE can address and those requiring senior approval

Advising Body: Provides reports and recommendations to the executive committee to facilitate discussion and decision making

At Boston University, the more junior sub-SPACE committee is an eight-person group composed of a mix of Facilities employees and assistant vice presidents. It meets every other week, independently considering and deciding on projects under $1 million. For more expensive or complex projects, they augment the request with cost estimates and alternative solutions before sending it on to the executive committee for a final review.

1) SPACE is an acronym for Space Planning and Capital Expenditures.

Source: Boston University, Boston, MA; Facilities Forum interviews and analysis.

Protecting the Time of More Senior Committee

BU's Executive-Level Committee Only Considers Most Important Requests

By comparison, Boston University's senior committee, or SPACE, is composed of the president and five vice and senior vice presidents. The SPACE committee is able to meet less frequently and resolve issues faster because of the junior committee's scoping work. Additionally, their meetings tend to be shorter, since they are considering fewer, more narrowly scoped topics.

BOSTON UNIVERSITY

sub-SPACE[1] Committee

Fixed Membership: Composed of leadership essential to decision-making process

No Term Lengths: If a member leaves the institution, his or her replacement typically fills the seat

Frequently Scheduled: Regular meetings ensure that space decisions are made quickly and efficiently

Sizing the Priority: Determines what space needs are of greatest strategic importance

SPACE[1] Committee

- **Role/Purpose:** Review sub-Space committee reports to approve and prioritize space requests
- **Size:** 5
- **Seniority:** VP/SVP
- **Composition:** Provost (Co-Chair), Senior VP of Operations (Co-Chair), President, SVP/CFO, and VP for Budgeting & Planning
- **Time Commitment:** Bimonthly meetings
- **Agenda:** Review projects and evaluate based on cost, complexity, and ability to meet need within existing space

While the bicameral model requires more people than the gatekeeper option, the junior committee is able to assume more administrative responsibilities from the senior committee, further protecting the time of senior committee members.

1) SPACE is an acronym for Space Planning and Capital Expenditures.

Source: Boston University, Boston, MA; Facilities Forum interviews and analysis.

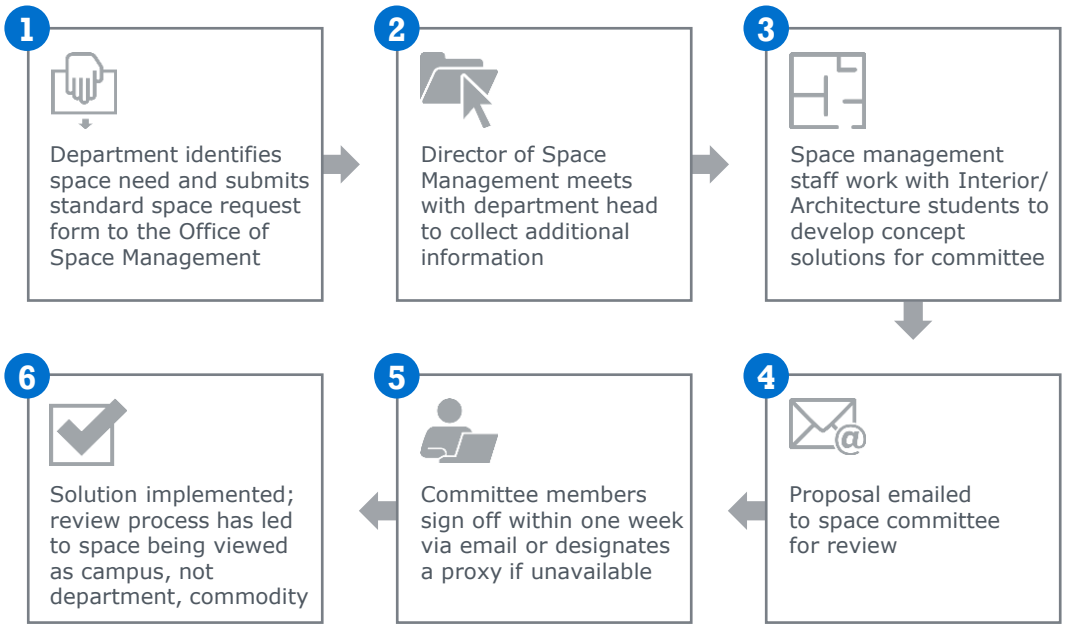
Taking Space Committee Offline

Protect Committee's Time by Resolving Requests Via Email

Option 3: Email-Only Renovation Committee

The final option for establishing a tiered space request resolution process is establishing an email-only committee. In this model, committee members review, discuss, and vote on requests via email, decreasing the time commitment by building in flexibility. For example, Florida International University uses an email-only space committee to review all incoming space requests, ranging from temporary art installations to major space renovations. Once the office of space management reviews a space request to ensure it is appropriately scoped and make a recommendation, it is sent via email to the entire committee. Members all review it by an agreed upon deadline or appoint a proxy to review it in their absence. Final votes are submitted via email, and the project is either approved or denied.

Florida International University's Renovation and Construction Request Resolution Process



Beyond the efficiency of the email-only committee, Florida International has found that requiring faculty, departments, and colleges to seek approval for all changes made to any campus space has led to a decreased sense of ownership over space. Instead, faculty and staff are beginning to view it more as a central resource.

Importantly, Florida International's email-only committee was a natural evolution of a highly successful, well-established in-person committee. Institutions should only consider pursuing this third option after they have had a trusted space request evaluation process in place for a year or more.

Source: Florida International University, Miami, FL; Facilities Forum interviews and analysis

Practice 2: Standardized New Space Request Form

Practice in Brief

Institutions require unit leaders to submit a standardized new space request form to capture all essential information for the space committee and ensure they can fairly evaluate every space request.

Rationale

While most institutions employ a new space request form, the forms do not always capture the information necessary for the space committee to fully vet the request. Most forms do not require unit leaders to elaborate on the necessity of meeting a specific request. Additionally, the committee does not necessarily know whether or not a request aligns with academic priorities. By creating a standardized new space request form that requires senior leaders to sign off, institutions can more reliably gather the necessary information to rigorously evaluate space requests.

Implementation Options

Component 1: Capture Current Unit Space Allocation

The space request form requires applicants to provide Facilities with up-to-date information about the unit's current space allocation. The goal is to identify opportunities to meet a space need through a unit's existing allocation before granting new space.

Component 2: Ensure Serious Consideration of Space Resolution Alternatives

The space request form requires unit leaders to describe previous attempts to meet their need using existing space, forcing unit leaders to explore alternative solutions before requesting additional space.

Component 3: Require Sign-Off from Senior Leadership

The space request form requires unit leaders to receive sign-off on their request from academic leaders before submitting it. This helps ensure that requests align with institutional priorities before the space committee considers them.

Component 4: Assess Strategic Impact of Failing to Address Space Requests

The space request form requires unit leaders to describe how they would adapt if their request is not approved, enabling the space committee to assess the urgency of the request and prioritize competing requests.

Practice Assessment

While institutions can adopt these changes to their request form piecemeal, leaders are encouraged to include all components in their space request forms to help decision makers fully evaluate space requests.

Getting the Right Information to the Right People

Rowan University Requires Updated Space Inventory with All Requests

In order to develop an efficient space decision-making process, institutions must communicate the right information to their space committee. Although many institutions already use a new space request form, they do not always provide the necessary information for committees to fully evaluate the need. A standardized space request provides space decision makers with consistent and relevant information to fairly judge and prioritize competing space requests. This practice outlines four components to creating an impactful form.

Rowan University's Space Request Form

INSTRUCTIONS:

Please Note:

- Prior to individuals submitting any requests for space, it should be vetted with their supervisors/unit heads to ensure that they are in agreement with moving forward.
- Your application will not be processed unless an inventory, including purpose and/or occupancy of all the space currently being used by your departments is complete/and or updated and provided to the office of Campus Planning
- Any rooms that will be vacated to accommodate this request will become a part of the inventory of available space and secured by Division of Facilities and Operations until it is reoccupied
- Complete the form and attach any additional information as necessary. If you have any questions, require assistance or need clarification, please contact the Office of Campus Planning at spaceplanning@rowan.edu or 856-256-4647.

Units are required to submit updated space inventory with request to help vet the merit of their request

Department's data used to update central space database

Component 1: Capture Current Unit Space Allocation

The first component for creating a standardized space request form is capturing a unit's current space allocation. Without current information about unit space, the space committee cannot accurately assess a unit's need for additional space. Rowan University requires units to submit an updated space inventory with every request to help vet the merit of their request. Additionally, Rowan's Facilities department uses this data to update their central space database. Rowan found that units incentivized by the opportunity for new space are more likely to accurately complete and submit space surveys.

For a full version of Rowan University's space request form, please see page 34 of this report.

Source: Rowan University, Glassboro, NJ; Facilities Forum interviews and analysis.

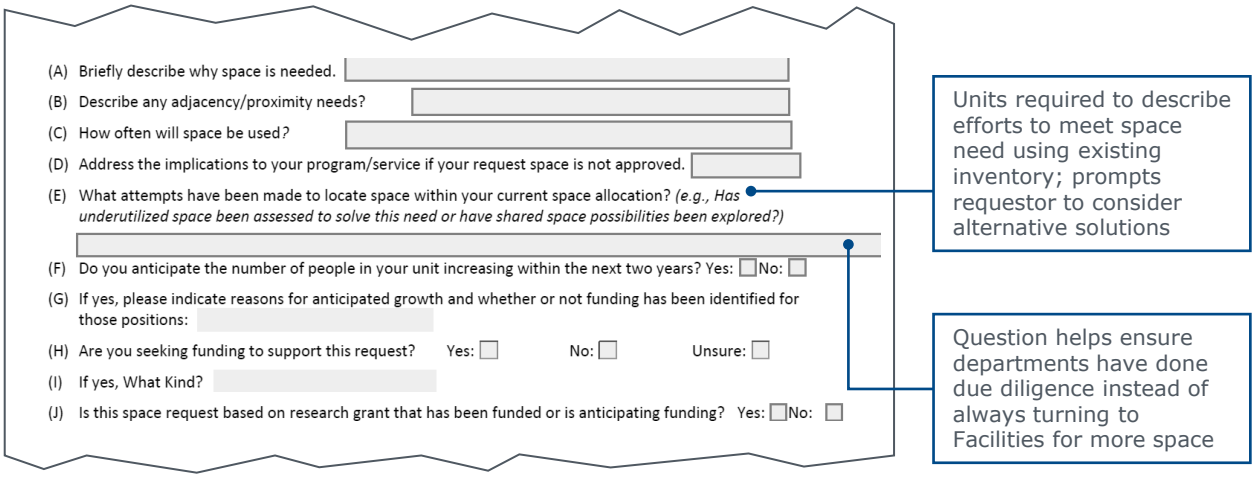
Exhausting All Possible Space Alternatives

Component 2: Ensure Serious Consideration of Space Resolution Alternatives

The second component for creating a standardized space request form is to require applicants to articulate past efforts to meet their space need within their current space allocation. Rowan University supplements this question by including a few possible solutions, encouraging departments to resolve space needs on their own. There are two benefits of requiring applicants to describe previous attempts to meet their space need. First, it ensures unit leaders perform their due diligence in meeting the need before turning to the space committee. Second, it also helps the space committee gauge the severity of the problem, enabling them to prioritize space requests.

Rowan University

Rowan University's Space Request Form



For a full version of Rowan University's space request form, please see page 34 of this report.

Source: Rowan University, Glassboro, NJ; Facilities Forum interviews and analysis.

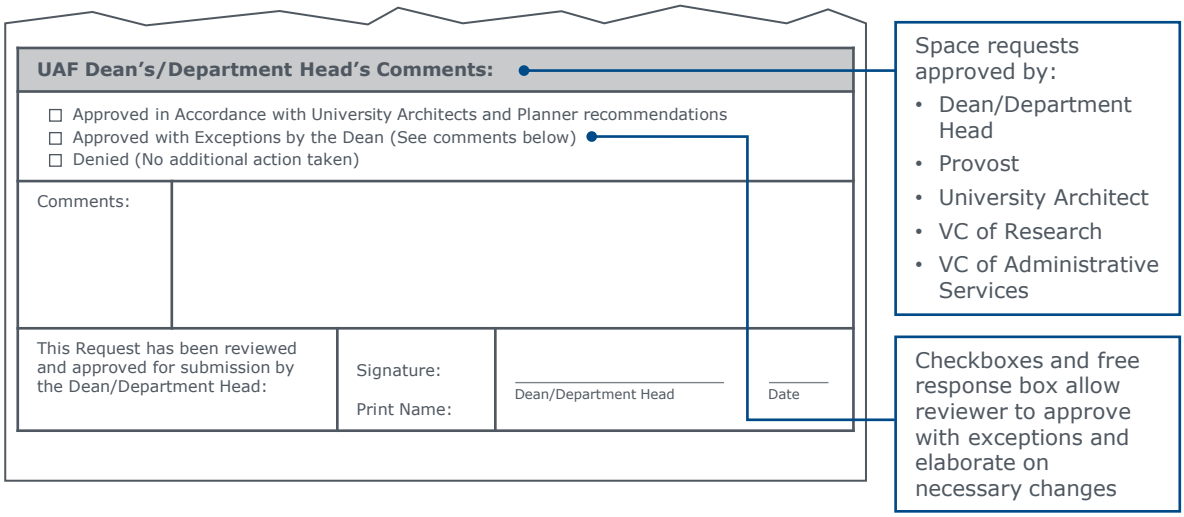
Ensuring Appropriateness of Space Requests

Require Sign-Off from Senior Leaders During Formal Considerations

Component 3: Require Sign-Off from Senior Leadership

The third component is to require academic leadership to sign off on all space requests before committee review. The University of Alaska Fairbanks's space request form requires the signatures of five stakeholders—the unit leader, dean, provost, university architect, and vice president of administrative services—to confirm that the incoming request has the support of senior leadership.

University of Alaska Fairbanks Space Request Form



Each stakeholder can approve or deny the request. They can also choose to approve the request with exceptions. This final option gives stakeholders the opportunity to flag questions, reservations, or caveats, ultimately giving the space committee more nuanced information. For example, the university architect might approve the installation of a new piece of research equipment, provided that the building's electric panels are upgraded to support the additional load.

For a full version of the University of Alaska Fairbanks' space request form, please see page 39 of this report.

Source: University of Alaska Fairbanks, Fairbanks, AL; Facilities Forum interviews and analysis.

Defining the Consequences of a Denied Request

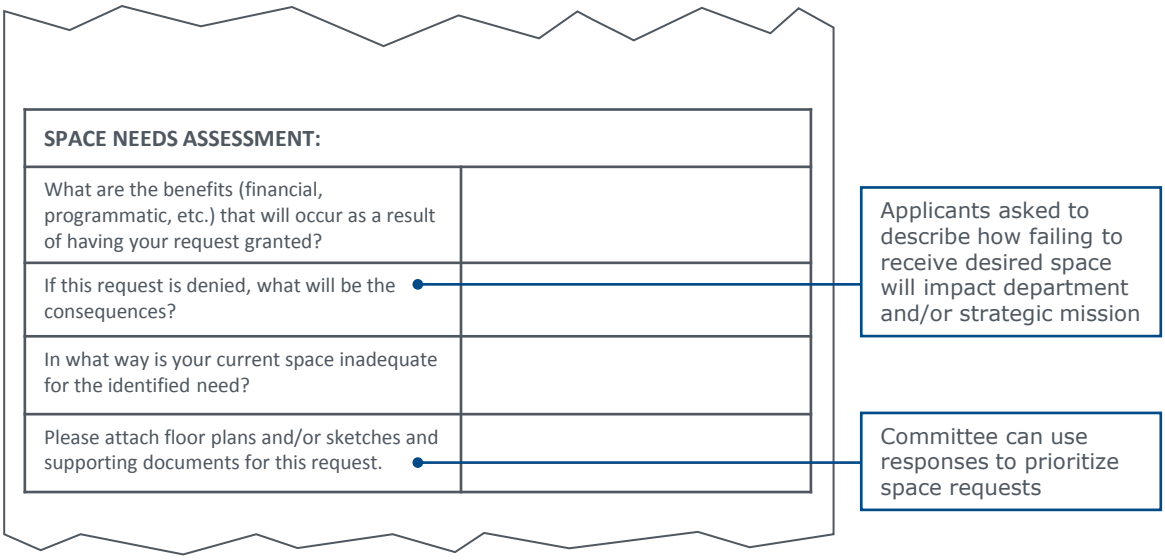
Applicants Asked to Measure Need at University of Maryland, Baltimore County

Component 4: Assess Strategic Impact of Failing to Address Space Request

The final component is requiring applicants to consider how they would adapt if their request is not approved. In their space request form, the University of Maryland, Baltimore County (UMBC) asks units to describe how failing to meet a space need will affect the institution or unit. The unit's response to this question helps UMBC's space committee gauge the urgency of the request. In some cases, it can also serve as a self-filter, discouraging departments from submitting a non-urgent space request.

UMBC
AN HONORS UNIVERSITY IN MARYLAND

UMBC's Space Request Form



For a full version of UMBC's new space request form, please see page 42 of this report.

Source: University of Maryland, Baltimore County, Baltimore, MD; Facilities Forum interviews and analysis.

Rowan University's Space Allocation Guidelines and Request Form

Rowan University
Space Allocation Guidelines

While it is recognized that the assignment and utilization of space (i.e., office, classroom, storage, performance) falls within the responsibility of the administration of the University, it is also recognized that the key stakeholders at the University should be consulted and have input into the ultimate decision on space utilization. No department, unit or division "owns" space. However, space is a University resource and the assignment and utilization of space, as determined by the administration, is based on programmatic need and on what is in the best interests of the University, particularly as it pertains to the academic mission.

Space Planning and Management Process

Key to the University's space planning and management process is the creation and maintenance of an accurate space inventory, audit/surveys, utilization/need assessment and departmental space assignments database. The number, type, and condition of University spaces help inform Capital and Facilities planning and prioritization for the allocation of University resources

Requests for University Space

Space will be assigned, reassigned and reconfigured based on short- and long-term plans of the University, objective criteria, justifiable needs and an established process. Evaluation criteria include, but are not limited to:

- Established area and use space standards
- Needs assessment
- University priorities
- Flexibility
- Changing needs in curricula
- Alternative solutions
- Shared use
- Need for consolidation of resources

Other factors that could inform decisions and guided by this policy, include:

1. *Changes to the assignment, reassignment and reconfiguration of space.*
   Space assignments, reassignments and reconfiguration of space may change in order to achieve optimal utilization and respond to the current and emerging needs of the University.

2. *Assignment and reassignment of occupied space.*
   In most instances, the ability to assign and reassign occupied space is delegated to each of the Deans and Vice Presidents for their respective departments and programs to address the space needs of their respective units.

3. *Vacated, unassigned, new and reconfigured space.*
   Determination of the need for and authorization of the assignment and use of unoccupied, vacated, new and reconfigured University space will be made and authorized by the Executive Space Planning Committee

Source: Rowan University, Glassboro, NJ.

Process for making requests to add/modify space

Members of the University community should make their initial inquiries regarding space utilization to the Office of Campus Planning, which resides within the Division of Facilities and Operations. Its staff manages and maintains an accurate space inventory of university facilities and other data necessary for the planning, assessment, evaluation and allocation of University space. The office assesses and evaluates requests for space assignments, reassignments, changes and reconfiguration and is responsible for implementing an established process for the same. It ultimately presents its assessments and evaluations, as needed, to the Executive Space Planning Committee for their final determination and review and approval.

Executive Space Planning Committee

Official requests for/about space must be made through department/division heads to the Office of Campus Planning, which will prepare a report for the Executive Space Planning Committee. Its members include: Vice President of Facilities and Operations (who will serve as convener), The President's Chief of Staff, Provost, Vice President for Student Affairs, University Senate President, Registrar and Director of Conferences & University Scheduling. The Executive Space Planning committee may request the counsel of other staff to appropriately vet requests that are being made.

Space Request Form attached

Instructions:

Fill out the form and attach any additional information as necessary. When filling out the form use the tab key or mouse cursor to move to the next field. If you require assistance with the following form, please contact the Office of Space Management at spaceplanning@rowan.edu or 856-256-4647.

Source: Rowan University, Glassboro, NJ.

SPACE REQUEST FORM

The Executive Space Allocation Committee oversees the assignment and utilization of space owned or leased by Rowan University. The purpose of this form is to provide information necessary for evaluation of space requests.

For Internal Use Only	**Application No**: _____
Received by: _____	Date: _____
Reviewed by:_____	Date: _____
Director: _____	Date: _____

INSTRUCTIONS:

Please Note:

- *Prior to individuals submitting any requests for space, it should be vetted with their supervisors/unit heads to ensure that they are in agreement with moving forward.*
- *Your application will not be processed unless an inventory, including purpose and/or occupancy of all the space currently being used by your department is complete/and or updated and provided to the office of Campus Planning.*
- *Any rooms that will be vacated to accommodate this request will become a part of the inventory of available space and secured by Division of Facilities and Operations until it is reoccupied.*
- *Complete the form and attach any additional information as necessary. If you have any questions, require assistance or need clarification, please contact the Office of Campus Planning at spaceplanning@rowan.edu or 856-256-4647.*

CONTACT INFORMATION

Name:

Department:

Email:

Phone:

OCCUPANT/USE INFORMATION

Use:		Name:		Title/Nature of work:	
New Hire	Yes: ☐	Full Time	Yes: ☐	Part Time	Yes: ☐
Temporary	Yes: ☐	Permanent	Yes: ☐		

Source: Rowan University, Glassboro, NJ.

Space will be used for: (please check)

Instruction ☐ Research/Grant ☐ Administration ☐ Storage ☐

Public ☐ Service ☐ Auxiliary ☐ Support ☐

REQUESTED DURATION

Temporary (Less than 2 years) Yes: ☐ No: ☐

Permanent (More than 2 years) Yes: ☐ No: ☐

ARE YOU REQUESTING A PARTICULAR SPACE? Not Applicable: ☐ Yes: ☐

If Yes: Building Name/Number: Room number:

From: Building/Name/No. Room #

To: Building/Name/No. Room #

(A) Briefly describe why space is needed.

(B) Describe any adjacency/proximity needs?

(C) How often will space be used*?*

(D) Address the implications to your program/service if your request space is not approved.

(E) What attempts have been made to locate space within your current space allocation? *(e.g., Has underutilized space been assessed to solve this need or have shared space possibilities been explored?)*

(F) Do you anticipate the number of people in your unit increasing within the next two years? Yes: ☐ No: ☐

(G) If yes, please indicate reasons for anticipated growth and whether or not funding has been identified for those positions:

(H) Are you seeking funding to support this request? Yes: ☐ No: ☐ Unsure: ☐

(I) If yes, What Kind?

(J) Is this space request based on research grant that has been funded or is anticipating funding? Yes: No:

Anticipated Funding:	**$**	**Date Anticipated:**
Funded:	**$**	**Date Received:**
Grant:	**$**	**Date Received:**

(K) If this space request is approved, will existing space be vacated? Yes: ☐ No: ☐
If yes, please list building/room #'s:

(L) If this space request is approved, does the requesting unit have sufficient funding in place to cover the move and/or renovation costs? Yes: ☐ No: ☐
If yes, please identify funding source:

Source: Rowan University, Glassboro, NJ.

DEPARTMENTAL APPROVALS

REQUESTER (Print Name): Signature: Date:

TITLE:

SUPERVISOR (Print Name): Signature: Date:

TITLE:

DEAN/VICE PRESIDENT: Signature: Date:

PROVOST: Date:

Action Taken By Executive Space Planning Committee

No Action **Approved** **Not approved**

Print Name:

Signature:

Title:

Date:

Source: Rowan University, Glassboro, NJ.

University of Alaska Fairbanks's Space Request Form

UNIVERSITY OF ALASKA FAIRBANKS

Space Request Form

Existing space must be utilized as effectively as possible in order to support desired growth. Any activities that require additional space should be addressed first within a department's current allocation, then within the school or department. This form is to be used when the use of a space changes, even within a department. This request will be reviewed by the University Architect and Planner, and then directed to the **UAF Provost**, **Vice Chancellor for Administrative Service** and **Vice Chancellor for Research** for final review, comments, and recommendation. Please note, if you are requesting new space, acceptable and available space may take a while to identity.

INFORMATION:	
Requestor (Primary Contact):	
Dept./Unit/Center/School:	
Phone:	Email:

Type and Number of Spaces Requested :	
Building and Location:	
Will the Area Require Facility Modification (FacMod) ? *If yes, explain.*	

SPACE NEEDS ASSESMENT:	
In what way is your current space inadequate for the identified need?	
Have temporary arrangements been made to use any of your existing space for the requested purpose? If so, please explain:	
How long will the space be used for the requested purpose?	
What is the anticipated time-line for moving into the requested space?	
Briefly describe the intended use for this space.	

Source: University of Alaska Fairbanks, Fairbanks, AK.

Are there any equipment requirements, special needs (electrical, ventilation, etc.), or other special circumstances associated with this Space Request?	
How will you pay for moving, and/or renovation costs of the requested space? *(If using grant/award money, please confirm that this is an approved use of the money and the maximum amount available).*	
If this request is denied, what will be the consequences?	
Please attach floor plans and/or sketches and supporting documents for this request.	

Upon completion of this form, all materials should be forwarded to the University Architect and Planner for due diligence review. A thorough analysis of this request and supplemental material will be reviewed with the requestor to discuss possible solutions. Final decisions will be made by the UAF Provost, the Vice Chancellor of Research, and Vice Chancellor of Administrative Services. All space requests and changes to current space must be inline with the Facilities Master Plan.

Dean's/ Department Head's Comments:			
Comments:			
This request has been reviewed and approved for submission by the Dean/Department Head:	*Signature:* Print Name:	***Dean / Department Head***	Date:

APPROVAL PROCESS: OFFICIAL USE

University Architect and Planner Due Diligence Review:			
Comments:			
This request has been reviewed and approved for submission by the University Architect and Planner.	*Signature:*	***Jonathan Shambare, University Architect and Planner***	Date:

Source: University of Alaska Fairbanks, Fairbanks, AK.

UAF Provost Comments:			
☐ Approved in Accordance with University Architects and Planner recommendations ☐ Approved with Exceptions by the Provost (See comments below) ☐ Denied (No additional action taken)			
Exceptions / Comments:			
This request has been reviewed and approved for submission by the UAF Provost	*Signature:*	***Susan Henrichs, UAF Provost***	Date:

Vice Chancellor for Research Comments:			
☐ Approved in Accordance with University Architects and Planner recommendations ☐ Approved with Exceptions by the Vice Chancellor for Administrative Services (See comments below) ☐ Denied (No additional action taken)			
Exceptions / Comments:			
This request has been reviewed and approved for submission by Vice Chancellor for Research	*Signature:*	***Mark Myers, Vice Chancellor for Research***	Date:

Vice Chancellor for Administrative Services Comments:			
☐ Approved in Accordance with University Architects and Planner recommendations ☐ Approved with Exceptions by the Vice Chancellor for Research (See comments below) ☐ Denied (No additional action taken)			
Exceptions / Comments:			
This request has been reviewed and approved for submission by the Vice Chancellor for Administrative Services	*Signature:*	***Pat Pitney, Vice Chancellor for Administrative Services***	Date:

Source: University of Alaska Fairbanks, Fairbanks, AK.

University of Maryland, Baltimore County's Space Request Form

UMBC Space Request Form

A. REQUESTOR INFORMATION

Printed Name: _____ Date: _____

Signature: _____

Room/Bldg: _____ Department/Program: _____

Phone: _____

Fax: _____ College/Unit: _____

E-mail: _____ Division: _____

B. SPACE NEED

Duration of Space Need

- ☐ Permanent
- ☐ Temporary _____ months

Date Needed

_____

Building and Location

Purpose

- ☐ New Hire
- ☐ Program Expansion
- ☐ Tied to grant or other funding
- ☐ Other (describe)

Space Type

Offices for (insert # of each)

- _____ FT Faculty
- _____ PT Faculty
- _____ FT Manager
- _____ PT Manager
- _____ FT Professional, Non-manager
- _____ PT Professional, Non-manager
- _____ FT Administrative Assistant
- _____ PT Administrative Assistant
- _____ Graduate Research/Teaching Assistant
- _____ Other

Non-Offices (insert # of each)

- _____ Research Lab
- _____ Teaching Lab
- _____ Office Workroom
- _____ Conference Room
- _____ Other

http://www.umbc.edu/policies/pdfs/GuidelinesForOfficeSpace.pdf

Space Need Description

Planned Occupants

Name	Position (e.g. faculty/staff/GA)	FT/PT	Title	Hrs/wk using space

Equipment/Furniture Needed for Proposed Space

Description of Item	Quantity	Size	Existing	Purchase	Estimated Cost

Special Requirements

- ☐ Special Electric (describe) _____
- ☐ Water
- ☐ Gas
- ☐ Phone
- ☐ Special Heating/Cooling/Ventilation (describe)
- ☐ Computer/Data
- ☐ A/V
- ☐ Specific ADA Accommodation _____
- ☐ Other (describe)

1 of 4 4/29/2013

Source: University of Maryland, Baltimore County, Baltimore, MD.

UMBC Space Request Form

C. JUSTIFICATION OF SPACE NEED

In what way is your current space inadequate for the identified need?

Have temporary arrangements been made to use any of your existing space for the requested purpose? If so, please explain.

How does your request fit with the role and mission of the unit, school, college, division, and university?

What are the benefits (financial, programmatic, etc.) that will occur as a result of having your request granted?

If this request is denied, what will be the consequences?

Do you anticipate that renovation of the space is required for the proposed use? If so, please explain.

How will you pay for moving and/or renovation costs of the requested space?

If there are other considerations, please describe these below.

Source: University of Maryland, Baltimore County, Baltimore, MD.

UMBC Space Request Form

D. SUBMISSION & APPROVAL PROCESS

Policy References < http://www.umbc.edu/policies/pdfs/UMBC%20Space%20Policy-VI-4.10.02.pdf
http://www.umbc.edu/fm/facilities/documents/Spaceallocationrequestprocess_2012_5_16.pdf

STEP 1 - Review and approval by the reporting Chair or Department Head

Signature of Chair or Department Head	**Printed Name**	**Date**

STEP 2 - Review and approval by the reporting Dean or Vice President

Signature of Dean or Vice President	**Printed Name**	**Date**

STEP 3 - Submit request to Chair of Space Management Committee

Submit completed and signed form along with any additional supporting documentation to:
Julianne Simpson, Assistant Director for Planning, Planning & Construction Services, Facilities Management
102H Facilities Management Building, 1000 Hilltop Circle, Baltimore, MD 21250
Email: jsimpson@umbc.edu FAX: 410-455-1476 Phone: 410-455-5958

STEP 4 - Chair of UMBC Space Management Committee obtains approvals to proceed

Signature of Provost	**Printed Name**	**Date**

Signature of Vice President for Administration & Finance	**Printed Name**	**Date**

☐ **In lieu of signatures, approval emails are attached.**

STEP 5 - Facilities Management reviews and prepares evaluation for UMBC Space Management Committee

Date Received: _____ **Date Completed:** _____ ☐ **See attached documentation**

STEP 6 - Requestor review

Signature of Requestor	**Printed Name**	**Date**

Requestor approves proceeding as indicated here

STEP 7 - Review and recommendations made by UMBC Space Management Committee

Signature of Chair	**Printed Name**	**Date**

Committee Recommendation

Source: University of Maryland, Baltimore County, Baltimore, MD.

UMBC Space Request Form

STEP 8 - Final Dispensation

Signature of Provost	**Printed Name**	**Date**

Dispensation

Source: University of Maryland, Baltimore County, Baltimore, MD.

Practice 3: Facilities-to-Academic-Leaders Space Communication Tools

Practice in Brief

Facilities leaders tailor all communication about space utilization to emphasize the information that is most compelling to distinct academic leaders. The goal is to efficiently communicate space management opportunities and generate support from stakeholders.

Rationale

Many Facilities leaders struggle to improve space utilization because they lack support from leadership to drive change. At some institutions, stakeholders are unaware of the negative consequences of poor space utilization for the campus community. At other institutions, stakeholders fail to see how they would benefit from the results of improved utilization and are unmotivated to act. As a result, stakeholders deprioritize space management initiatives, citing them as less pressing than other priorities or too politically fraught. By tailoring space management communications to a specific audience and highlighting solutions, Facilities leaders can better engage academic leaders in space management initiatives.

Implementation Options

Component 1: Topline Space Management Concerns

Facilities leaders consolidate high-priority space utilization initiatives on a single page or poster and use action-oriented language, visuals, and lists to gain attention and support of campus stakeholders.

Component 2: Translate Space Data into Meaningful Metrics

Facilities leaders make space data more accessible and compelling to academic leaders by translating unfamiliar metrics into easily understood measurements that are relevant to stakeholders' activities and priorities.

Component 3: Tailor the Message to Different Audiences

Facilities leaders gain support for space management initiatives by connecting the results of space management initiatives to specific stakeholder priorities. The goal is to make space management arguments more compelling by aligning space initiatives with the interests of academic leaders.

Practice Assessment

Facilities leaders should focus early communication initiatives on the provost and college deans to gain the support of senior leaders, expanding efforts to other stakeholders as executive communication improves.

Space (Communication): The Final Frontier

Three Common Problems of Communicating Space Information to Stakeholders

While most Facilities leaders communicate space information to campus leaders on a regular basis, their current approach typically falls short in three ways. First, space utilization reports or presentations are too dense or jargon filled, leading some leaders to tune out. Second, they fail to communicate how stakeholders would benefit from the proposed solution. Finally, they fail to provide stakeholders with clear next steps or actions. This practice provides three communication tools to help Facilities leaders overcome these challenges and generate support for space management initiatives.

Stakeholder Unable to Identify Urgency of Space Problem

Information is too technical or lacks context necessary to convey ramifications of current space practices

Space Information Not Relevant to Stakeholder

Space information does not communicate stakeholder's contribution to situation or how it is affecting stakeholder

Stakeholder Unclear on Next Steps

Materials do not include solutions or next steps for stakeholder to act on

Question to Answer		
"What's the problem?"	"Why does this problem matter to me?"	"What am I supposed to do about it?"

Source: Facilities Forum interviews and analysis.

Toplining Space Management Concerns

Penn State Clearly Explains Space Issues to Campus Leaders

Component 1: Top-Line Space Management Concerns

The first component of effective academic leader communication is articulating institutional space information in an easily digestible format. Pennsylvania State University's Top Ten Space Worries captures the most important points in a concise, one-page list that stakeholders can easily skim and absorb. Each point is backed by campus-specific data and anecdotes that communicate the size of the problem on campus.

"Top Ten Space Worries"
Document Created by Penn State

2. **Classrooms**: We must have world-class instructional spaces to keep our enrollments strong and so we can invest to "save the world." No one owns classroom spaces, but we have not yet invested in improvements or in changing the classroom environment from lecture to collaborative active learning quality of experience. Our general purpose classrooms now are 2.5% of all of our space.
3. **Laboratories**: We have a very small inventory of class laboratories, half of which are assigned to research. Same as the above, we need to bring existing labs up to the quality of current discipline requirements. In addition, if we want to move from lecture and theory to "hands on," real-life experience, we need more discipline-specific laboratories.
4. **Lack of Comprehensive Scheduling System**: Every college, unit, and department has some version of their own scheduling system, software, manual paper, spreadsheets, etc. No one knows any day what is happening comprehensively.
5. **The Office**: If the tuition-paying public realized that more than 30% of our space is offices and less than 10% is our classrooms and class labs, they would be shocked. This is overhead—no matter how you spin it. Our entitlement to the "private office" is not conducive to all our rhetoric—teamwork, openness, collaboration, communications, accessibility, affordability, and on and on. If we are trying to prepare our students ready for the real world—maybe we should try to join it ourselves.

Communicates the problem in a few succinct sentences

Uses anecdotes and data to generate stakeholder buy-in

Penn State's Facilities leader regularly uses this document to orient senior leaders to space management issues on their campus. As a result of this consistent messaging, stakeholders were convinced to adopt a centralized scheduling software.

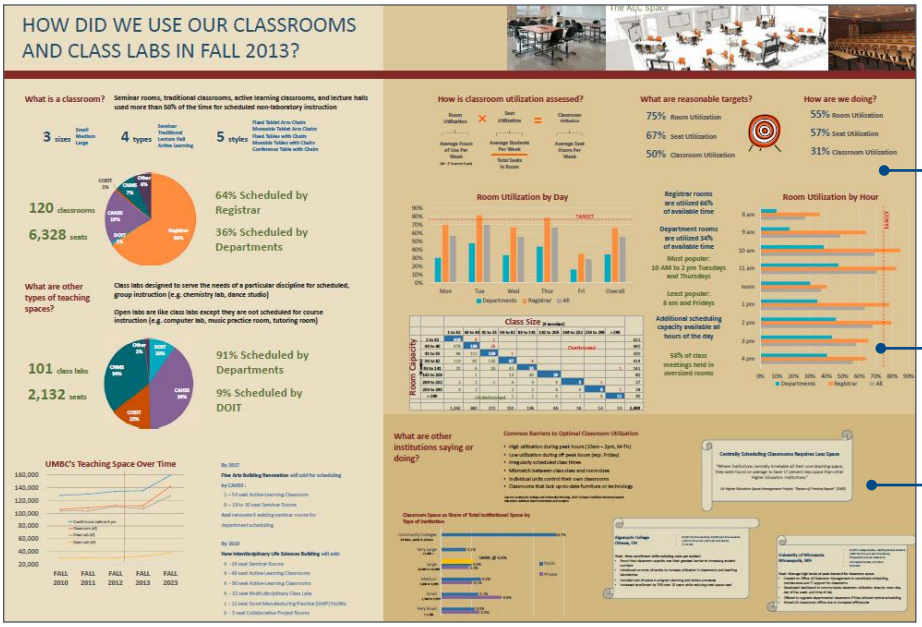
For a full version of Penn State University's "Top Ten Space Worries," please see page 52 of this report.

Source: Pennsylvania State University, State College, PA; Facilities Forum interviews and analysis.

Getting All the Critical Information on One Page

Another option for succinctly capturing critical information is to build a poster, a format that lends itself well to concise, accessible messaging. The University of Maryland, Baltimore County's (UMBC) poster uses colored graphs and bolded metrics to grab the audience's attention and clearly communicate important space information. UMBC shares this poster at faculty meetings, staff training days, and leadership retreats to generate awareness about how UMBC is using its space and opportunities for improvement.

University of Maryland, Baltimore County's Space Education Poster



For a full version of UMBC's Space Education Poster, please see page 54 of this report.

Source: University of Maryland, Baltimore County, Baltimore, MD; Facilities Forum interviews and analysis.

Crunching the Numbers

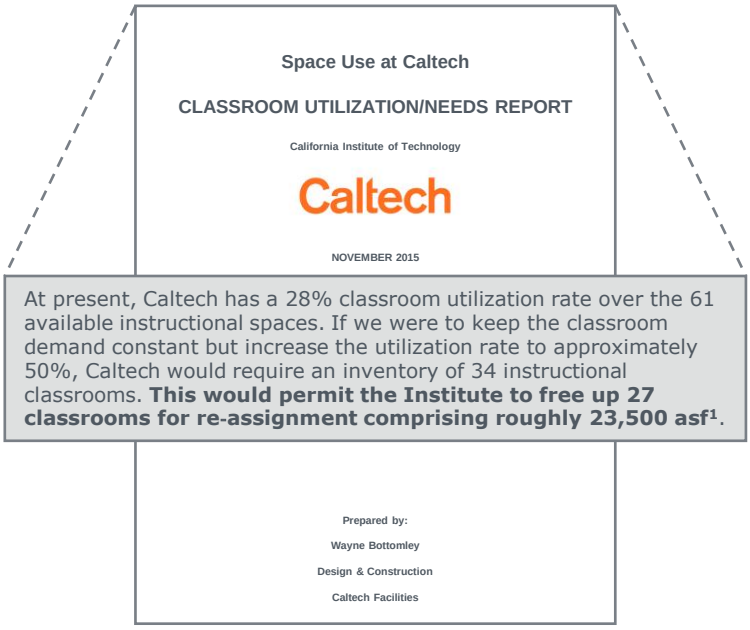
Caltech's Classroom Analysis Highlights Opportunities for Better Utilization

Component 2: Translate Space Data into Meaningful Metrics

The second component is to identify and translate space utilization metrics into relatable measurements that are relevant to stakeholders' activities and priorities. The California Institute of Technology (Caltech) produces a four-page brief that measures current space utilization of instructional space and identifies opportunities for improvement.

Caltech's Classroom Analysis

1. Assessed room scheduling and seat utilization in all general purpose classrooms
2. Compared average section size to room size, identifying mismatches between existing inventory and actual need
3. Used layman's terms to summarize conclusions and key takeaways from graphs and analyses
4. Quantified amount of space that could be recaptured through improved course scheduling and classroom rightsizing
5. Compared size of space savings to well-known buildings on campus



Space Use at Caltech

CLASSROOM UTILIZATION/NEEDS REPORT

California Institute of Technology

Caltech

NOVEMBER 2015

At present, Caltech has a 28% classroom utilization rate over the 61 available instructional spaces. If we were to keep the classroom demand constant but increase the utilization rate to approximately 50%, Caltech would require an inventory of 34 instructional classrooms. **This would permit the Institute to free up 27 classrooms for re-assignment comprising roughly 23,500 asf[1]**.

Prepared by:

Wayne Bottomley

Design & Construction

Caltech Facilities

The report is primarily based on a supply and demand analysis outlined on this page. However, Caltech takes a novel approach to reporting findings. Caltech defines the problem in terms of number of classrooms that could be reclaimed and redeployed through better course scheduling. Going one step further, they equate the potential space savings to well-known buildings on campus, making the opportunity more concrete and more compelling for stakeholders.

For a full version of Caltech's space report, please see page 55 of this report.

1) Assignable square feet.

Source: California Institute of Technology, Pasadena, CA; Facilities Forum interviews and analysis.

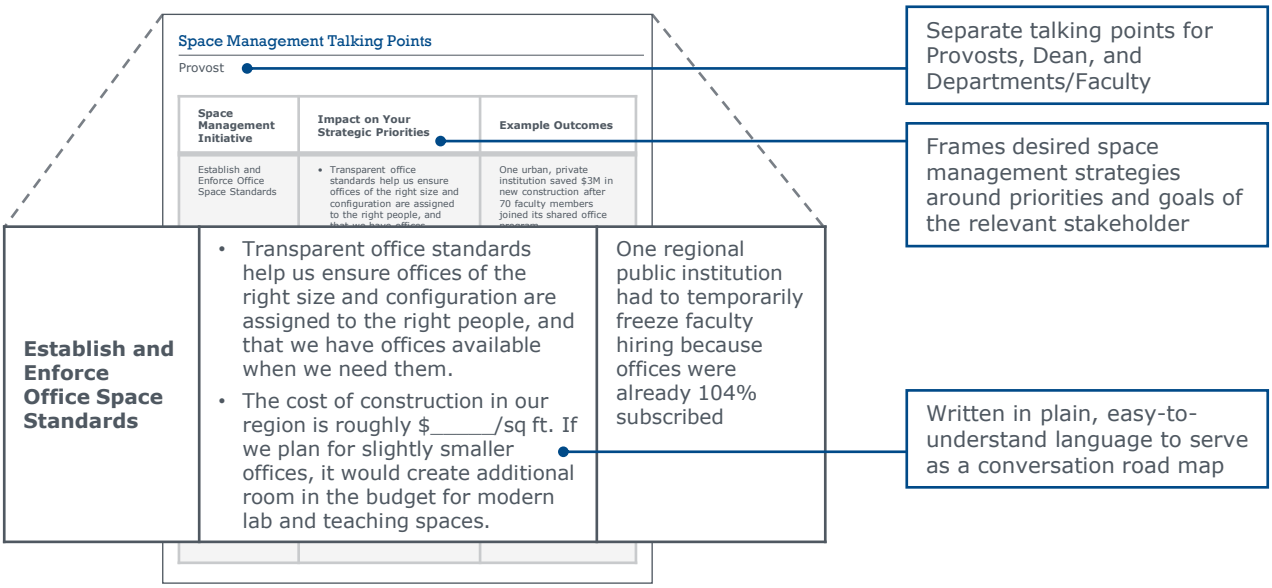
Tailoring the Message to Different Audiences

Introducing EAB's Stakeholder-Specific Talking Points

Component 3: Tailor the Message to Different Audiences

The final component of this practice is to tailor the message to different audiences. Facilities leaders can make space management more compelling by connecting space initiatives with the interests of individual academic leaders. The Facilities Forum's stakeholder-specific communication tools provide Facilities leaders with non-technical talking points that highlight the goals and arguments most likely to engage and persuade the intended audience.

Space Management Talking Points for Provost



Each of the Facilities Forum's three tools is designed to engage a specific stakeholder: the provost, college deans, and department chairs and faculty. Within each tool, talking points are organized around specific initiatives, such as enforcing office standards or releasing classrooms to the registrar. The documents also include case studies to support each point. Facilities leaders can use these talking points as a starting place for drafting memos or to guide in-person conversations.

For a full version of talking points for provosts, deans, and departments/faculty, please see pages 59, 61, and 63 respectively of this report.

Source: Facilities Forum interviews and analysis.

Pennsylvania State University's Top Ten Space Worries

1. **Sharing**: We forgot how to do this when we left kindergarten.
2. **Classrooms**: We must have world-class instructional spaces to keep our enrollments strong and so we can invest to "save the world." No one owns classroom spaces, but we have not yet invested in improvements or in changing the classroom environment from lecture to collaborative active learning quality of experience. Our general purpose classrooms now are 2.5% of all of our space.
3. **Laboratories**: We have a very small inventory of class laboratories, half of which are assigned to research. Same as the above, we need to bring existing labs up to the quality of current discipline requirements. In addition, if we want to move from lecture and theory to "hands on," real-life experience, we need more discipline-specific laboratories.
4. **Lack of Comprehensive Scheduling System**: Every college, unit, and department has some version of their own scheduling system, software, manual paper, spreadsheets, etc. No one knows any day what is happening comprehensively.
5. **The Office**: If the tuition-paying public realized that more than 30% of our space is offices and less than 10% is our classrooms and class labs, they would be shocked. This is overhead—no matter how you spin it. Our entitlement to the "private office" is not conducive to all our rhetoric—teamwork, openness, collaboration, communications, accessibility, affordability, and on and on. If we are trying to prepare our students ready for the real world—maybe we should try to join it ourselves.

Source: Pennsylvania State University, State College, PA.

6. **Server Rooms:** The sudden proliferation of server rooms throughout our buildings is not sustainable. We have server huggers everywhere, and there is some insistence on having total control over the hardware even though it is unsecure, placed in rooms without the proper HVAC, located in a mechanical room without permission, blown circuits because of power problems, and on and on. And then the server huggers complain because the servers overheat, melt nearby plastic, get wet from a mechanical leak, etc.

7. **Staff/Expansion Without Space**: We hire whether we have space or not, and then cry and make it a crisis for someone else to figure out. And of course they all need private offices, near their parking space, appointed very well, and in central campus.

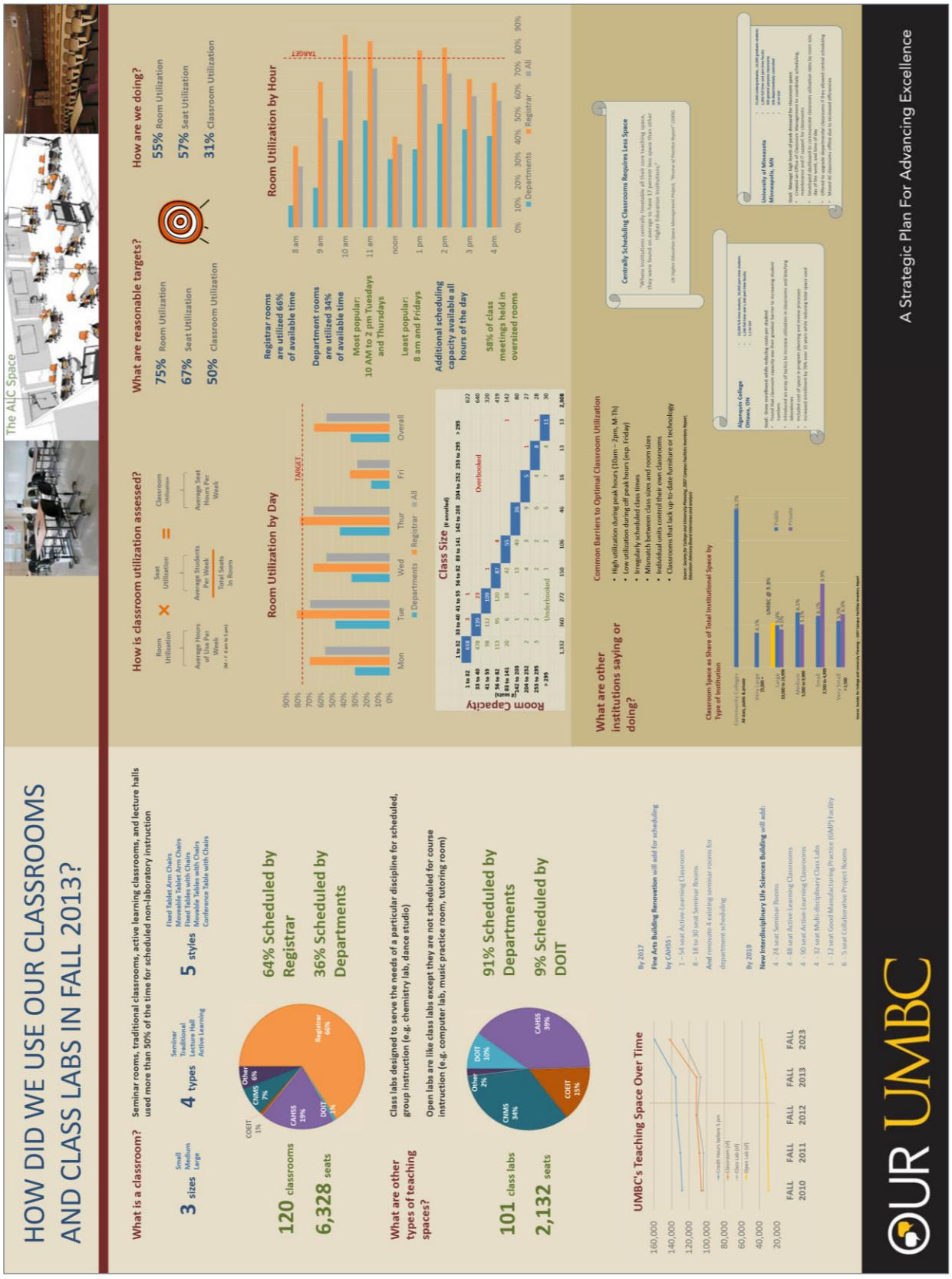
8. **Instruction/Research Conflict**: We insist on having our research labs right in the middle of campus on the main student thoroughfare and then wonder why those undergraduate students are allowed in the buildings. We put up signs taped on hallways and doors that undergraduate students should not enter—trespassers will be shot, and survivors, shot again. And we create lovely common spaces (for faculty only) and then whine when students want to use those spaces. We say we want the research labs available to students to garner interest—but we lie.

9. **Storage Management**: We have rooms, hallways, mechanical rooms, good space, outdoor sites, and trailers full of junk. We don't have a storage space problem, we have a junk management problem. (We started a free furniture program and have a storage contract with a local company that has lots of space.) If you really need to keep it—then pay for keeping it.

10. **Decisions**: If we reward bad behavior, expect the bad behavior to continue.

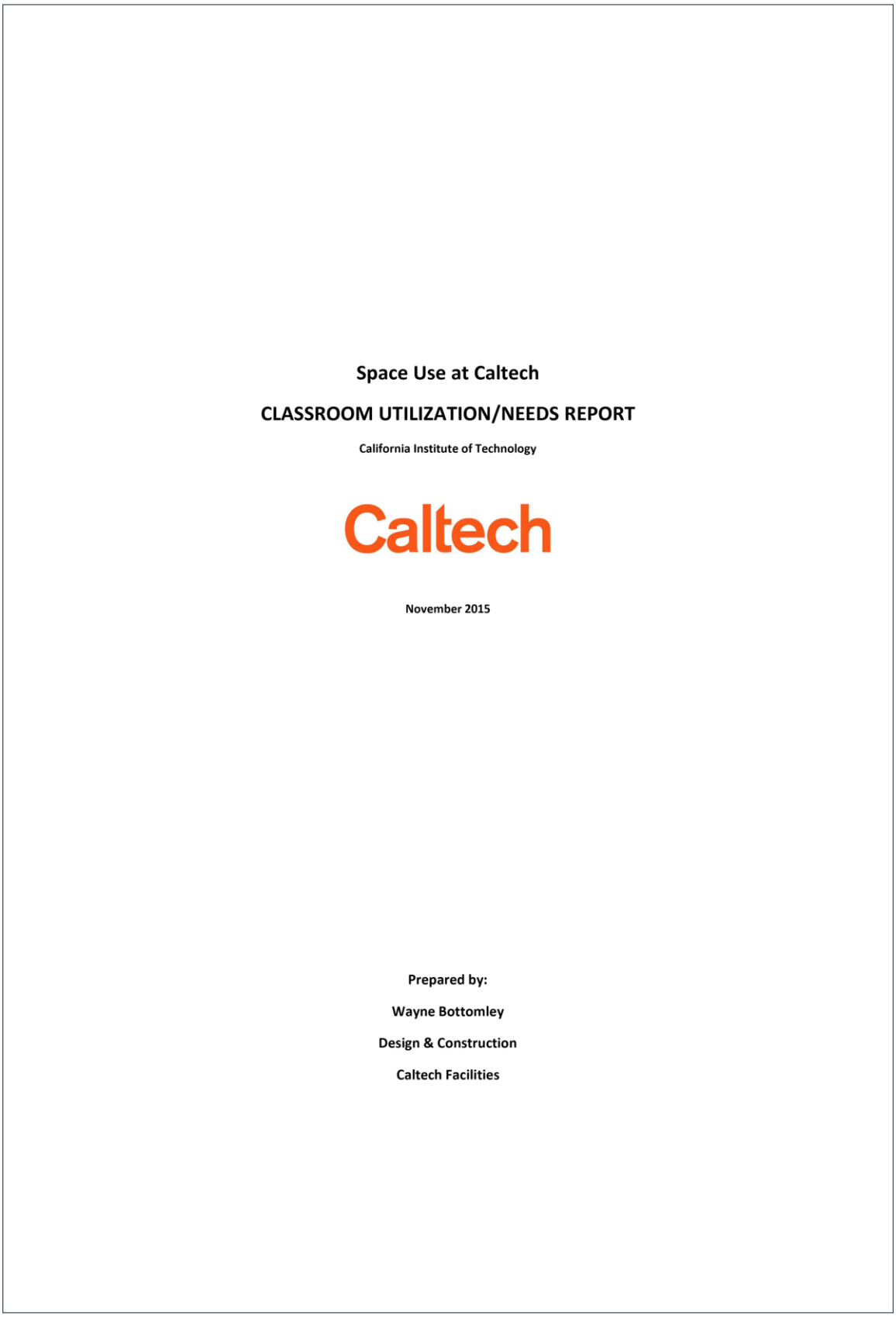
Source: Pennsylvania State University, State College, PA.

University of Maryland, Baltimore County's Space Education Poster



Source: University of Maryland, Baltimore County, Baltimore, MD.

Caltech's Classroom Utilization/Needs Report



Space Use at Caltech

CLASSROOM UTILIZATION/NEEDS REPORT

California Institute of Technology

Caltech

November 2015

Prepared by:

Wayne Bottomley

Design & Construction

Caltech Facilities

Source: California Institute of Technology, Pasadena, CA.

CLASSROOM UTILIZATION/NEEDS REPORT

At the California Institute of Technology, there are 61 rooms currently coded as classrooms and instructional spaces. Of these 61, 18 (30%) have a capacity to accommodate 75 or more students and 43 (70%) are limited to fewer than 75 students. Class labs, conference rooms, offices and public spaces also serve as places of instruction. This report summarizes work done in 2012 to assess classroom utilization on campus.

PRIMARY INSTRUCTIONAL SPACES

Reviewing the data patterns, 18 large classrooms and lecture halls, and 43 smaller rooms were identified as primary instructional spaces comprising over 53,000 asf (assignable square feet). An additional 12 conferences rooms and one class lab, all with significant use for scheduled instruction were also included in the overall review.

Looking at data from the Registrar's office from the 2011-12 Academic Year (AY2011-12), utilization statistics were computed based on the hours from 9 am to 5 pm Monday through Friday. The standard classroom utilization statistic, which measures the hours for which activity is scheduled in the room, shows that for the large classrooms, classes were scheduled 25% of the time during the daytime hours, and for the small and medium classrooms, classes were scheduled 29% of the time (see Table A). Over all of the classrooms and instructional spaces for AY2011-12, the percent of available daytime hours scheduled was 28%. Also observed is a 35% seat use capacity in large classrooms and 44% seat use capacity in small and medium classrooms (the average percentage of seating capacity occupied during scheduled instruction). What this means is that there is a mismatch between classroom size and the number of students enrolled in the sections resulting in considerable wasted space that could otherwise be assigned for more productive uses.

TABLE A
Caltech Classroom Utilization Summary Statistics for AY 2011-12

	AVG CAPACITY	Weekly Daytime Seating Capacity	Observed Sum of Daytime Enrollment	PCT Enrollment Capacity Used	Weekly Class Hours Scheduled (9am-5pm)	PCT of Available Daytime Hours Scheduled	Seat Use Percent in Scheduled Classes	Weekly Hours with Over 50% Seat Use (9am-5pm)	Any Scheduled Classes after 5pm?
LARGE CLASSROOMS									
3 QUARTER AVERAGE (AY 2011-12)	**150**	**83,880**	**7,189**	**9%**	**138**	**25%**	**35%**	**31**	**2 rooms**
Fall 2011	**150**	**83,880**	**6,954**	**8%**	**121**	**22%**	**38%**	**32**	**2 rooms**
Winter 2012	**150**	**83,880**	**7,530**	**9%**	**159**	**28%**	**32%**	**31**	**3 rooms**
Spring 2012	**150**	**83,880**	**7,084**	**8%**	**135**	**24%**	**35%**	**29**	**2 rooms**
SMALL AND MEDIUM CLASSROOMS									
3 QUARTER AVERAGE (AY 2011-12)	**38**	**69,133**	**8,693**	**13%**	**539**	**29%**	**44%**	**170**	**14 rooms**
Fall 2011	**39**	**68,760**	**9,709**	**14%**	**538**	**29%**	**47%**	**192**	**17 rooms**
Winter 2012	**37**	**69,320**	**9,083**	**13%**	**561**	**30%**	**44%**	**168**	**17 rooms**
Spring 2012	**37**	**69,320**	**7,286**	**11%**	**517**	**28%**	**38%**	**168**	**9 rooms**

This review of the scheduling patterns shows considerable underutilization which indicates potential space available for other uses by the Institute. The question is, how much? Table B combines both the larger and smaller instructional spaces. These data show that the greatest scheduled use of instructional space occurs between 0900 (9 a.m.) and 1200 (12 noon) and between 1300 (1 p.m.) and 1600 (4 p.m.) on Thursdays. But even at peak times, all of the available instructional space is not in use.

TABLE B

NUMBER OF ROOMS IN USE BY HOUR
ALL CLASSROOMS--AVERAGE WEEKLY SCHEDULING PATTERN
Academic Year 2011-12

Total N=61	Monday	Tuesday	Wednesday	Thursday	Friday
0900-1000	13	17	12	22	12
1000-1100	19	28	18	32	14
1100-1200	19	22	19	26	14
1200-1300	6	4	6	5	3
1300-1400	20	24	20	32	13
1400-1500	20	30	22	35	11
1500-1600	22	21	19	28	12
1600-1700	5	7	9	6	2
1700-1800	4	3	3	3	1
1800-1900	2	0	2	2	0
1900-2000	8	8	8	6	0
2000-2100	6	8	5	4	0
2100-2200	4	4	3	2	0

Source: California Institute of Technology, Pasadena, CA.

ESTIMATE OF CLASSROOM NEEDS

Looking at class section schedules offered over the past three years, course sections are arrayed by term with number of students registered for that section. If only one section is offered, but that one section is offered over multiple terms, the data are arrayed in a row. If more than one section is offered during the same term, a new row is created. Each row represents a need for one room for a class meeting on some repeating schedule during an academic term. For purposes of this discussion, we have created a new metric labeled as "room need units" or RNUs. If a course section averaged only 1 or 2 students per section, it was considered to not merit an RNU with the understanding that such a small section could easily meet in an office or lab or in a public space that would not require a scheduled classroom (there were 63 listings that fell into this category representing 118 individual sections).

Out of 1,421 RNUs (representing 3,517 individual class sections) identified over the past three years:

- 376 (26%) RNUs average 20 or more students
- 497 (35%) RNUs average 10-19 students
- 548 (39%) RNUs average 3-9 students
- 63 average 2 or fewer per section and conceivably don't require a specialized class meeting space other than an office or lab (although they may have been scheduled into classroom space in the past and/or may replicate larger sections).

These are then grouped according to the repeating pattern (does the section repeat each term or only every fall or every spring or does it occur only occasionally?). This allows us to estimate the classroom need (by size) for each discrete academic quarter based on the past three year's worth of data. We are making the assumption that regardless of the particular type of schedule used, each classroom should be able to easily accommodate at least 8 section meetings per week (four Monday-Wednesday-Friday and four Tuesday-Thursday), allowing for a reasonable degree of flexibility.

The RNUs are further grouped by size through a somewhat subjective determination based on observations of class section enrollments over the past three years. For this analysis, the ten room size groupings based on seating capacity are:

Over 150	75-150	60-74	50-59	40-49
30-39	20-29	13-19	6-12	3-5

This further presupposes that the Institute would be best served by placing a class section with a history of attracting between 20 and 29 students (on average) into a room that is sized for up to 30 students instead of in a room designed for up to 150 students. Three year's worth of historical data results are averaged and shown in table C below.

TABLE C

Observed Room Need Units (RNUs)
Caltech Academic Years 2009-10 Through 2011-12

	Average Enrollment									
	OVER 150	75-150	60-74	50-59	40-49	30-39	20-29	13-19	6-12	3-5
Avg. Fall Quarter RNUs	7	9	8	8	15	27	71	111	171	68
Avg. Winter Quarter RNUs	4	8	6	3	10	32	86	122	229	78
Avg. Spring Quarter RNUs	0	13	5	11	9	19	56	104	224	89

With the assumption that one room could accommodate 8 sections per week, this translates into the following minimum classroom or instructional space needs:

TABLE D

Minimum Classroom Needs
Based on Caltech RNUs Academic Years 2009-10 Through 2011-12

	Classroom Capacities									
	OVER 150	75-150	60-74	50-59	40-49	30-39	20-29	13-19	6-12	3-5
Fall Quarter	1	2	1	1	2	4	9	14	22	9
Winter Quarter	1	1	1	1	2	4	11	16	29	10
Spring Quarter	0	2	1	2	2	3	7	13	28	12

Source: California Institute of Technology, Pasadena, CA.

Now compare the need shown above (+1 room cushion in each of the categories--to allow for excess needs and fluctuations in demand), to the current Caltech Inventory of classrooms, lecture halls and auditoria[1] In Table E (below). We also show the current inventory of departmentally-controlled conference rooms:

TABLE E

Classroom Needs vs. Inventory

Based on Caltech RNUs Academic Years 2009-10 Through 2011-12

	Classroom Capacities									
	OVER 150	75-150	60-74	50-59	40-49	30-39	20-29	13-19	6-12	3-5
Classroom Needs (+1)	2	3	2	3	3	5	12	17	30	13
2012 Classroom Inventory	5	13	4	4	7	9	12	6	3	0
2012 Departmental Conf Room Inventory		2		1	4	9	48	27	69	6

67% of Need

15% of inventory

These data show that there is a mismatch between the observed classroom needs and the observed classroom inventory. The current inventory features 5 rooms with capacities over 150, and 13 with capacities between 75 and 150 (18 rooms total). But the calculated need is actually for a total of 5 large rooms (including two extra rooms per category which serve as cushions to permit variations in scheduling). This means that if scheduled correctly, the campus has 13 large classrooms that could be used for other purposes. The cells highlighted in yellow all have classroom inventory exceeding computed need. The inventory is equal to computed need for rooms between 20 and 29. However, the inventory has only 9 rooms with capacities below 20 whereas the computed need (before adding a cushion of 1 room per size category) shows a demand for 57 such rooms. Cells highlighted in light orange show where demand exceeds supply. The result is that small classes are scheduled in rooms that are larger than needed, because that is the inventory available. This approach underutilizes space that could be more efficiently used for something else, and costs additional dollars, over what is necessary, for heating, cooling and maintenance.

Another way to look at this is that 67% of the calculated classroom needs[2] are for classrooms accommodating from 3-20 students, but this represents approximately 15% of the classroom inventory. Of the raw RNUs, almost 75% are for sections with fewer than 20 students so logically the demand is greatest for smaller classroom sections (under 20) according to data from the Registrar's Office.

There are a number of departmental conference rooms of the appropriate size that could conceivably accommodate smaller class sections (summarized in Table E (above)) by developing a central scheduling arrangement to permit use of these rooms.

IMPLICATIONS:

At present, Caltech has a 28% classroom utilization rate over the 61 available instructional spaces. If we were to keep the classroom demand constant but increase the utilization rate to approximately 50%, Caltech would require an inventory of 34 instructional classrooms. This would permit the Institute to free up 27 classrooms for re-assignment comprising roughly 23,500 asf (equivalent to the assignable space in the West Bridge Lab building).

If Caltech were to engage in a slightly more aggressive process of "right-sizing" instructional space, combined with increased use of a select number of smaller departmental conference rooms as scheduled instructional spaces, combined with policies and practices encouraging better space use, it is feasible that of the total of over 53,000 asf (assignable square feet) examined for this analysis, up to 31,000 asf could be made available for reprogramming throughout the campus (equivalent to the assignable space in the Annenberg Center).

There are, of course, multiple options that could be available for significant space reprogramming, but this does indicate that if an approach were to be undertaken in conjunction with establishment of effective policies and practices, the Institute could free up considerable additional space from the classroom inventory to benefit the academic and research programs of the Institute.

Notes:

1. Not including Beckman, Ramo, and Beckman Institute Auditoriums.
2. Each classroom need represents a maximum of 8 RNUs of the corresponding size plus 1 for any remainder plus 1 to allow for flexibility in demand.

Source: California Institute of Technology, Pasadena, CA.

Space Management Talking Points

Provost

The quantity and condition of our institution's physical space plays an important role in the success or failure of your strategic priorities. The cost to build new space diverts scarce resources away from academic initiatives, while the condition of space can impede and even prevent successful teaching, learning, or research on our campus. Help me better steward our institution's resources and drive your strategic priorities through these space management tactics.

Space Management Initiative	Impact on Your Strategic Priorities	Example Outcomes
Establish and Enforce Office Space Standards	• Transparent office standards help us ensure offices of the right size and configuration are assigned to the right people, and that we have offices available when we need them. • If we don't better protect office space, we could be forced to put faculty in substandard space, which might hurt hiring and retention. We also want to avoid new faculty arriving on campus and not having an office. It creates a bad first impression for the faculty member. • The cost of construction in our region is roughly $_____/sq. ft.[1] If we plan for slightly smaller offices, it would create additional room in the budget for modern lab and teaching spaces.	• One regional public institution had to temporarily freeze faculty hiring because offices were already 104% subscribed. • One urban, private institution saved $3M in new construction after 70 faculty members joined its shared office program. • One institution discovered that eliminating redundant office assignments could free up an additional 20% of its office space. At our institution that would mean ___ offices, the equivalent of a new _____ *(well-known building on campus)*.
Repurpose Underutilized Space	• Our departments are hoarding space by holding onto empty offices and restricting access to their classrooms and conference spaces. We need those rooms to meet the space needs of strategic and academic priorities in a quick and cost-effective way. • Faculty offices take up ___% of campus space, costing us $_____ to heat and cool in 2014. As faculty and staff embrace new flexible work options, their offices sit empty or underutilized. We're paying to heat and cool empty offices; we could redeploy that space to support new or growing programs across campus. • The best way to reduce our carbon footprint is by reining in new construction and additional utilities costs. We can do this by embracing opportunities to meet our emerging space needs within our existing physical space.	• Only 10% of one large public institution's 800+ general assignment classrooms meet their utilization target of 67%. • The College of Liberal Arts at a large public institution will save $3M in construction costs by redeploying 1.5% of its existing G&E[2] space. • A large, mid-west institution installed light sensors in faculty offices to improve energy conservation. The offices were so rarely used that the sensors, which were estimated to recoup their initial investments in three years paid for themselves in under a year.

1) Blanks are provided for you to fill in institution-specific data points.
2) General and education.

Source: Facilities Forum.

Space Management Talking Points (cont.)

Provost

Space Management Initiative	Impact on Your Strategic Priorities	Example Outcomes
Increase Classroom Utilization Through Central Ownership and/or Centralized Scheduling	• Increasing classroom utilization will help us meet the demand for instructional space using our existing resources. • Centrally scheduled classrooms hold 44% more classes each semester than decentrally controlled classrooms.[1] We can meet our current demand for classrooms without building new ones by increasing the number of centrally scheduled classrooms, freeing up resources to invest in other priorities. • Many state legislatures won't fund any new capital construction if classroom utilization is below a certain rate. We must ensure we qualify for state capital funding by meeting our state's minimum classroom utilization rate of ___%.	• Institutions with central scheduling have 17% less space overall than institutions without central scheduling.[2] • At one small private institution, decentrally scheduled labs are only scheduled to hold one lab per day to accommodate faculty teaching preferences, when they could hold multiple classes per day. This inefficiency unnecessarily increases the demand for new labs.
Increase Course Scheduling During Off-Peak Hours	• Many of our students struggle to meet graduation requirements because of course overcrowding during peak hours. This can considerably delay their graduation, and add thousands of dollars to their student debt. By more evenly distributing courses throughout the teaching week, we can reduce the number of potential scheduling conflicts between 10 a.m. and 2 p.m. Monday through Thursday. • Poor course distribution increases wear and tear on our facilities and detracts from the student and faculty experience. Long lines, overcrowded parking lots, full buses, and increased traffic are common around lunchtime Monday-Thursday while our campus resembles a ghost town on Fridays. We can alleviate traffic and parking problems by varying student and faculty arrival and departure times.	• According to a 2014 Noel Levitz survey, 50% of students enrolled at four-year institutions are dissatisfied with their ability to register for required courses with few conflicts.[3] • One private research institution found they could accommodate a 19% increase in enrollment and take 22 of their 73 classrooms offline by requiring professors to teach 30% of courses outside preferred time periods or in adjacent buildings.

1) "Find the Hidden Space on Your High Density Campus," Sightlines, 2015.
2) "Review of Practice Report," UK Higher Education Space Management Project, 2005.
3) "2014 National Student Satisfaction and Priorities Report," Noel Levitz, 2014.

Source: Facilities Forum.

Space Management Talking Points

Deans

The quantity and condition of our institution's physical space plays an important role in the success or failure of your strategic priorities. The cost to build new space diverts scarce resources away from academic initiatives, while the condition of space can impede and even prevent successful teaching, learning, or research on our campus. Help me better steward our institution's resources and drive your strategic priorities through these space management tactics.

Space Management Initiative	Impact on Your Strategic Priorities	Example Outcomes
Establish and Enforce Office Space Standards	• Transparent office standards help us ensure offices of the right size and configuration are assigned to the right people, and that we have offices available when we need them. They also ensure faculty are treated fairly and manage faculty expectations and demands. • If we don't better protect office space, we could be forced to put faculty in substandard space, which might hurt hiring and retention. We also want to avoid new faculty arriving on campus and not having an office. It creates a bad first impression for the faculty member. • The cost of construction in our region is roughly $_____/sq. ft.[1] If we plan for slightly smaller offices, it would create additional room in the budget for modern lab and teaching spaces. • At institutions that charge colleges for space by the square foot, unnecessarily large offices create unnecessary costs to the college.	• One regional public institution had to temporarily freeze faculty hiring because offices were already 104% subscribed. • One urban, private institution saved $3M in new construction after 70 faculty members joined its shared office program. • One institution discovered that eliminating redundant office assignments could free up an additional 20% of its office space. At our institution that would mean ___ offices, the equivalent of a new _____ *(well-known building on campus)*.
Repurpose Underutilized Space	• Your departments are hoarding space by holding onto empty offices and restricting access to their classrooms and conference spaces. We need those rooms to meet the space needs of strategic and academic priorities in a quick and cost-effective way. • New space comes at a high cost to your college, especially if you will be charged for ongoing maintenance and operations of that space. Managing your existing space better minimizes the need for new space. • Even if you do not currently need more space, another college might have a space shortage. A culture of space sharing across colleges ensures that all institutional resources reach their maximum potential.	• Only 10% of one large public institution's 800+ general assignment classrooms meet their utilization target of 67%. • The College of Liberal Arts at a large public institution will save $3M in construction costs by redeploying 1.5% of its existing G&E[2] space. • A large, mid-west institution installed light sensors in faculty offices to improve energy conservation. The offices were so rarely used that the sensors, which were estimated to recoup their initial investments in three years paid for themselves in under a year.

1) Blanks are provided for you to fill in institution-specific data points.
2) General and education.

Source: Facilities Forum.

Space Management Talking Points (cont.)

Deans

Space Management Initiative	Impact on Your Strategic Priorities	Example Outcomes
Increase Classroom Utilization Through Central Ownership and/or Centralized Scheduling	• Increasing classroom utilization will help us meet the demand for instructional space using our existing resources. • Centrally scheduled classrooms hold 44% more classes each semester than decentrally controlled classrooms.[1] We can meet our current demand for classrooms without building new ones by increasing the number of centrally scheduled classrooms, freeing up resources to invest in other priorities. • Many state legislatures won't fund any new capital construction if classroom utilization is below a certain rate. We must ensure we qualify for state capital funding by meeting our state's minimum classroom utilization rate of ___%.	• Institutions with central scheduling have 17% less space overall than institutions without central scheduling.[2] • Classroom utilization in decentrally held classrooms is 22% lower than in centralized classrooms at a large public research institution. • At one small private institution, decentrally scheduled labs are only scheduled to hold one lab per day to accommodate faculty teaching preferences, when they could hold multiple classes per day. This inefficiency unnecessarily increases the demand for new labs.
Increase Course Scheduling During Off-Peak Hours	• Many of our students struggle to meet graduation requirements because of course overcrowding during peak hours. This can considerably delay their graduation, and add thousands of dollars to their student debt. By more evenly distributing courses throughout the teaching week, we can reduce the number of potential scheduling conflicts between 10 a.m. and 2 p.m. Monday through Thursday. • Poor course distribution increases wear and tear on our facilities and detracts from the student and faculty experience. Long lines, overcrowded parking lots, full buses, and increased traffic are common around lunchtime Monday through Thursday while our campus resembles a ghost town on Fridays. We can alleviate traffic and parking problems by varying student and faculty arrival and departure times.	• According to a 2014 Noel Levitz survey, 50% students enrolled at four-year institutions are dissatisfied with their ability to register for required courses with few conflicts.[3] • One private research institution found they could accommodate a 19% increase in enrollment and take 22 of their 73 classrooms offline by requiring professors to teach 30% of courses outside preferred time periods or in adjacent buildings.

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2) "Review of Practice Report," UK Higher Education Space Management Project, 2005.
3) "2014 National Student Satisfaction and Priorities Report," Noel Levitz, 2014.

Source: Facilities Forum.

Space Management Talking Points

Departments and Faculty

The quantity and condition of our institution's physical space plays an important role in the success or failure of your strategic priorities. The cost to build new space diverts scarce resources away from academic initiatives, while the condition of space can impede and even prevent successful teaching, learning, or research on our campus. Help me better steward our institution's resources and drive your strategic priorities through these space management tactics.

Space Management Initiative	Impact on Your Strategic Priorities	Example Outcomes
Establish and Enforce Office Space Standards	**Impact on Faculty:** • Providing offices to part-time faculty members (graduate students, emeriti faculty, and adjunct instructors) limits the amount of office space available for new full-time faculty members. • While not avoidable in all circumstances, reclaiming second (or third) faculty offices where possible would free up space for new faculty. Furthermore, it is inequitable and does not make the best use of campus space in the service of our academic mission. • The cost of construction in our region is roughly $_____/sq. ft.[1] If we plan for slightly smaller offices, it would create additional room in the budget for modern lab and teaching spaces. • If we cannot provide private office space to full-time faculty members, we will have a difficult time recruiting and retaining the best possible faculty.	• One regional public institution had to temporarily freeze faculty hiring because offices were already 104% subscribed. • One institution discovered that eliminating redundant office assignments could free up an additional 20% of its office space. At our institution that would mean ___ offices, the equivalent of a new _____ *(well-known building on campus)*.
Repurpose Underutilized Space	**Impact on Faculty:** • An unused office is an underutilized office because it is not serving the research or instructional missions of the institution. Clearly communicating your specific, long-term growth plans helps ensure that your department's office space is ready for you when you need it, but is also available for someone else's temporary use when you don't.	• The cost to construct a new office on our campus is $_____. Fully utilizing our offices allows us to avoid wasting resources on unnecessary construction. • The cost to heat, cool, and maintain an empty office on our campus is roughly $_____ per semester. These resources could be used in other ways to better support the academic mission of our institution.

1) Blanks are provided for you to fill in institution-specific data points.

Source: Facilities Forum.

Space Management Talking Points (cont.)

Departments and Faculty

Space Management Initiative	Impact on Your Strategic Priorities	Example Outcomes
Increase Classroom Utilization Through Central Ownership and/or Centralized Scheduling	**Impact on Students:** • Centrally scheduled classrooms allow for more courses to be taught in less space, increasing student access to courses, improving their educational experience, and reducing their time-to-graduation.	• Centrally scheduled classrooms hold 44% more classes per semester than decentrally controlled classrooms.[1] • Classroom utilization in decentrally held classrooms is 22% lower than in centralized classrooms at one mid-west public research institution.
Increase Course Scheduling During Off-Peak Hours	**Impact on Faculty:** • Scheduling courses during peak hours and on peak days can create the illusion of a space shortage. It is one of the reasons that you are having so much trouble scheduling courses in classrooms near your office, or with the exact technology you like to use. • Shifting your courses to off-peak hours makes it much easier for you to get the classroom spaces you like—and parking will certainly be easier. **Impact on Students:** • Many of our students struggle to meet graduation requirements because of course overcrowding during peak hours. This can considerably delay their graduation, and add thousands of dollars to their student debt. • This problem hurts a particularly vulnerable segment of our student body—those students who work during the day to pay for college. They simply cannot get the courses they need to graduate and are at risk of non-completion. • Shifting the time you teach a course by just a few hours can reduce the time-to-degree of many of our students. Shortening a student's time-to-degree increases the chances a student will graduate, and lowers the overall cost of education for that student—no small thing as the cost of education continues to rise.	• According to a 2014 Noel Levitz survey, 50% students enrolled at four-year institutions are dissatisfied with their ability to register for required courses with few conflicts.[2] • ___% of our students graduate ___ semesters after their anticipated completion date and ___ semesters over the six-year national average. Every additional semester could require a student to assume as much as $_____ in additional debt. In addition ___% of our students never complete their degrees. • One private research institution found they could accommodate a 19% increase in enrollment and take 22 of their 73 classrooms offline when professors began teaching 30% of courses outside preferred time periods or in adjacent buildings.

1) "Find the Hidden Space on Your High Density Campus," Sightlines, 2015.
2) "2014 National Student Satisfaction and Priorities Report," Noel Levitz, 2014.

Source: Facilities Forum.

Recalibrating Allocation and Size of Faculty Offices

SECTION 2

- Practice 4: Enforceable No-Office Protocols
- Practice 5: Voluntary Office Withdrawal Incentive
- Practice 6: Unit-Level Office Utilization Bonus/Penalty

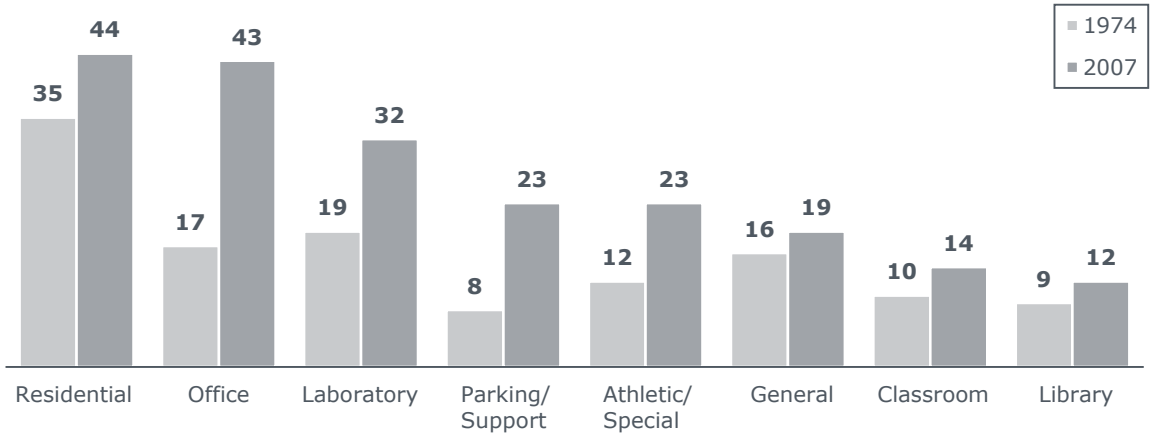
Runaway Growth in Office Space

Offices Fastest Growing Space Type on Campuses

Of all types of space on campus, office space offers one of the biggest opportunities for improving utilization. Not only is office space per student growing, but it is growing faster than any other type of campus space. The chart below shows growth in square feet per student for each type of space between 1974 and 2007, showing that all types of space are growing in absolute terms. The numbers below the chart show how much each type of space has increased or decreased as a share of overall campus space, revealing that the share of space devoted to offices has increased more than any other space type.

Growth in Space per Student

Mean NASF per Student by Space Type



Change in Share of Total Campus Space, by Space Type, 1974-2007

Residential	Office	Laboratory	Parking/ Support	Athletic/ Special	General	Classroom	Library
-6.6%	6.8%	0.2%	4.7%	1.4%	-3.6%	-1.4	-1.2%

Data in Brief

- Analysis reflects a composite of two data sets: the Higher Education General Information Survey (HEGIS) from 1974, and the Campus Facilities Inventory (CFI) Report from 2007
- After 1974, the Integrated Postsecondary Education Data System (IPEDS) replaced HEGIS and eliminated facilities from the data categories surveyed
- In 2003, the Society for College and University Planning (SCUP) began surveying campuses for facilities data; survey connects space data to IPEDS data through IPEDS' institution numbers
- SCUP published the most recent CFI Report in 2007

Source: Society for College and University Planning, 2003 Campus Facilities Inventory Report; Society for College and University Planning, 2007 Campus Facilities' Inventory Report; Facilities Forum interviews and analysis.

Faculty Offices "Criminally" Underutilized?

Changing Faculty Work Habits Decrease Time Spent in Office

Even as institutions dedicate more space to offices, offices remain some of the most underutilized spaces on campus. When one Midwestern university installed sensors to automatically turn off lights and air conditioning when offices were empty, Facilities estimated the utility savings would pay for the project after three years. In fact, faculty members spent so little time in their offices that the project paid for itself in a single year.

Lights Out

"At one Midwestern university, the facilities group invested in the control systems to turn off lights and air conditioning when offices were not occupied. The manufacturers' literature estimated that they would recover the costs in about three years. The offices were so lightly used that it took only a year to recoup the cost of the additional controls through energy savings."

Michael Haggans, Visiting Scholar
University of Minnesota

Climate-Controlled Libraries

"Faculty use their offices so little that what we are essentially doing is paying to heat and cool their private libraries."

Facilities Leader
Public Research University

The three practices in this section focus on improving office space utilization by limiting new offices to where they are truly needed and reclaiming any space unnecessarily dedicated to private offices.

Source: Haggans M, "Faculty Office – Part 1," *Campus Matters,* August 24, 2012, http://campusmatters.net/faculty-office-part-1/; Facilities Forum interviews and analysis.

Practice 4: Enforceable No-Office Protocols

Practice in Brief

Institutions pursue the most straightforward strategies to recover and curb the growth of office space on campus by eliminating guaranteed private offices for certain types of faculty and staff and reducing office space in certain buildings.

Rationale

While most institutions guarantee private offices for full-time faculty members, office assignments for other types of instructors and non-academic staff vary. Some institutions have generous space protocols granting private offices to most employees, regardless of how much time they spend on campus. Others have no protocols at all, or struggle to enforce the ones they have. As a result, part-time, emeriti, and adjunct faculty often have their own offices, and full-time faculty occasionally have multiple offices. While reclaiming private office space from tenured faculty is a nonstarter on most campuses, many institutions have successfully reclaimed space from non-tenured faculty. By eliminating private offices for non-tenured faculty, institutions can free up underutilized office space and ultimately reduce the demand for offices in new construction.

Implementation Options

Opportunity 1: Move Non-Tenure Track Faculty to Shared or Hoteling Space

Institutions eliminate private offices for adjunct faculty, emeriti faculty, and graduate students and instead provide hoteling space or assign them to shared space or a cubicle.

Opportunity 2: Restrict Duplicate Office Assignments

Institutions limit each faculty member to a single office by working with deans to reclaim second offices or by restricting private offices in certain buildings or on secondary campuses.

Opportunity 3: Shift Administrative Units to Open Offices

Institutions move administrative staff to cubicles with access to collaborative meeting spaces.

Practice Assessment

Institutions can pursue each opportunity individually; however, it is recommended that campus leaders pursue every opportunity and maximize the amount of office space reclaimed from non-tenure track faculty, as campus leaders generally have more flexibility in office assignments for this group.

Shifting Non-Tenured Staff to Higher-Density Spaces

Opportunity 1: Move Non-Tenure Track Faculty to Shared or Hoteling Space

The first enforceable opportunity for reducing office space on campus is moving non-tenured instructors to higher-density office space. Three examples of campuses successfully reclaiming office space are listed below.

Known Methods to Reduce Number of Unnecessary Private Offices

Shared or Hotel Offices for Adjunct Faculty

- Rowan University provides hoteling space for adjunct faculty
- Adjunct hoteling spaces contain anywhere between 3 and 10 desks
- Rowan also assigns part-time faculty members to shared offices

Cubicles for Graduate Students

- The University of Texas at El Paso (UTEP) assigns graduate students and teaching assistants to cubicles rather than offices
- UTEP has also placed part-time lecturers in cubicles where space is highly constrained

Emeriti Faculty Lounge

- Brown University dedicates a faculty lounge for emeriti faculty use (pictured below)
- Brown provides $1,000 to cover expenses associated with faculty vacating their offices when they retire

First, Rowan University assigns all adjunct faculty to hoteling spaces and shared offices with up to 10 desks. Second, the University of Texas El Paso assigns graduate assistants to cubicles rather than closed offices. They also put part-time lecturers in cubicles when facing a space crunch. Lastly, Brown University replaced emeriti faculty offices with an emeriti lounge. Brown also provides up to $1,000 to help emeriti faculty move out of their private office.

Source: "Emeriti Lounge," Brown University, http://www.brown.edu/campus-life/housing-and-dining/dining-services/faculty-club/emeriti-lounge; Rowan University, Glassboro, NJ; University of Texas at El Paso, El Paso, TX; Facilities Forum interviews and analysis.

Examining Number of Faculty with Multiple Offices

Opportunity 2: Restrict Duplicate Office Assignments

The second enforceable opportunity to reduce office space on campus is reducing the number of faculty members with multiple offices. Institutions have approached this opportunity in two ways. Murtagh University[1] quantified the problem by conducting a formal survey, finding an average of 1.2 offices per faculty member. Leaders are now working with deans on a case-by-case basis to eliminate duplicate office assignments.

UNC Charlotte prevented faculty members from getting multiple offices by declaring an entire building office-free. To maximize classroom space in a new continuing education building, the Facilities leader and provost at UNC Charlotte jointly decided not to include private offices in the design. This strategy was possible because faculty members who teach at the downtown campus already have offices on the main campus. Instead of private offices, they created hoteling space for faculty members to use when they visit the downtown campus.

Murtagh University[1]

Tackling Multiple Office Assignments on Main Campus

1. Facilities leader recognizes prevalence of multiple offices and decides to evaluate faculty office assignments on main campus
2. Survey finds that many faculty have multiple offices; campus average is 1.2 offices per faculty member
3. University works with deans and department chairs to take away duplicate offices where possible

UNC CHARLOTTE

Preventing Office Proliferation on Satellite Campus

1. The University of North Carolina at Charlotte assigns faculty members to offices on main campus
2. Joint initiative of Facilities and Office of Provost to maximize the amount of classroom space in the new downtown Charlotte building for graduate and continuing education
3. New building design includes hoteling space for faculty rather than assignable private offices

1) Pseudonym.

Source: University of North Carolina at Charlotte, Charlotte, NC; Facilities Forum interviews and analysis.

Leading by Example

University of Toronto Facilities Department Moves Into Cubes

Opportunity 3: Shift Administrative Units to Open Offices

The third enforceable opportunity to reduce office space on campus is to shift administrative staff from private offices to more space-efficient cubicles or open-office workstations. While some higher-level staff members will need to keep private offices, the majority of staff in all administrative units can shift to more open workstations. At the University of Toronto, the Facilities department volunteered to shift to cubicle space, encouraging other departments to follow their lead. The previous and new layouts are shown below.

Before

UNIVERSITY OF TORONTO

After

Most staff seated in low-walled cubicles

Workstations positioned for maximum natural light

Office design includes a variety of formal and casual collaborative spaces for meetings and ad hoc discussions

UNIVERSITY OF TORONTO

In the previous layout, many of Toronto's Facilities employees sat in private offices. Much of the open space was dedicated to high filing cabinets, obstructing natural light from reaching the central cubes. In the new layout, the low-walled cubes are positioned on the perimeter of the floor to maximize the natural light on staff desks. Toronto also installed a variety of formal and informal collaborative spaces, positioned away from the windows as the staff spends less time there.

Source: University of Toronto, Toronto, ON; Facilities Forum interviews and analysis.

A Win-Win Change for University of Toronto

Move Results in Decreased GSF[1] and Improved Staff Satisfaction

Moving to an open office layout has led to significant space savings at the University of Toronto. By moving the Facilities department to open office space, Toronto reduced the number of private offices in the department by 30% and decreased average workstation size by 25%. In total, they reduced the gross square footage of their unit by 10%.

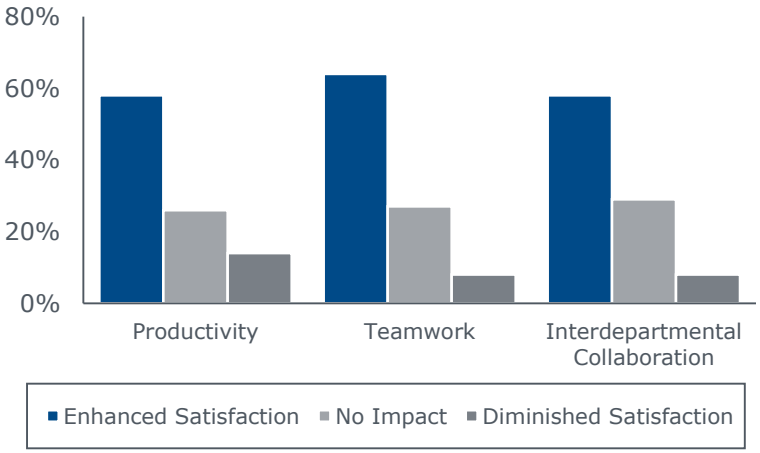
Changes to Facilities Department Space

30% Reduction in number of closed offices

25% Decrease in workstation size

10% Reduction in gross square feet

Staff Satisfaction with New Space



More importantly, Facilities employees were satisfied with the move, demonstrating that if done correctly, a move to an open office can improve both space efficiency and employee satisfaction. The staff reported higher productivity, increased teamwork, and more collaboration among the different parts of the Facilities unit. In fact, the Facilities move was so well received that other administrative departments are now following suit.

1) Gross square feet.

Source: University of Toronto, Toronto, ON; Facilities Forum interviews and analysis.

Practice 5: Voluntary Office Withdrawal Incentive

Practice in Brief

Institutions offer an annual stipend to faculty who agree to give up their private offices. Faculty who accept have guaranteed access to shared offices or hoteling workstations

Rationale

While most institutions continue to guarantee faculty private offices, advances in technology enable faculty to work from locations across campus or from home. As a result, faculty members spend less time in their offices, but institutions continue to dedicate significant Facilities resources to constructing, operating, and maintaining offices regardless of how frequently faculty use them. By offering an incentive for faculty to voluntarily surrender their private office, institutions can begin to reduce present and future demand for office space.

Implementation Options

Option 1: Offer Annual Stipend to Faculty Members Who Move to Shared Offices

Institutions incentivize faculty members to vacate their private office by offering an annual stipend to anyone who agrees to move to a shared office.

Option 2: Offer Scaled Financial Incentives to Motivate Faculty to Use Shared or Hoteling Space

Institutions provide faculty with the option of using shared or hoteling space instead of a private office and offer appropriately scaled or tiered financial incentives for faculty taking advantage of either option.

Practice Assessment

Institutions with a space crunch, a significant portion of their campus dedicated to office space, or a high cost of acquiring or building new space should consider this practice. Institutions with particularly high space costs can realize great savings even if only a small percentage of faculty participate.

Motivating Faculty to Give Up Private Offices

USF Uses Financial Incentives to Alleviate Extreme Space Crunch

Option 1: Offer Annual Stipend to Faculty Members Who Move to Shared Offices

While dedicated office space for full-time faculty remains a contentious issue, a few institutions have had early success incentivizing faculty to voluntarily vacate their private offices. The first option is to provide a stipend to faculty who vacate their private office in favor of a shared office. The University of San Francisco's office withdrawal program is outlined below. Faculty members are offered a $3,000 annual lump-sum bonus to vacate their private office and occupy a shared one instead.

UNIVERSITY OF SAN FRANCISCO

Elements of the University of San Francisco's Faculty Office Withdrawal Program

Voluntary Enrollment

Faculty can voluntarily surrender their private offices

Lump-Sum Bonus

Faculty who enroll receive an annual bonus of $3,000 in a single payment

Guaranteed Shared Office Space

Enrolled faculty are assigned a permanent desk in a shared office

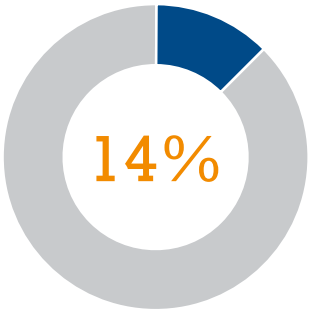
Source: University of San Francisco, San Francisco, CA; Facilities Forum interviews and analysis.

Modest Participation, Outsized Savings

The University of San Francisco's office withdrawal program has been doubly successful, in both participation and cost savings. Of San Francisco's full-time faculty, 14% participate in the program, an impressive rate given how political faculty offices can be.

Participation Rate in USF's Faculty Office Withdrawal Program

n=459



Program Cost Comparison

$50K
Cost to construct new 80 SF office in San Francisco

$3K
Annual cost of incentive per faculty member

The program has also achieved significant savings through avoided construction costs. The University of San Francisco is experiencing a space crunch and would have to construct new space for any additional offices. The Facilities leader estimates construction of each additional office would be $50,000, compared to the $3,000 annual stipend.

Source: University of San Francisco, San Francisco, CA; Facilities Forum interviews and analysis.

Expanding the Menu of Workspace Options

Parsons School of Design's Variable Incentives for Shared and Hoteling Spaces

Option 2: Offer Scaled Financial Incentives to Motivate Faculty to Use Shared or Hoteling Space

The second option for implementing a voluntary office withdrawal incentive is to offer scaled or tiered financial incentives for faculty to use alternative workspaces. Parsons School of Design gives faculty two alternatives to private offices: a shared office or a "hotseat" (more commonly called touchdown or hoteling workstations). The shared office option provides a permanently assigned desk, whereas hotseats can be reserved for up to a month at a time.

THE NEW SCHOOL PARSONS	Shared Office Option	"Hotseat" Office Option
Capsule Description	Faculty are assigned a permanent personal desk in a shared office with three or more faculty assigned to it	Faculty have use of unassigned desks and access to short-term use of private offices/conference rooms
One-Time Sign-Up Bonus	$500	$500
Monthly Stipend	$230 ($2,990 annually)	$370 ($4,810 annually)
Eligibility	All full-time faculty without administrative appointments[1]	All full-time faculty without administrative appointments[1]

Faculty who enroll in either program receive a monthly stipend. In order to create a compelling incentive, Parsons set the stipend for the hotseat option roughly 50% higher than the stipend for the shared office option. In total, the monthly stipends for the hotseat option sum to $4,180 annually, compared to $2,990 annually for the shared office option. Both options provide faculty a one-time $500 sign-up bonus to outfit their home office.

To review the memo Parson School of Design's dean of academic planning released announcing the shared office program, please see page 80 of this report.

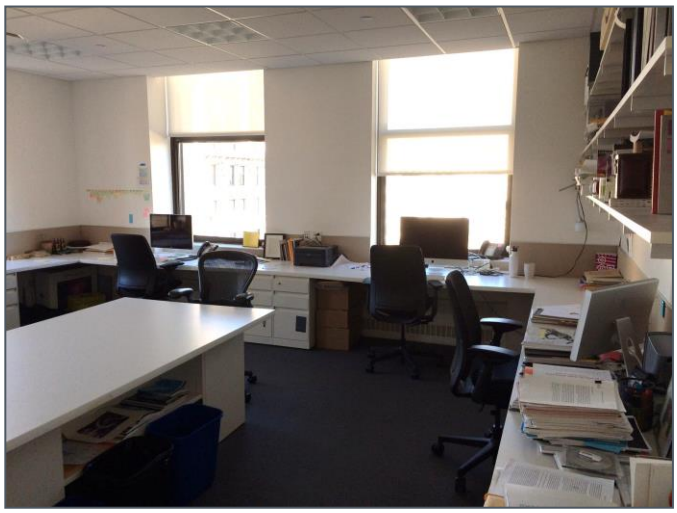
1) Faculty whose administrative responsibilities do not require a private office may petition Provost to maintain shared/"hotseat" office.

Source: Parsons School of Design, New York, NY; Facilities Forum interviews and analysis.

Creating Desirable Shared Faculty Offices

Natural Light and Modern Furnishings Improve User Experience at Parsons

Parsons further motivates faculty to opt in to the office withdrawal program by creating shared and "hotseat" offices in more desirable spaces than private offices. The photo below shows one of Parsons's shared offices. They intentionally put shared offices in the most attractive spaces with the best views and natural light. Parsons has found that creating more desirable spaces helps convince faculty members to join the program.



Rebranding the "Hotseat" Option at Parsons School of Design

Parsons originally branded the hotseat option as the Home-Office option. Some faculty took this literally and spent less time on campus. Parsons rebranded the Home-Office option as the hotseat option to curtail faculty absenteeism.

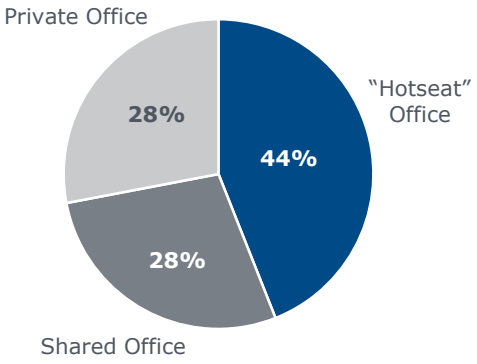
Source: Parsons School of Design, New York, NY; Facilities Forum interviews and analysis.

Majority of Parsons Faculty Opt Out of Private Offices

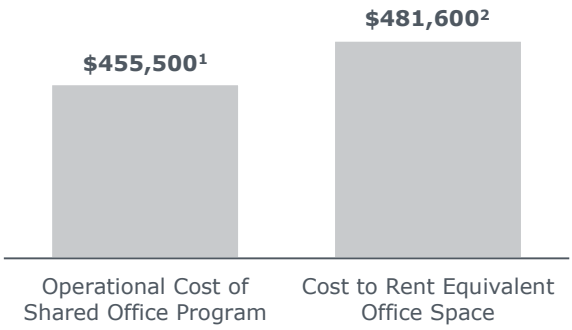
The office withdrawal program at Parsons has been highly successful. Almost 75% of faculty are enrolled in one of the two office withdrawal options. As a design school, Parsons faculty is somewhat atypical; however, participation is still strong among more "traditional" faculty members, particularly younger faculty.

The chart on the right shows Parsons's savings from the program. The cost of the annual stipends is slightly less than the cost of renting space for every faculty member to have a private office. However, Parsons reports that the biggest savings come from avoided renovations. Parsons estimates they would pay an additional $3 million to create suitable private offices for each faculty member now enrolled in the program.

Participation Rate in Parsons' Alternative Office Program
n=155



Recurring Costs of Program Versus Leasing Space



$3M Savings through avoided renovations necessary to convert leased space into private faculty offices

1) Includes cost of annual shared office stipends ($128,500) and "hotseat" stipends ($327,000).
2) Based on estimated lease rates in Manhattan.

Source: Parsons School of Design, New York, NY; Facilities Forum interviews and analysis.

Implementation Guidelines

Implementing an incentive for faculty members to surrender private offices can be technically and politically challenging. Implementation guidelines that help ensure the program incents desired behavior change are listed here.

- ❑ **Disqualify faculty with administrative appointments.** Faculty members with administrative appointments may require private offices to carry out their administrative function, so should be ineligible for the program.
- ❑ **Limit participation in the program to tenure and tenure-track faculty.** Adjuncts, graduate students, and other part-time instructors often do not sit in private offices. It is recommended that institutions move these employees to higher-density work stations—no monetary incentive is necessary.
- ❑ **Ensure that office space alternatives are attractive.** Faculty are more likely to accept the incentive if the shared office spaces are comfortable and well equipped. Participants should also have access to private locked storage.
- ❑ **Communicate and enforce the guidelines and goals of the program.** Faculty must understand that the program is not a work-from-home option and that it does not grant permission to avoid spending time on campus. A formal agreement may help prevent faculty absenteeism.
- ❑ **Determine if local construction costs and the cost of implementing and supporting the program will still yield an ROI.** If your campus has space to grow, or if the local cost of new construction is relatively inexpensive, the cost of establishing and maintaining the program may outweigh potential savings.

Notably, there appears to be a minimum stipend required to engage faculty. Even though only a few institutions offer office withdrawal incentives, participation rates suggest that a $3,000 annual stipend is an important threshold to engage faculty. Both the University of San Francisco and Parsons independently arrived at this figure. Furthermore, San Francisco initially offered a stipend of $1,500, and very few faculty enrolled in the program.

Source: Facilities Forum interviews and analysis.

Parsons School of Design's Shared Office Program Memo

April 2015

To: Parsons Full-time Faculty
Fr: Nadine Bourgeois, Dean, Academic Planning
Re: Hotseat/Share Office Program

In the Fall 2007, the University introduced a pilot program through which faculty members were offered stipends to offset expenses associated with working off campus. The program was created to address changing needs and work styles of faculty, especially with regard to technology and communication, providing a more progressive approach to "office space." We also see this program as a long-term opportunity as we design new types of faculty space in the University Center that will help to define how we work more collaboratively as a university faculty. During this academic year, the sixth year of the program, almost 93 of our full-time faculty participated.

We just received permission from the university to continue this program for the 14-15 academic year.

Here are the two options available to faculty:

"Hotseat Office"option. Faculty members who elect to work primarily from a hot seat location on campus will receive a **one-time payment of $500** (before taxes), and a **stipend of $185 per bi-weekly paycheck** (before taxes). For faculty members who elect this option, Parsons will provide, wherever possible, faculty rooms will include open shared desk space with phone, lockable storage, access to a networked printer, and a campus phone number for voice mail access (if requested). Faculty members will be able to schedule conference rooms or other appropriate rooms for meetings and advising. Additionally, all full-time faculty members are provided a University laptop in the platform of their choosing (Mac or PC). Faculty who switch between the two plans will not be eligible for an additional one-time payment of $500.

"Shared Office: Three or more" option. Faculty members who wish to retain a personally-assigned **shared** office which **houses three or more faculty members** on-campus will receive a **one-time payment of $500** (before taxes), and a **stipend of $115 per bi-weekly paycheck** (before taxes) to offset ongoing expenses. Shared offices will include personally-assigned desk, phone, shared printer and copier, and limited storage space for books or equipment (approximately six linear feet for books, and a small lockable cabinet). Faculty who chose this option will be able to schedule conference rooms when needed for private meetings. Additionally, all full-time faculty members are provided a University laptop in the platform of their choosing (Mac or PC). Faculty who switch between the two plans will not be eligible for an additional one-time payment of $500.

Following are more details about the options**.** Faculty who switch between the two plans will not be eligible for an additional one-time payment of $500.

Please review these, consider your needs, and respond by June 2, 2015 regarding your preference. For full-time faculty members who do not wish to change their current arrangement (private, hotseat or shared) for the coming year, no action is required.

Source: Parsons School of Design, New York, NY.

ALTERNATIVE OFFICE PROGRAM FOR FULL-TIME FACULTY

GENERAL

1. The Alternative Office Program is available to Parsons full-time faculty.

    a. Faculty members who also hold senior administrative appointments (e.g., deans, associate deans) that necessitate their being present on the campus for a majority of their work hours will retain their current office options and are not eligible for the Alternative Office stipends even if they are presently in a shared office environment.

    b. Faculty members who are currently assigned to private, on-campus offices and who do not elect one of the new options will retain their current office the coming academic year and no stipend will be provided unless they are presently in a two person now included in the plan.

2. The "Hotseat Office" option does **NOT** change the expectation that faculty members spend appropriate time on-campus for advising, attendance at departmental meetings, participation on committees, etc. ***All faculty members should consult with their school deans to be sure expectations for on-campus presence are understood.***

3. In both scenarios, Parsons will provide the faculty member with a laptop computer (Mac or PC) if they have not already been assigned one.

FINANCIAL

1. Stipends will be added to paychecks and will be taxed in accordance with applicable laws.

2. The University will not require any documentation from faculty members related to the expenses the stipends are intended to offset. It is each faculty member's responsibility to purchase his/her own equipment, establish and maintain service agreements, manage the use of the stipends, etc.

3. Faculty members are encouraged to consult with their tax advisors to understand the potential tax benefits, if any, associated with this program.

4. Stipends associated with the pilot program may be terminated at the University's discretion. The University reserves the right to alter or cancel the Alternative Office Program at any time. In the event of significant changes to the program, every effort will be made to alert faculty members with sufficient notice to plan for the change.

PROCEDURES

1. Faculty members are asked to respond by **June 2, 2015** regarding their interest in participating in one of the Alternative Office Program options. **Responses should be sent by email to Nadine Bourgeois, bourgeon@newschool.edu.**

2. *Faculty members who do not respond* by **the deadline above** will be understood to continue with their current arrangement (private, hotseat or shared) for the coming year.

3. Questions or feedback about the program may be directed to Nadine Bourgeois at bourgeon@newschool.edu

Source: Parsons School of Design, New York, NY.

Practice 6: Unit-Level Office Utilization Bonus/Penalty

Practice in Brief

Institutions establish space targets dictating office sizes for every position on campus, then financially penalize or reward units depending on whether they are above or below the target. The goal is to incentivize unit leaders to make better use of existing space or return underutilized space.

Rationale

Institutions hope that incentives and space charges will motivate academics to better utilize or give back space. However, space charges have little impact when not directed toward a specific type of space. Incentives that specifically target a particular kind of space help academic leaders determine what actions to take to improve utilization.

Implementation Options

Component 1: Establish Clear, Enforceable Office Space Standards

Institutions establish office size standards by position to serve as guidelines for both new and old office spaces. Standards include an acceptable range for deviation, enabling institutions to enforce the standards in older buildings or accommodate special circumstances such as permissible second offices.

Component 2: Penalize or Reward Colleges Based on Space Usage

Institutions charge units for every square foot of office space in excess of their allocation and reward units that use less than their allocation. Units facing a penalty can pay the charge, reconfigure the space to come into compliance, or return excess space to a central pool.

Practice Assessment

This practice can help institutions reclaim underutilized office space from units, but it requires a complete and current inventory of campus space. Furthermore, institutions must establish clear policies on what types and amounts of space they will allow units to return to the central pool to prevent departments from returning space that cannot be repurposed.

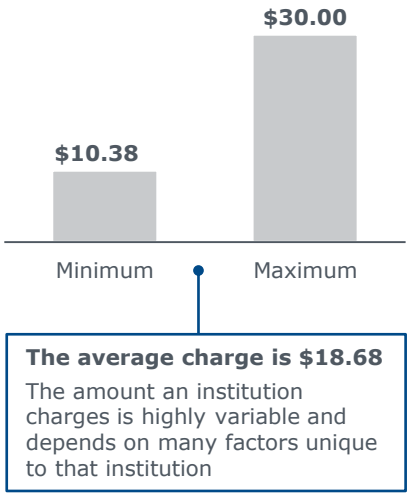
Increased Interest in Holistic Charge for Space

Common Elements of an RCM-Like Space Charge

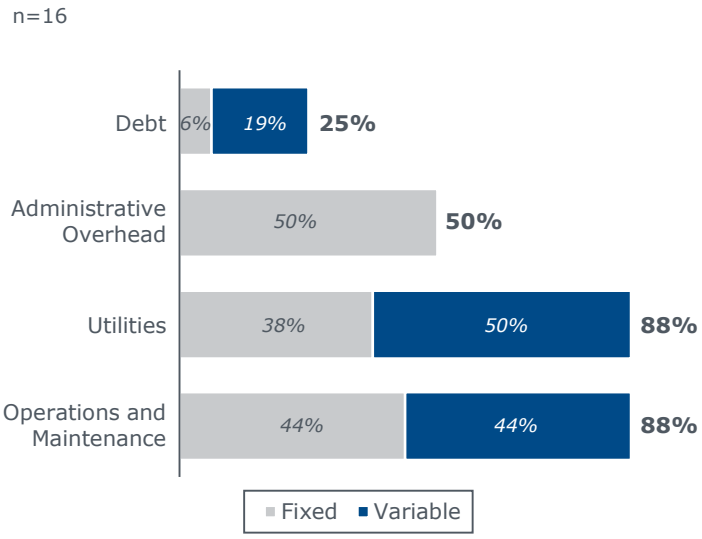
Many institutions facing a space crunch have considered implementing a responsibility centered management (RCM) budget model or RCM-like space charges. Many Facilities leaders hope that space charges will incentivize better overall space usage.

Based on a survey of 16 institutions currently employing a space charge, charges vary from $10 to $30 per square foot. However, direct benchmarking is not advised. The significant variation in space charges is largely explained by differences in the costs institutions use to calculate the charge, illustrated by the chart on the right. The full bar indicates the percentage of universities including a given cost in their space charge. The light gray portion of the bar shows those with a fixed, flat rate, and the dark gray shows those with a variable rate. For example, 88% of institutions with a space charge include utility costs. Of those schools, 38% charge a flat fee, usually the total utilities cost averaged across units. The other 50% charge a variable rate, typically based on metered consumption. Therefore, institutions considering a space charge should benchmark themselves against which costs to include rather than actual dollar amounts.

Minimum and Maximum Observed Space Charge per SF per Year



Frequency of Fixed and Variable Chargebacks in RCM Space Charges



Source: Facilities Forum interviews and analysis.

RCM Won't Solve Your Space Crunch (Completely)

Space Charges Increase Dean Awareness of Cost, May Not Spark Action

Some institutions hope that charging for space will incentivize better space use in the academy, but conversations with Facilities leaders have revealed that this is often not the case. Charging for space typically accomplishes three things. First, because space charges clearly link a dollar figure to space, deans often become more receptive to cost-based arguments about better space management. Second, because deans try to avoid any new costs, some schools see a drop in the number of requests for additional space after implementing space charges. Third, deans may also take steps to decrease utilities consumption and energy costs, as this is relatively uncontroversial with faculty.

What Space Charges Will Do:

- ✔ Makes deans more open to cost-based arguments about space management
- ✔ Reduce the number of new space requests
- ✔ Incentivize deans to reduce utilities consumption (and costs)

What Space Charges Won't Do:

- ✖ Will not result in the return of desired space
- ✖ Will not create a marketplace for exchanging space
- ✖ Will not immediately get deans to notice, or understand, the cost of space

However, space charges do not incent colleges to give back their underutilized space. Instead, departments may try to give back their most undesirable space, such as closets or basement storage. Space charges also do not create a marketplace for space, as most institutions have no central infrastructure to support such a marketplace. Finally, space charges do not help deans understand the true costs of space.

RCM space charges do not improve utilization as much as Facilities leaders hope, in large part because they are not directive. Academic leaders may realize they have a space problem, but are not sure how to address it. Incentives that focus on a specific type of space are more likely to succeed in improving utilization because it allows academic leaders to see where the problems lie.

Source: Facilities Forum interviews and analysis.

Creating Enforceable Office Space Targets

Small Buffer Enables Stanford University to Apply Guidelines in All Cases

Component 1: Establish Clear, Enforceable Office Space Standards

Stanford University has successfully implemented incentives targeted specifically toward improving office space utilization. There are two components to Stanford's unit-level office utilization bonus/penalty. The first is establishing clear, enforceable office space standards. Stanford has role-specific space targets, which are enforced both in new construction as well as existing spaces. The table illustrates how Stanford calculates a sample college's office space allocation based on its distribution of roles. The second column highlights Stanford's office targets. Most roles have a built-in buffer of 15% to account for older buildings.

Office Space Utilization (Representative College)

Office Occupant	Standard Allowance (SF/Person)	Buffer	Allocated SF/Person	Quantity	Total Allocated SF	Total Actual SF	Difference
Dean	240	15%	278	1	276	238	(38)
Faculty	160	15%	184	44	8,096	10,154	2,058
Admin Staff	100	5%	105	87	9,135	10,429	1,294
Students (RA/TA)	52	0%	52	292	15,184	21,730	6,546
Active Emeriti	160	15%	184	10	1,840	1,251	(589)
Visitors	80	15%	92	35	3,220	3,313	93
Total				469	37,751	47,115	9,364
Approved Faculty Second Offices	160	15%	184	13	2,392		(2,392)

Defined limits to space occupancy:
- Number of active emeriti is equal to 5% of the total faculty
- Number of visiting faculty is no more than 40% to total faculty

Buffer acknowledges difficulty in meeting standards:
- 10% buffer accounts for older buildings not built to the guidelines
- 5% accounts for the vacancy rate
- No buffer for graduate students

"Below the Line" adjustments make exceptions explicit

Using these targets, each college's office space allocation is calculated based on the number of each type of employee it has. Its target allocation is then compared to its actual amount of space. Note, subtotals by role are irrelevant. In this example, the college is 9,364 square feet over its allocation, shown in the far right column of the "Total" row. Finally, Stanford allows for a "below the line" adjustment to accommodate special circumstances. In this case, the college has 2,392 square feet of approved second offices.

Source: Stanford University School of Earth Sciences Master Plan Study, May 12, 2008, http://lbre.stanford.edu/sem/sites/all/lbre-shared/files/docs_public/DCPSM_sespresentation_v1.pdf; Facilities Forum interviews and analysis.

Bonus/Penalty Based on Deviation from Targets

Stanford Affords Colleges Three Methods to Address Their Penalty

Component 2: Penalize or Reward Colleges Based on Space Usage

The second component of this practice is penalizing or rewarding colleges based on their actual space allocation, illustrated below. Stanford charges units $33 per square foot of occupied space. They initially selected the $33 charge based on indirect cost recovery per square foot of research space. Today, Stanford simply aims to select a charge that will sufficiently motivate colleges to change their behavior. If the $33 charge begins to lose impact, Stanford can simply increase it.

Dean's Space Bonus/Penalty:

(Actual Space Usage – College Space Allocation) x $33 per SF

Metrics	College A	College B
Actual Space Usage	17,871	46,955
Space Allocation	20,949	31,736
Difference	(3,078)	15,219
Charge	($102K)	$502K

College Receives Bonus

- Dean receives funds out of the reserve
- Funds can be used for any academic purpose (not restricted to facilities improvements)

College Penalized

Three Options to Resolve Penalty

Pay the penalty

Use the funds to make renovations to move into compliance

Give up space to the provost

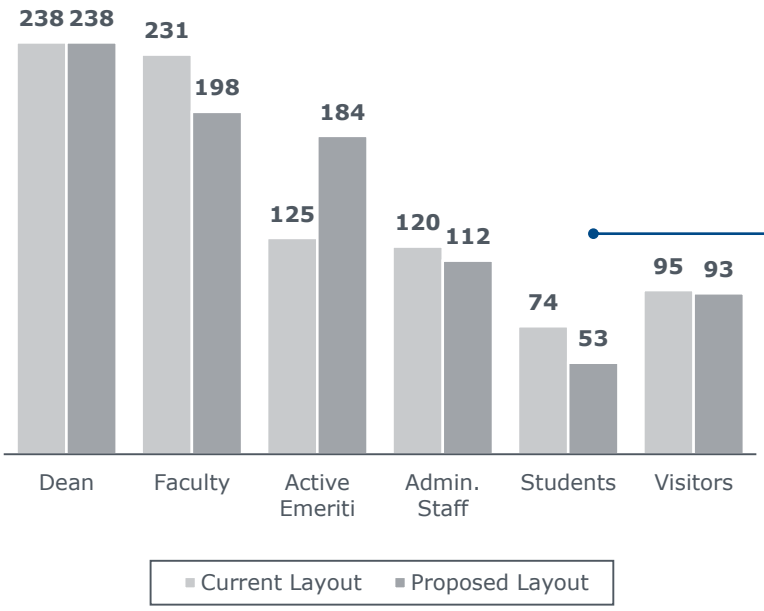
In this example, College A is 3,078 square feet below its allocation and receives a bonus of $102,000. By comparison, College B is 15,219 square feet over its allocation, leading to a penalty of $502,000. College B has three options to satisfy this penalty. It can pay the penalty, use that money to make renovations that bring the college into compliance, or return space to a central pool.

Source: Stanford University School of Earth Sciences, Master Plan Study, May 12, 2008; Facilities Forum interviews and analysis.

Reversing the Trend in Office Space Growth

The unit-level office utilization bonus/penalty has had a meaningful impact on space behavior at Stanford. The graph below details how one college reallocated space to minimize its space charge. The college faced a $300,000 penalty, so opted to reconfigure its distribution of office space and give 10,000 square feet of space back to Facilities to reduce its charge.

Current Versus Proposed Office Space Allocation in Representative College (SF/Person)



10K

Square feet of office space returned to the institution

The proposed office space allocation would reduce the college's space penalty from $309K to $68K, a savings of $241K

Note: Stanford successfully used this program to recover much-needed office space. After several years, returns began to diminish. Stanford moved away from this program and pursued other strategies to manage office space.

Source: Stanford University School of Earth Sciences, Master Plan Study, May 12, 2008; Facilities Forum interviews and analysis.

Increasing Share of Centrally Scheduled Classrooms

SECTION 3

- Practice 7: Classroom Centralization Incentives
- Practice 8: Specialized Classroom Recalibration

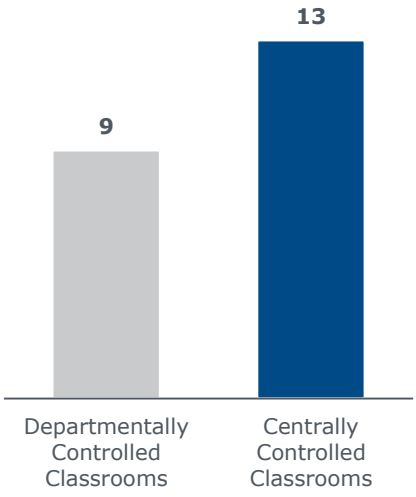
Centralized Scheduling the Best Lever

Maximizes Course Offerings, Minimizes Space Needs

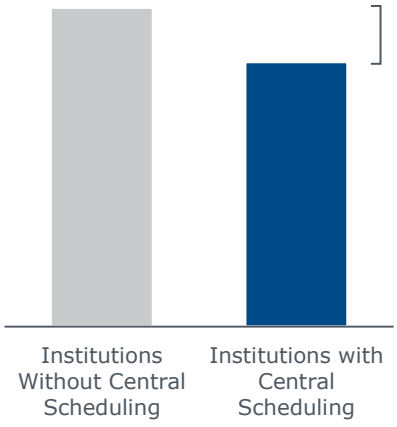
Many institutions are working to improve low classroom utilization. However, overall utilization rates mask a more nuanced problem. Classroom use on most campuses varies throughout the day. While classrooms are often full to overflowing during peak hours—between 10:00 a.m. and 2:00 p.m. on most campuses—they are near empty in the mornings and evenings.

The best method to combat this two-fold problem is increasing the share of centrally scheduled classrooms on campus. With few exceptions, institutions see higher utilization rates in centrally scheduled classrooms than in departmentally controlled spaces. The graph on the left shows that departmentally controlled classrooms hold an average nine classes per semester, while centrally controlled classrooms hold 13, almost 50% more. Central scheduling also has a meaningful impact on overall space efficiency. Institutions with central scheduling have on average 17% less space per student than those without it.

Average Number of Courses in Classroom per Semester by Room Ownership



Average Campus Size by Scheduling System



Institutions with central scheduling have **17% less** space per student than those without it

Centralizing control of classrooms can be a significant change, and institutions that have made the most progress—outside of a mandate from the president or provost—have relied on incentives. The two practices in this section focus on encouraging colleges and departments to return classrooms to a central scheduling pool and reducing the number of specialized spaces.

Source: *Find the Hidden Space on Your High Density Campus,* Sightlines, 2015; "Review of Practice Report," UK Higher Education Space Management Project, 2005; Facilities Forum interviews and analysis.

Practice 7: Classroom Centralization Incentives

Practice in Brief

Institutions create financial and non-financial incentives to encourage academic units to relinquish control of departmentally owned instructional spaces to a central scheduling pool. The goal is to maximize classroom availability and increase utilization.

Rationale

While nearly every campus has at least some general purpose classrooms in a central pool, most institutions still have a significant number of instructional spaces that are controlled or claimed by specific departments. Department leaders typically restrict access to these classrooms, resulting in lower utilization rates. Even on campuses that formally expect departments to release unused classrooms for central scheduling, department leaders too often hoard space for "rainy day" use. Institutions can encourage departments to voluntarily release classrooms to a central pool using a mixture of rewards and penalties.

Implementation Options

Option 1: Assume Space Costs for Any Classroom Released to Central Control

Institutions take responsibility for the costs of technology upgrades, renovations, and/or departmental space charges to motivate departments to relinquish classrooms.

Option 2: Establish Varied Custodial Cleaning Standards for Centrally and Decentrally Controlled Rooms

Institutions clean centrally owned classrooms more often than decentrally owned classrooms, making decentrally owned rooms less desirable.

Option 3: Seize Control of Classrooms with Historically Low Utilization Rates

Institutions create a formal policy to seize control of departmentally owned classrooms with low utilization rates, turning them over to the central pool or taking them offline according to the needs of the institution.

Practice Assessment

Institutions can choose to pursue each option independently, or combine all three for maximum effect. To encourage voluntary centralization, institutions should begin by implementing reward-based incentives such as option one before employing penalty-based incentives such as option three.

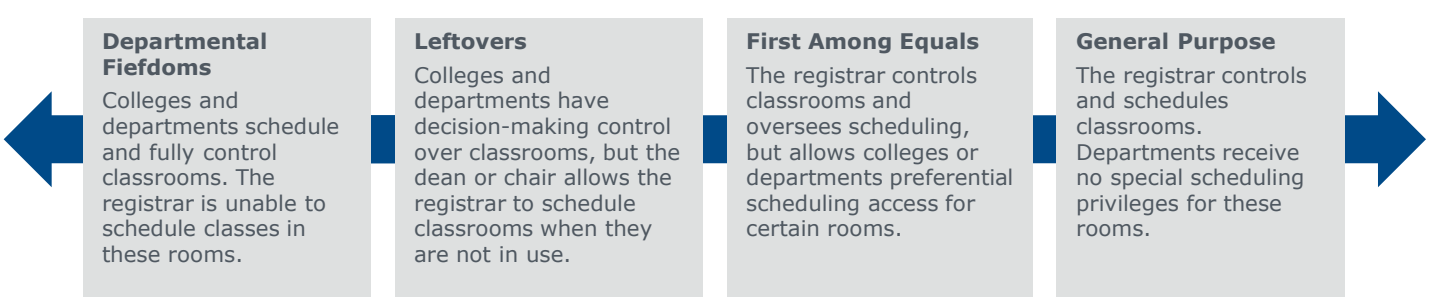
Ownership a Murky Issue

Who Owns Classrooms a Question of Access and Control

On most campuses, the state legislature or board has legal ownership of instructional and other campus spaces. In day-to-day execution, however, classroom ownership is a much murkier issue, involving both formal and informal claims to space. The full spectrum of ownership, outlined below, reflects differences in scheduling access and decision-making authority around space renovations and technology installation.

Spectrum of Classroom Centralization

Departmentally Owned — *Centrally Owned*



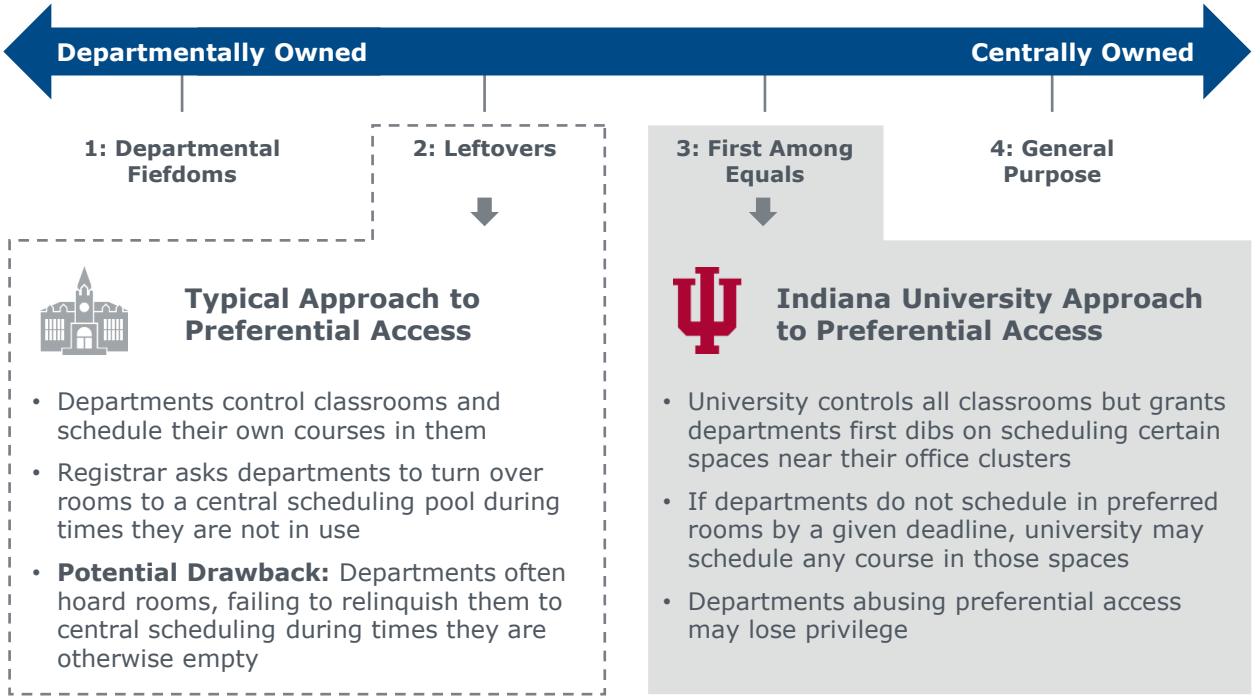
Moving left to right, Departmental Fiefdoms are spaces where the department has total control over scheduling access and decision making. Second, Leftovers are classrooms where departments have decision-making control but agree to open access to the registrar when not in use. Third, First Among Equals are classrooms mostly controlled by the registrar, but one department or college has first priority to schedule classes there before the room is made widely available. Finally, General Purpose classrooms are fully centrally scheduled and controlled. Clearly, the goal for all institutions is to increase the number of classrooms on the right side of the spectrum to improve overall utilization rates.

Source: Facilities Forum interviews and analysis.

The Tipping Point

The Right and Wrong Kind of Preferential Access

Some academic leaders hope that moving from Departmental Fiefdoms to the Leftovers model, where one department still controls a classroom but opens it to the registrar when not in use, will increase classroom utilization. However, institutions have found that gains are typically marginal under a Leftovers model. In reality, departments often hoard classrooms they control, choosing not to release them to the registrar or even scheduling fake classes to make the room appear in use.



To better improve classroom utilization, institutions should incent departments to move classrooms to General Purpose or First Among Equals. The benefit of the General Purpose model is clear. The First Among Equals model shifts the administrative burden of opening classroom access from the department to the registrar, reducing the number of steps necessary to open a classroom for general scheduling. At Indiana University, classrooms are centrally controlled, but each department has priority access to a subset of classrooms. The department receives scheduling priority in those rooms until a certain date, after which the registrar opens the room to all departments. While preferential scheduling may lead to the occasional mismatch in course enrollment and room capacity, it is often more palatable to academic leaders than General Purpose and still leads to meaningful improvements in utilization. This practice outlines three options to encourage departments to release classrooms as First Among Equals or General Purpose.

Source: Indiana University, Bloomington, IN; Facilities Forum interviews and analysis.

Trading Upgrades for Ownership

FSU Classroom Renovation Program Increasing Centrally Scheduled Rooms

Option 1: Assume Space Costs for Any Classroom Released to Central Control

The first option for increasing classroom centralization is for institutions to offer to assume the costs of maintaining or upgrading classrooms in exchange for greater central scheduling powers. Florida State University offers to assume responsibility for repair and renovation costs and to fund technology upgrades in any classroom that a department releases to central control. Since the program started in 2000, FSU has installed technology upgrades in 268 rooms, increasing the share of centrally controlled rooms by 31%.

Florida State University Classroom Renovation Program

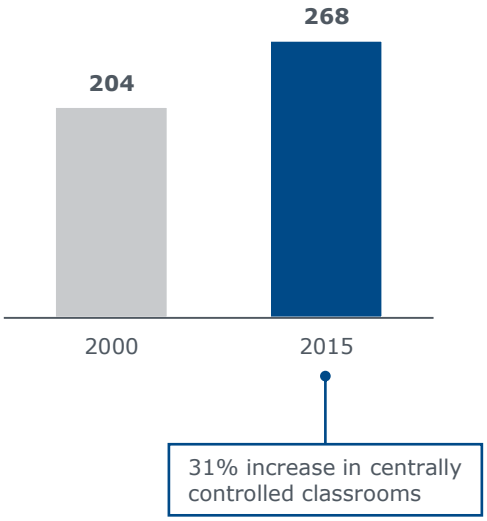
Technology Upgrades

Repairs and Renovations

268
Number of classrooms that have received technology upgrades since 2000

$1.2M
2015 budget allocation for classroom upgrades

Change in Number of Centrally Controlled Classrooms



Note that departments with above-average technology in their classrooms may not be compelled by this incentive initially. However, most departments will seriously consider this offer as classroom technology ages and is due for replacement.

Source: Florida State University, Tallahassee, FL; Facilities Forum interviews and analysis.

No Shortage of Costs to Cover

Customize Offer to Target Faculty Pain Points

Institutions can offer to assume a variety of classroom costs in exchange for central control. While FSU chose to cover both technology upgrades and repairs and renovations, institutions could opt for one or the other. Alternatively, institutions with space or utility charges could offer to waive some of those charges in exchange for scheduling control.

Technology Upgrades

Offer to pay for new technology if the department turns the room over to the central pool

Repairs and Renovations

Provide central funding for renovations and maintenance in centralized classrooms but not for departmentally owned classrooms

Space Charges

Institutions that charge units for space (e.g., an operations and maintenance fee) offer to waive any charges for classrooms that departments return to central control

The Facilities Forum advises institutions considering just one incentive to target repair and renovation charges. The more oversight and control institutions have over repairs, the better they can prioritize deferred maintenance spending.

Source: Facilities Forum interviews and analysis.

Varying Custodial Services

Penn State Provides Better Custodial Services for Centralized Classrooms

Option 2: Establish Varied Custodial Cleaning Standards for Centrally and Decentrally Controlled Rooms

The second option for increasing the share of centrally scheduled classrooms is to vary levels of custodial service and make decentrally scheduled classrooms less appealing. Pennsylvania State University uses tiered cleanliness standards for centralized and decentralized classrooms. In this model, centrally controlled classrooms are cleaned daily while departmentally owned classrooms are only cleaned twice a week. In addition, work orders for centrally scheduled rooms are always prioritized while work orders for departmental classrooms are processed at regular speed. Intentionally varying the cleaning standards makes centralized classrooms more attractive to faculty, minimizing the appeal for departments to maintain their own pool of classrooms.

PENNSTATE 1855

Pennsylvania State University Instructional Space Service Standards

Centralized Classrooms	Decentralized Classrooms
• Cleaned daily • Food and drink prohibited • Users that damage space or leave trash behind are warned, charged, and/or banned • Maintenance requests are flagged as high priority and are addressed immediately	• Cleaned twice weekly • Departments must enforce responsible use without support of Facilities • Maintenance requires a work order; requests remain in queue until labor and resources are available • Users must wait for repairs

Source: Pennsylvania State University, State College, PA; Facilities Forum interviews and analysis.

Make Them an Offer They Can't Refuse

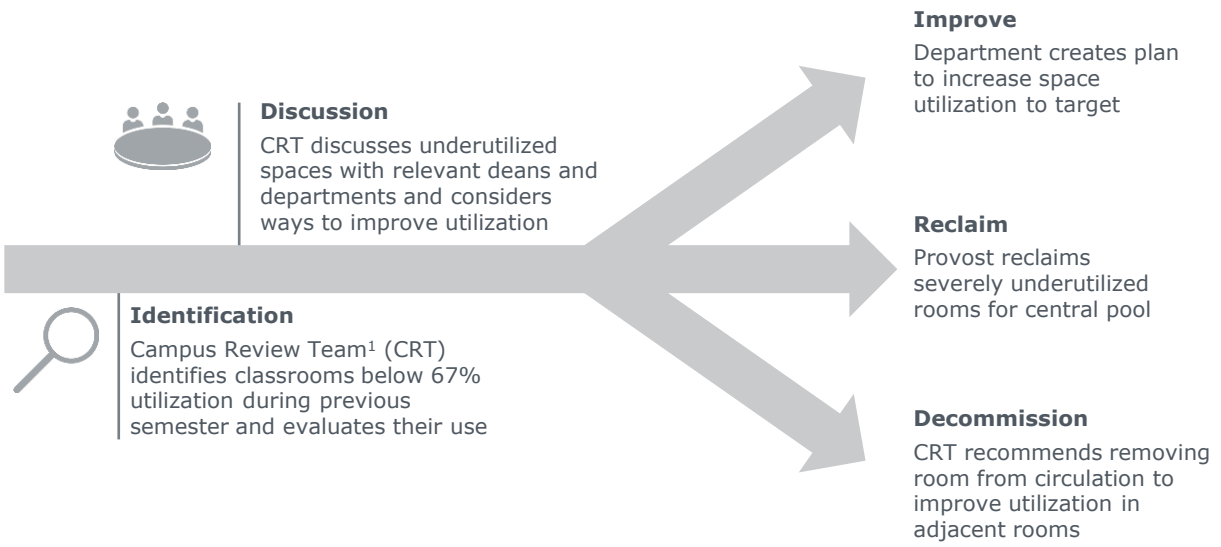
UW-Madison Reclaims Classrooms with Consistently Low Utilization Rates

Option 3: Seize Control of Classrooms with Historically Low Utilization Rates

The last incentive for increasing centrally scheduled classrooms is for an institution to reclaim classrooms that consistently fall below a specified utilization rate. The University of Wisconsin-Madison flags any room that fell below 67% utilization the previous semester, and the Facilities leader discusses the space with the dean and department chair. The department can opt to create a plan to improve utilization, release the classroom to central scheduling, or allow Facilities to take the space offline. Often, departments opt for a combination of solutions, renovating one or two rooms to increase departmental utilization and turning over others to central scheduling or to be taken offline.

THE UNIVERSITY of WISCONSIN MADISON

University of Wisconsin-Madison Instructional Space Utilization Review Process



Taking low-quality, low-utilization classrooms offline has two benefits. First, institutions can limit annual repair and utility costs necessary to keep low-quality space operating. Second, institutions that must report classroom utilization rates to the system or state can increase their overall utilization rates by taking infrequently used rooms out of the calculation entirely.

Source: "Instructional Space Utilization Review Process Project: Final Report and Recommendations," University of Wisconsin-Madison, 2013, http://www.apr.wisc.edu/documents/Projects/Instructional-Space-Utilization-Review-Final.pdf; Facilities Forum interviews and analysis.

1) Includes members of the space management office and office of the registrar.

Practice 8: Specialized Classroom Recalibration

Practice in Brief

Institutions make specialized instructional spaces more available to a broader pool of users by reducing technological variation or recategorizing space by pedagogical purpose (rather than department).

Rationale

Often, colleges and universities allow departments to control a handful of classrooms with specialized technology or capabilities, assuming no other departments could or would want to use the space. As a result, many spaces that could be used by multiple departments for multiple purposes sit outside a central scheduling pool and have poor utilization rates.

Implementation Options

Opportunity 1: Reduce Technological Variation Across Classrooms

Institutions minimize variation across all general purpose classrooms by implementing a standard technology package.

Opportunity 2: Recategorize Space by Pedagogy

Institutions alter how space is categorized and managed to allow access for a broader range of users. Rethinking categorization of space around pedagogy rather than ownership or specialization broadens the definition of a classroom and enables institutions to increase the number of potential users for any given room.

Practice Assessment

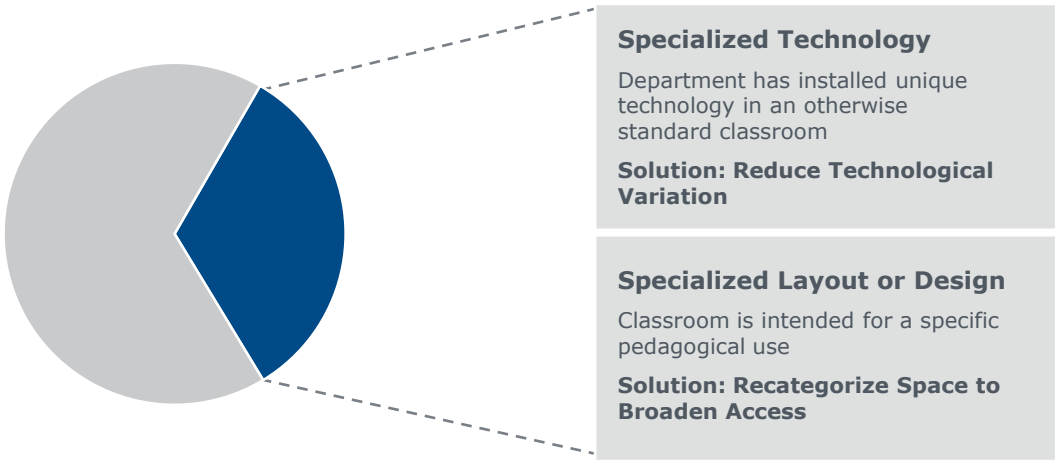
Institutions seeking to increase classroom desirability and utilization should undertake both opportunities in this practice.

De-Specializing Space to Broaden Access

Opportunities to Increase Potential Users While Maintaining Functionality

As institutions seek to increase the share of centrally scheduled classrooms, they will likely see the least traction in centralizing more specialized classrooms, such as instructional labs or dance studios. Given the highly specialized technology or equipment, departments tend to control these rooms, leading to lower utilization rates.

Specialized Space as Share of Instructional Space



There are two main types of instructional space specialization. The first is classrooms with specialized technology, typically general purpose rooms where a department has installed a unique technological capability such as a computer or projector. The second type is classrooms with a specialized layout or design intended for a specific pedagogical use, such as music rooms or film editing studios. Each type of space has a different opportunity to increase utilization.

Source: Facilities Forum interviews and analysis.

Neutralizing Faculty Preference with Standardization

Implement Standard Tech Package in All Classrooms, Regardless of Ownership

Opportunity 1: Reduce Technological Variation Across Classrooms

The first opportunity is to reduce technological variation across classrooms. Departments often make rogue changes to rooms they control or typically schedule, creating disparities in the technological functionality of different classrooms. This can result in faculty preferences for certain classrooms or limit the number of rooms instructors can use. To minimize technological variation among classrooms, some institutions have introduced a standard technology package for all instructional spaces.

Florida International University Standardized Technology Options

Standard Classroom- about 29K
- Teaching console
- Projector and screen
- DVD/VCR
- BluRay DVD
- Desktop computer
- Touch-panel control system
- iClicker
- Document camera
- Interactive computer monitor
- Wireless presentation capability

Basic Course Capture- about 36K
- Teaching console
- Crestron capture HD (for recording content only)
- Projector and screen
- DVD/VCR
- BluRay DVD
- Desktop computer
- Touch-panel control system
- iClicker
- Document camera
- Interactive computer monitor
- Wireless presentation capability

Has package options for different types and sizes of classrooms

Includes cost estimate for each package

Opportunities to Enforce Standard Tech Packages

Many institutions already use standard technology packages in centralized classrooms. Expanding standard technology to decentralized rooms can help decrease faculty preference for those rooms. Standard technology packages can also incentivize departments to turn classrooms over to a central pool.

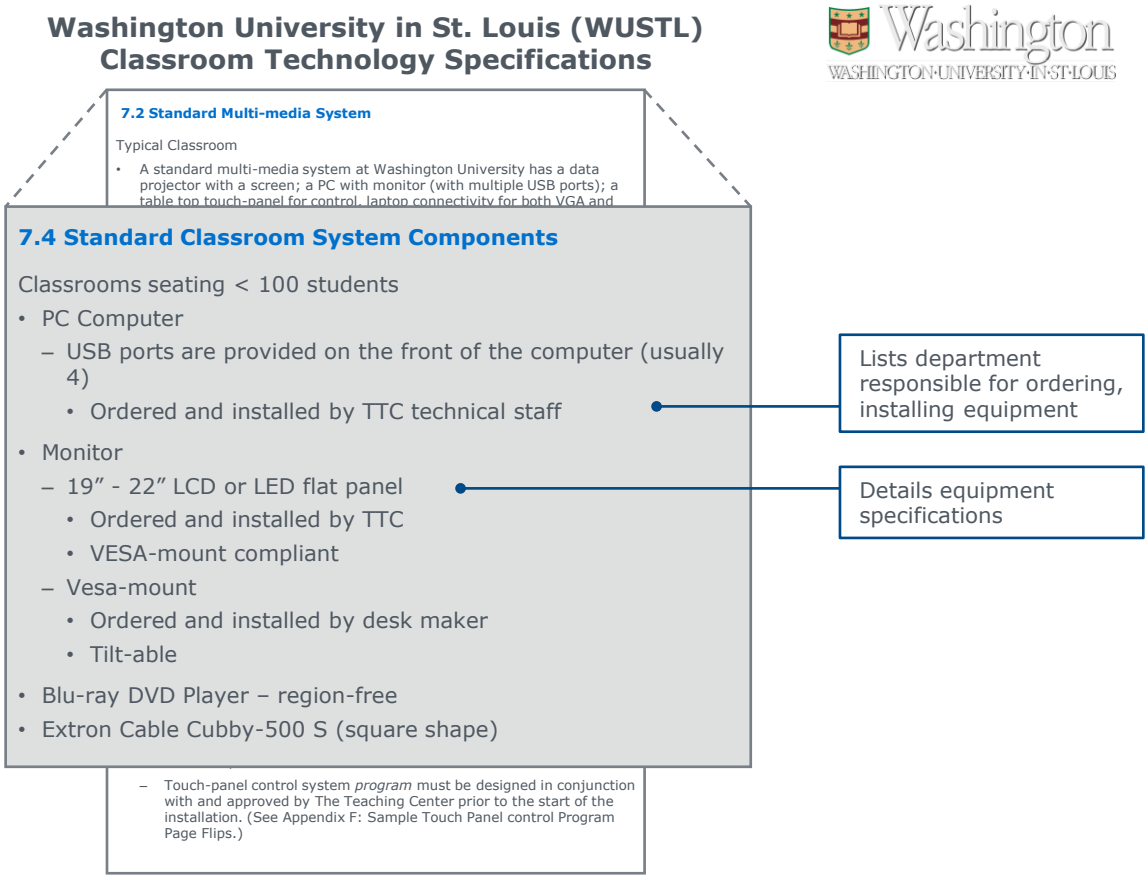
Florida International University (FIU) has created a basic standard technology package for its classrooms. FIU's technology package has distinct lists of equipment for six types of classrooms, including standard classrooms, course capture classrooms, distance learning classrooms, and teaching auditorium spaces. They also provide an estimated cost for each package.

For a full version of FIU's classroom technology options, please see page 104 of this report.

Source: Florida International University, Miami, FL; Facilities Forum interviews and analysis.

Increasing Specificity of Technology Standards

Washington University in St. Louis has a more comprehensive standard technology package. It includes detailed equipment specifications, such as the number of USB ports on desktop computers and the size of monitors. It also lists the unit responsible for purchase and installation.



Institutions currently without a standard technology package may face resistance if they attempt to directly implement a highly detailed package like Washington University's. Instead, campuses that have not yet introduced a standard technology package should start with a foundational set of guidelines, like the ones developed by Florida International University.

For a full version of Washington University's classroom technology specifications, please see page 106 of this report.

1) The Teaching Center.

Source: Washington University in St. Louis, St. Louis, MO; Facilities Forum interviews and analysis.

Rethinking Classroom Categorization

Flood Forces UI to Dramatically Expand Use of Specialized Rooms

Opportunity 2: Recategorize Space by Pedagogy

The second opportunity to increase utilization of specialized classrooms is recategorizing space by pedagogy. Specialized spaces—like greenhouses, film editing studios, and music rooms—are built to meet a specific pedagogical need, and changing the layout in these spaces could detract from their efficacy. Instead, institutions should focus on changing the categorization of these spaces to give a broader swath of campus access to them.

CNN

Floodwaters Breach Sandbags in Iowa College Town

"At least eight feet of water rushed through campus, officials said.

"Students, faculty, and staff, leaders of the university, the president of the university – out sandbagging," said David Jackson, the university facilities manager.

"All of our theaters, our music building, our fine arts building, have taken on significant water as well," said Sally Mason, president of the university.

The University of Iowa

University of Iowa Response to Space Crisis

- Flooding at UI causes extensive damage to the campus, requiring many buildings to go offline
- Reduction in available space leads to a severe instructional space crunch
- UI decides to recategorize instructional space to increase flexibility and sharing; new categories align activity and type of space (rather than assigning rooms to specific programs)

The University of Iowa has successfully broadened access to specialized spaces by recategorizing classrooms. The change was prompted by a 2008 flood that affected 20 buildings on Iowa's campus, forcing the university to take many of its instructional spaces offline. As a result, Iowa had to think creatively about where different courses could reasonably meet in order to offer its full roster of courses the following semester.

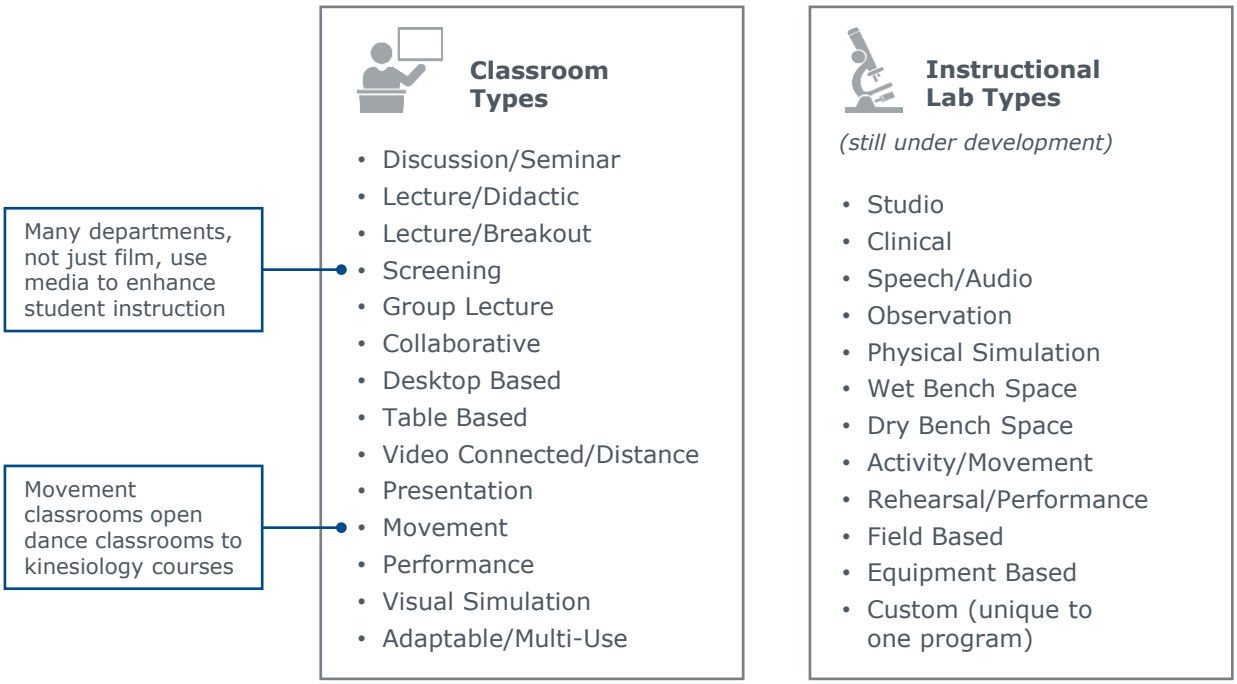
Source: University of Iowa, Iowa City, IA; "Floodwater Breach Sandbags in Iowa College Town," *CNN*, June 16, 2008, http://www.cnn.com/2008/US/weather/06/15/iowa.flooding/index.html?eref=time_us; Facilities Forum interviews and analysis.

Allowing for More Flexible Use of Specialized Space

New Classroom Categorizations Reflect Pedagogical Needs

To increase flexibility and access, the University of Iowa created 14 categories of classrooms and 11 categories of labs organized around pedagogy rather than discipline. For example, the dance studio, formerly controlled by the Dance Department, was recategorized as a movement space. This categorization recognizes that while the studio is not a general purpose space, other disciplines, like kinesiology, could reasonably use it. The classrooms maintain their unique designs, and the new coding and categorization system enables more departments to schedule courses in them.

University of Iowa Room Types



Source: University of Iowa, Iowa City, IA; Facilities Forum interviews and analysis.

Florida International University's Classroom Technology Options

Description of Classroom Technology Options and Ballpark Pricing

Option 1: Standard Classroom – about 29K
- Teaching console
- Projector and screen
- DVD/VCR
- BluRay DVD player
- Desktop computer
- Touch-panel control system
- iClicker
- Document camera
- Interactive computer monitor
- Wireless presentation capability

Option 2: Basic Course Capture – about 36K
- Teaching console
- Crestron Capture HD (for recording content only)
- Projector and screen
- DVD/VCR
- BluRay DVD player
- Desktop computer
- Touch-panel control system
- iClicker
- Document camera
- Interactive computer monitor
- Wireless presentation capability

Option 3: Stand Alone Course Capture – about 50K
- Everything that is in option 1 "Standard Classroom" above
- Single camera with zoning capability (follows movements of the professor)
- Microphone zone
- Confidence monitor
- Self recording capability

Option 4: Stand Alone Distance Learning – about 120K
- Everything that is in option 1 and 2
- Polycom for video conference
- Flatpanels for "far-end" video
- Student microphones
- Student camera with zoning capability

Option 5: Full Distance Learning – about 160K
- Everything in options 1,2, and 3
- Control room for operator

Source: Florida International University, Miami, FL.

Option 6: Teaching Auditorium (high capacity – typically seats 60 or more – between 70K and 250K depending on the size of the room and priority of sound system and projector model

- Everything in option 1
- Large screen
- High lumens projector
- Sound reinforcement

Option 7: Basic Conference Room (not video conference capable) – Between 6K and 25K (depending on size)

- Presentation display (projection or flat panel TBD based on room depth)
- Tabletop connections
- Basic sound system

Option 8: Advanced Conference Room with Video Conference – Between 20K and 40K

- Everything in option 7
- Microphones
- Polycom for VC

Note: Cost estimates for technology packages are ballpark estimates and do include construction, power, and infrastructure needs.

Source: Florida International University, Miami, FL.

Washington University in St. Louis's Classroom Technology Specifications

7. Classroom Technology

7.1 General

- Washington University classroom technology is designed to be fully functional, easy to use and flexible. Much time and effort has been put into thinking about the teacher interface (the technology desk), classroom support and the maintenance of equipment to keep the technology functioning near 100% of the time. This section describes the *general requirements* as they relate to the audio-visual system in a standard University-managed classroom and auditorium. Currently, these technology standards are under review. Although these standards exist, they are a baseline to begin the conversation with our faculty about current and future needs they may have in a classroom. On many projects infrastructure is put into place to support future technology needs or to finish outfitting when funding becomes available.

7.2 Standard Multi-media System

Typical Classroom

- A standard multi-media system at Washington University has a data projector with a screen; a PC with monitor (with multiple USB ports); a table top touch-panel for control, laptop connectivity for both VGA and HDMI outputs, internet capability, a Blu-ray DVD player and audio input. Document cameras are available in select classrooms.

Specialty Equipment/Classrooms (as of 2014)

- Eight classrooms have SmartBoard interactive whiteboards.
- One classroom is an Active Learning Classroom.

Physical security for multimedia equipment

- Hasps installed by AV vendor for touch panel and DVD.
  - All hasps must be secured using Teaching Center's supplied glue.
- Projectors should use locking projector mounts to secure them to the pole attached to the ceiling.
- Computers should be secured using a Kensington type lock.
- Installer should use security screws for all rack equipment.

7.3 Control System

- Table Top Touch panel control system.
  - Crestron is standard and is the only acceptable control system for University-managed classrooms.
  - Remote monitoring & E-control are required (e.g. Fusion Room View & X-panel for Crestron).
  - Approximate size of Crestron touch panel is 5" for seminar rooms (which utilize flip top panels), 10" for classrooms and 12" – 15" for auditoriums.
    - No third party vendor will be accepted.
  - No touch panel combination monitor units allowed.
  - Touch-panel control system *program* must be designed in conjunction with and approved by The Teaching Center prior to the start of the installation. (See Appendix F: Sample Touch Panel control Program Page Flips.)

Source: Washington University in St. Louis, St. Louis, MO.

7.4 Standard Classroom System Components

Classrooms seating < 100 students

- PC Computer
  - USB ports are provided on the front of the computer (usually 4)
    - Ordered and installed by TTC technical staff
- Monitor
  - 19" - 22" LCD or LED flat panel
    - Ordered and installed by TTC
    - VESA-mount compliant
  - Vesa-mount
    - Ordered and installed by desk maker
    - Tilt-able
- Blu-ray DVD Player – region-free
- Extron Cable Cubby-500 S (square shape)
  - Ordered and installed by desk maker
  - Laptop cables (extending from the cable cubby)
    - VGA cable-6' length
      - VGA cables are standard for PC laptops, Mac laptops require a dongle provided by the user
    - HDMI cable-6' length
    - Audio (separate from VGA cable); ¼" phono plug,-6' length
    - Network cable-6' length
    - Power – duplex
- Document camera (optional)
  - Desk mounted document camera (CMOS image sensor technology)
  - Comes with own light source
  - Controllable with the AV touch-panel control system
  - Requires mounting in drawer in teaching station
- VCR's (optional)
  - VCR's are no longer a standard in University-managed classrooms.
- Display Equipment
- Data Projector
  - Minimum requirements
    - Specifications for 16 X 10 aspect ratio
    - WXGA (1920 X 1200)
    - 2000:1 contrast ratio minimum
    - Lumen requirements
      - Classrooms < 100 student seats -6000 lumens minimum
    - RS232 two-way communication with feedback.
  - Installation notes
    - Requires one dedicated 110-volt duplex outlet mounted flush to the ceiling.
    - Surge protection required-surge protector outlet (not plug in type).
    - Color of projector and piping must be same as ceiling (usually white) if at all possible.
- Interactive display (optional equipment, may be used in smaller classrooms instead of a data projector)
  - LED/LCD TV with or without overlay.
  - 80" +/- widescreen 16 X 10 aspect ratio
  - 32' maximum distance from interactive display to farthest seat.

Source: Washington University in St. Louis, St. Louis, MO.

  - Top of touch-able part of screen no higher than 78”-80” from finished floor (same height as a raised chalkboard).
  - Smaller displays can be used if they better fit the overall size of the room.
- Non-User Equipment
  - Switcher/scaler
  - Amplifier (for program audio)
    - Speaker type and placement determined by room size and acoustics
  - Power Conditioner
  - Computer Interface
  - UPS systems
    - 1000-1200 voltage amps
    - 10 min battery
      - Required for:
        - Touch panel processor
        - Computer
        - Digital whiteboard control and projector
    - Number of UPS systems dependent on amount of equipment.
  - Crestron Integration
    - Crestron DMPS-all in one is the digital matrix switcher, mic mixer, audio DSP, control system, and amplifier
  - Optional Microphone Sound System for Voice Amplification for classrooms > 75
    - Some classrooms that seat over 75 students may benefit from an additional Voice Amplification system so that microphones can be used in the classrooms.
    - The audio consultant, and TTC, will determine which classrooms > 75 will benefit from the addition of a Voice Amplification Sound System.
  - Assistive Listening Systems (ALS) may be added to classrooms and this option will be discussed at the beginning of each project.

7.5 Specialty Classroom System Components

An Active Learning Classroom is one type of specialty classroom that is being piloted at the University. The first Active Learning Classroom in the University-managed classroom pool, Eads 016, has been designed to foster interactive, flexible, student-centered learning experiences. It has been designed with grouped seating to foster interaction and engagement, and linear seating for test taking. It has a very high level of technology.

Although some of the multi-media system components are similar to a standard classroom, many other components are used to create each specialty classroom. Please consult with TTC closely when designing a specialty classroom.

7.6 Standard Auditorium System Components

Classrooms seating over >100 students

- Same as for standard classroom except for the following:
- Display Equipment
  - Data Projector
    - Minimum requirements
    - Specifications for 16 X 10 aspect ratio
    - WXGA (1920 X 1200)
    - 2000:1 contrast ratio minimum
    - Lumen requirements

Source: Washington University in St. Louis, St. Louis, MO.

        - Classroom > 100 -300+ student seats – 8,000+ lumens
        - Amount of lumens required also depends on how far away the projector is from the screen and if additional lenses are used
      - RS232 two-way communication with feedback.
    - Color: If projector is in a booth, color is not an issue; if it's in the classroom, color of projector and piping must be same as ceiling (usually white) if possible.

- Non-user Equipment
  - Crestron 8 X 8 or 16 X 16 Digital Media matrix switcher (no substitutions for Crestron will be accepted)
    - Audio DSP, control system, distribution system and amplifier are separate components
    - Allows switching at desk rather than at the projector.
  - Amplifier (for program audio)
    - Speakers
      - Speaker type and placement determined by room size and acoustics
  - Power Conditioner
  - Computer Interface
  - UPS systems
    - 1000-1200 voltage amps
    - 10 min battery
    - Required for:
      - Touch panel processor
      - Computer
      - Switcher/scaler
        - Number of UPS systems dependent on amount of equipment
  - Control Booth
    - A control booth offers a convenient and sometimes necessary location from which to record classes, run multi-media, and house non-user equipment.
    - A control booth may have sliding glass windows so that the person inside can hear true house sound. This must be discussed with TTC.
    - A control booth is required for auditoriums > 300 seats
      - The booth should be no less than 60 SF (6' X 10') (size of McMillan Room G052 booth) but 96 SF (12' X 8") is preferred (size of Hillman Hall 060).
      - It is highly desired to be centered in the back of the classroom.
        - Access to the booth is preferred to be from outside the auditorium, however, if inside access fits the architectural scheme better it is allowed.
    - The booth houses
      - Non-user tech equipment (in a wheeled rack)
      - Audio recording connectors for external recording
      - Network and security cables
      - Extra microphones and accessories
      - Table top with videotaping location
      - Lutron control interface
      - May contain other Lutron lighting controls
      - May contain room data projector
      - May contain other peripheral equipment such as lecture capture devices
    - A control booth is optional but highly desirable for auditoriums <300 seats
      - If space is available the architects should include a booth in auditoriums

Source: Washington University in St. Louis, St. Louis, MO.

- A booth should not take up valuable seating space if a minimum requirement of seating can only be met by not having a booth
- It is highly desirable to be centered in the back of the classroom.
  - This decision should be made in consultation with TTC.
    - If an auditorium does not have a booth, audio feeds and connectors are required on the back wall.
      - ¼" phono plug and XLR for audio feeds, both mic and line level
- A control booths interior should be painted a flat black paint

– Sample booth sizes
- Rebstock 215 booth - 5'8" X 16' 7"
- McMillan G052 booth - 5' X 9'
- Brown Expansion Auditorium A (proposed) - 8' X 12'
- Brown Expansion Auditorium B (proposed) - 12'8" X 9'
- Simon 1 - 10' X 12'

7.7 Audio System for Voice

A typical sound reinforcement system for auditoriums or large classrooms consists of microphones, which convert sound energy into an electronic signal, signal processors which alter the signal characteristics, amplifiers, which add power to the signal without otherwise changing its content, and loudspeakers, which convert the signal back into sound energy. In designing auditoriums and large classrooms the architect must take the room acoustics into account as needed for better sound control.

- Microphones
  – Wireless microphones are the preferred style of microphone for teaching.
    - Countryman mic heads are preferred over lavaliere mic heads.
  – Each microphone system includes 1 receiver, 2 microphone heads, and 2 body packs (1 head and 1 body pack is for backup).
    - Number of wireless microphone systems:
      – For 75 > seats <100 – 1 microphone/receiver system using lapel heads.
      – For 100 > seats – 4 microphone/receiver system, 1 lapel, 1 countryman & 2 handheld wireless microphones
    - Wired – podiums only
      – Only in classrooms >100
      – One gooseneck, wired, microphone at podium
      – Back-up microphones are required and are kept in TTC.
  – Speakers
    - Speakers should be recessed within walls or incorporated in the ceilings at all times. In the instance that speaker performance will be inhibited by recessing, surface mounted speakers may be used after approval from TTC. All surface mounted speakers should have custom color finish to match adjacent surfaces.
    - Characteristics depend on classroom size and conditions.
    - Type – ceiling is preferred.
    - Location – so that audio is evenly dispersed over the student area and aisle ways and entering and exit areas.
    - Number - depends on room size; must be decided by audio expert.
    - Color to blend in with ceiling.
  – Audio outputs-for recording voice or program
    - Audio feed in the booth or the back of the classroom ≥100 seats

Source: Washington University in St. Louis, St. Louis, MO.

- ¼" phono plug and XLR for access to audio feed; both mic and line level
  - Used for taping/recording purposes.
  - Exact location to be determined by TTC.
- Future consideration must take into account audio capture devices and what kind of cable and connectors they accept. This needs to be discussed with TTC each time an auditorium is built.

7.8 Network, Security Lines and IS&T Faceplate

Network and security cable runs can be missed on drawings. In general, TTC IS&T (Network Services & Support) and the architects must check communication/network, audio-visual or electrical drawings to ensure cables runs for network and security are present & complete from classrooms back to head end closets. Check IS&T specs for the cable type and manufacturer for cable runs outside of the classroom. IS&T also places a specialty faceplate on the wall behind the teaching desk or podium. Please consult IS&T for the faceplate specifications and TTC for its exact location.

Network, Security and Cable Lines

- Network lines-most equipment is network addressable
  - Classrooms 7-10
    - Installed computer, laptop, crestron controller and other
    - May require a network line at projector (check with TTC)
  - Auditoriums 10-15
    - Installed computer, laptop, crestron controller and other
      - Optional booth may require additional network lines
    - May require a network line at projector (check with TTC)
- Security Lines for electronic security
  - Classrooms and Auditoriums – 1 line
    - One electronic security line should be run from card access panel to the classroom to create a continuous loop to secure the following:
      - Teacher's station-various components
      - Data projector
  - Wash U Communications typically terminates all electronic security lines.
- Cable lines for cable TV
  - Auditoriums only-1 line run from the desk/podium back to the telecommunications closet

7.9 Wireless Network in Classrooms

- Washington University has wireless networks in many locations throughout campus. At this time the policy of the Classroom Monitoring Committee is to NOT have wireless active in University-managed classrooms or auditoriums, however this policy is currently under revision. occupying the space.
  - The location, type and quantity of access points should be determined by IS&T.
  - The wireless access points must be accessible for future activation, occasional maintenance and upgrading.
- New construction and renovated classrooms are required to have wireless equipment installed in them. Renovated classrooms will have access points terminated but the wireless not activated unless it has been discussed with TTC. If installed, the wireless environment should be robust enough to cover all of the students

Source: Washington University in St. Louis, St. Louis, MO.

Increasing Research Lab Productivity

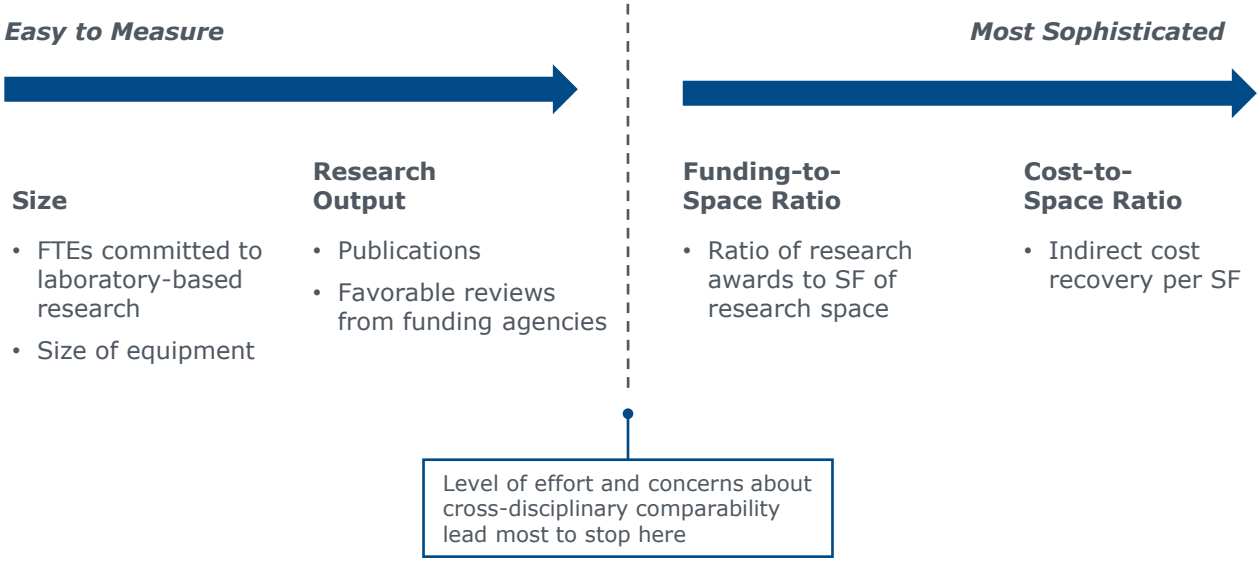
SECTION 4

- Practice 9: Revenue-Driven Lab Allocation

Pinpointing Research Space Productivity Targets

Measurement Challenges Prevent Precise Metrics

The final section of this report focuses on increasing the productivity of research space. In theory, research space can more readily be linked to productivity metrics than offices or classrooms. Research space has more quantifiable outputs, such as publications per researcher and indirect cost recovery. However, institutions have found that it can be difficult to track how productively space is used because of data accessibility issues.



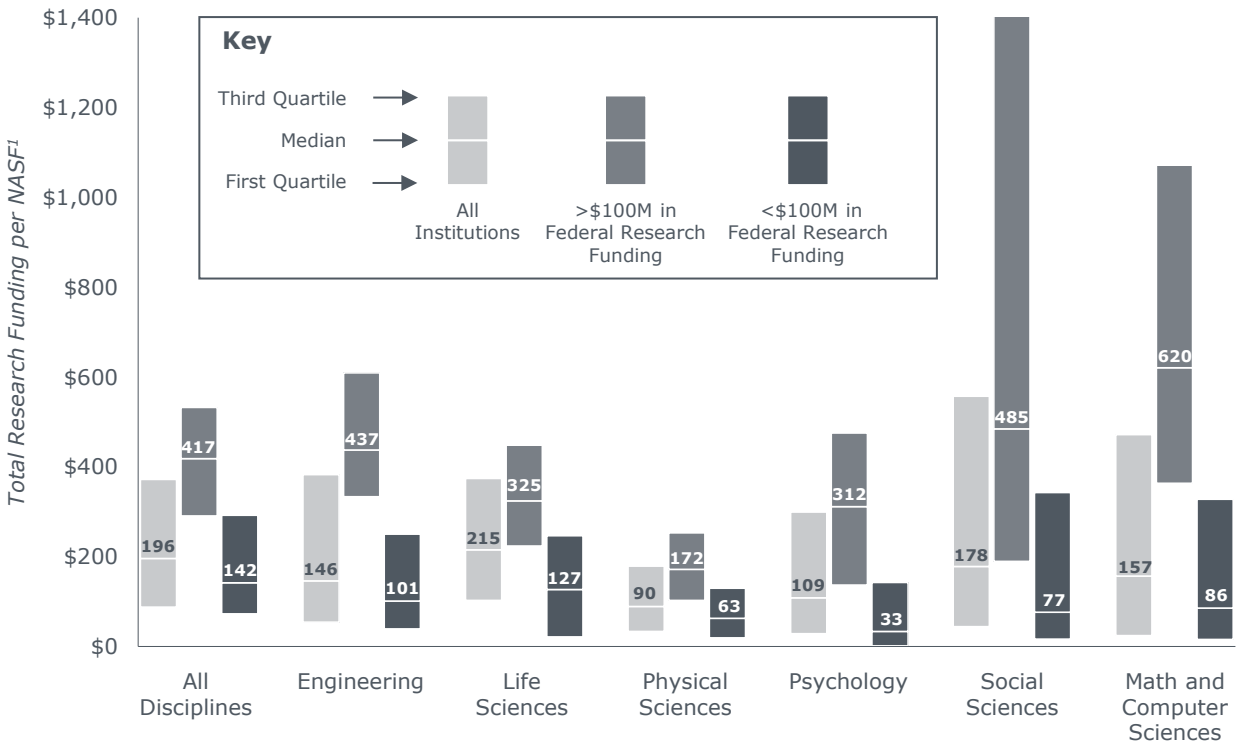
Institutions typically track metrics like research staff size and equipment needs, which help inform initial space allocation decisions. Colleges and universities can also track research output metrics such as the number of publications. While highly accessible, these metrics do not fully capture how productively space is being used. Instead, institutions should examine research funding per square foot or indirect cost recovery per square foot. Though these metrics often require combining multiple datasets, they will help institutions make the best decisions about research space.

Source: Facilities Forum interviews and analysis.

Research Funding per Square Foot of Research Space

To guide campus leaders in evaluating research funding per square foot data, the Facilities Forum offers the following benchmarks. The chart below combines data on 578 institutions from two federal surveys. There are three bars for each research discipline. The first bar shows the quartiles of research funding per square foot across all institutions. The middle bar shows quartiles for research-intensive institutions with over $100 million in federal funding. The third and final bar shows institutions with less than $100 million in research grants. Research productivity per square foot is higher on average in every discipline at research-intensive schools. This likely reflects their ability to generate larger grants and better scale research operations. The practice in this section offers guidance on how institutions can utilize the other productivity metric, indirect cost recovery per square foot.

Total Research Funding per Square Foot of Research Space



- Chart combines data from two separate 2013 National Science Foundation surveys (research expenditures and research facilities) from 578 institutions
- As expected, space productivity varies significantly between fields, but within-field variation is also high, potentially limiting comparisons between institutions
- The 107 institutions with greater than $100M in federally funded research have significantly higher space productivity than less research-intensive institutions

Source: National Science Foundation, Higher Education Research and Development Survey: Fiscal Year 2013, http://ncsesdata.nsf.gov/datatables/herd/2013/index.html; National Science Foundation, Science and Engineering Research Facilities: Fiscal Year 2013, http://www.nsf.gov/statistics/2015/nsf15320/#tech-notes-top; Facilities Forum interviews and analysis.

1) Net assignable square foot.

Practice 9: Revenue-Driven Lab Allocation

Practice in Brief

Institutions establish a research space productivity metric and benchmark individual researchers against a predetermined target to gauge how productively researchers are using space and ultimately to inform space decisions.

Rationale

While institutions have a handful of basic metrics they can use to inform the initial research space allocation decision, including research staff size and equipment needs, most institutions do not track how productively space is used after it is allocated to a researcher. As a result, individual researchers continue to occupy their lab regardless of changes in grant funding. They often even expand beyond their initial allocation, whether or not funding grows. By establishing a space productivity benchmark and tracking individual researchers against it, institutions can gauge how productively space is currently being used and link researcher productivity to future lab allocation decisions.

Implementation Options

Component 1: Define Research Space Productivity Metric

Institutions establish a research space productivity metric, such as indirect cost recovery generated per square foot. The key is to articulate what inputs will and will not inform the calculation of the individual metric.

Component 2: Establish Target to Benchmark Researchers Against

Institutions determine a target against which to benchmark individual researchers.

Component 3: Use Researcher Productivity to Inform Space Allocation Decisions

Institutions use the productivity metric to decide whether individual researchers qualify for more space or whether their space productivity is too far below target to grant their request.

Practice Assessment

This practice is recommended for every institution with moderate research activity and higher. Notably, most progress to date has occurred in colleges of medicine and medical research labs.

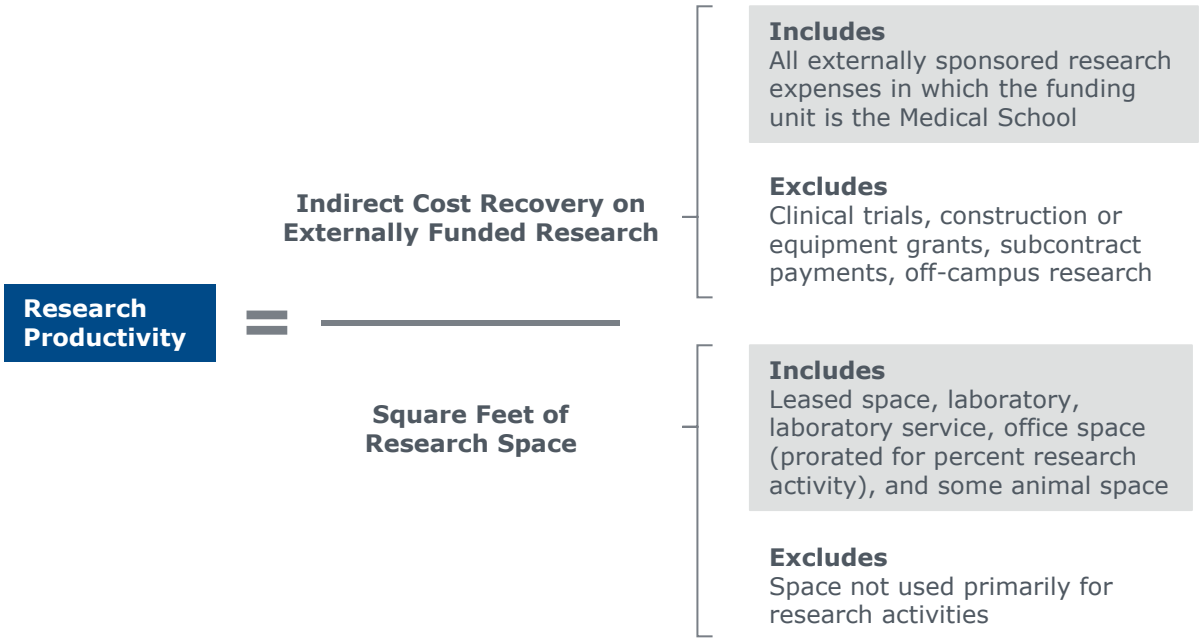
Associating Revenues and Costs with Lab Space

UMMS Provides Explicit Definition of Research Productivity

Component 1: Define Research Space Productivity Metric

The first component of revenue-driven lab allocation is to define a research space productivity metric. The University of Michigan Medical School (UMMS) defined their productivity metric as indirect cost recovery on externally funded research divided by square feet of research space. The graphic below illustrates that UMMS clearly articulated what measures would and would not be included in both parts of the ratio.

University of Michigan Medical School (UMMS) Research Productivity Calculation



UMMS decided that clinical trials, construction and equipment grants, subcontracts, and off-campus research would be excluded since they are not facilities dependent. For research space, the medical school leaders decided to exclude spaces not primarily used for research, such as some of their animal space.

Source: University of Michigan Medical School Research Space Policy, November 2007, http://www.med.umich.edu/medschool/research/regulations/research_space_policy.pdf; Facilities Forum interviews and analysis.

Setting an Appropriate Target

UMMS Calculates Actual Cost per SF of Research Space

Component 2: Establish Target to Benchmark Researchers Against

The second component of this practice is to establish a target to benchmark individual researchers against. UMMS's target is based on the overall cost of its research facilities (including both capital and operating expenses) divided by the total number of square feet. This yielded a target of $111 per square foot. So while UMMS does not charge researchers for space, this target allows leaders to quickly determine which researchers could cover the cost of the space they use.

University of Michigan Medical School (UMMS) Research Space Benchmark Calculation (FY09)

Cost	Category	Amount
Capital Expenditures	Debt	$4.8M
	Depreciation	$37.8M
	Construction	$11.8M
Operating Expenses	Facilities	$31.5M
	Operating Leases	$5.1M
Total Space Costs	$91M	
Research Space	820,000 SF	
Facilities Expense/SF	$111/SF	

UMMS established space benchmark of $111/SF based on actual Facilities cost; by comparison, they only recover $98/SF through indirect costs

Interestingly, the medical school also uncovered that they only recoup $98 per square foot through indirect costs, a clear signal that there is room for improvement.

Source: Walsh J, Kulkarni S, "Managing Research Space with Business Intelligence," http://www.businessintelligence.umich.edu/events/download/BICE%202009%20Presentation.ppt; Facilities Forum interviews and analysis.

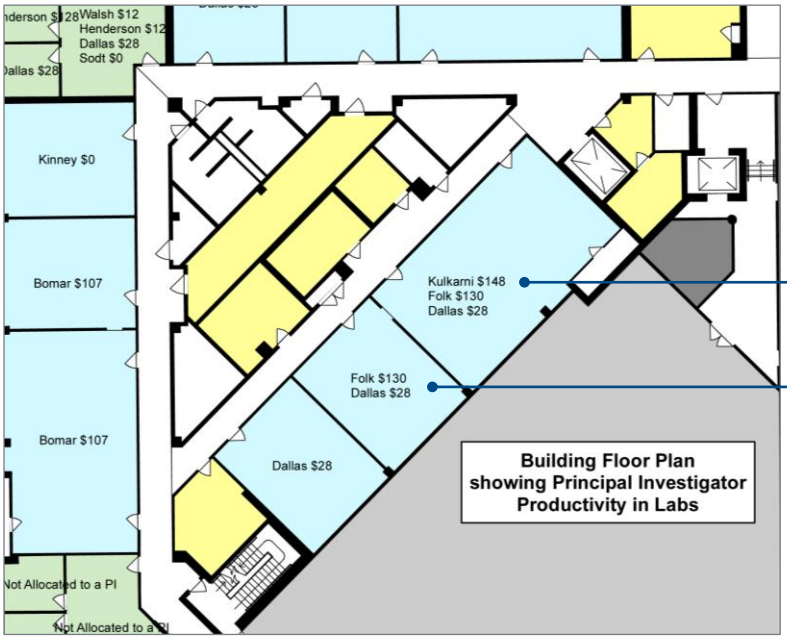
Basing Space Allocation on Research Productivity

PIs[1] with Below-Benchmark Productivity Often Denied More Space

Component 3: Use Researcher Productivity to Inform Space Allocation Decisions

The final component is to use researcher productivity to inform space allocation decisions. To aid this process, UMMS built an ArcGIS interface to track individual lab productivity. They feed indirect cost recovery data for each researcher into the system. The interface takes those data and the existing space assignments to calculate indirect cost recovery per square foot for each researcher. This number is then displayed next to the researcher's name, as shown below. If a researcher has multiple spaces, the tool calculates one number based on total space and displays it in the appropriate rooms.

Screenshot of the University of Michigan Medical School's (UMMS) ArcGIS Lab Space Productivity Tool



ArcGIS mapping tool shows building floor plan, researchers assigned to rooms, and researcher productivity

Tool supports complex decisions about where to locate researchers and equipment to maximize productivity; helped UMMS deny incremental space to six units across three years due to below-target productivity

Facilities leaders are limited in their ability to increase individual researcher funding. Therefore, improving lab productivity requires managing the denominator: space assigned to each researcher. UMMS uses this dashboard to inform space allocation decisions, where additional space goes only to the most productive researchers. In fact, the medical school has denied six requests for additional space specifically because researchers were below the $111 per square foot target.

1) Principal Investigator.

Source: Walsh J, Kulkarni S, "Managing Research Space with Business Intelligence," http://www.businessintelligence.umich.edu/events/download/BICE%202009%20Presentation.ppt; Facilities Forum interviews and analysis.

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Vice President Facilities and Operations

Hugh Warren
Associate Vice President Operations and Maintenance

University of Arkansas
Mike Johnson
Associate Vice Chancellor for Facilities Management

University of British Columbia
John Metras
Managing Director, infrastructure Development

Pamela Moffett
Executive Assistant to the Provost and Vice President Academic

Angela Redish
Provost and Vice President Academic *pro tem*

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Assistant Vice Chancellor for Facilities Management

University of California, Santa Barbara
Tom Beland
Director, Residential Operations

Marc Fisher
Vice Chancellor, Administrative Services

Chris Kelsey
Assistant Director, Maintenance Services

Danny Mann
Associate Director, Maintenance Services

David McHale
Director of Physical Facilities

University of Colorado Boulder
David Danielson
Assistant Vice Chancellor of Facilities Management

Tom Goodhew
Assistant Director of Facilities Planning

David Jacobs
Capital Assets and Space Planning Coordinator

University of Colorado Colorado Springs
Gary Reynolds
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University of Dayton
Beth Keyes
Vice President for Facilities Management

University of Delaware
Alan Brangman
Vice President for Facilities, Real Estate, and Auxiliary Services

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Eddie Watson
Director, Center for Teaching and Learning

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University of Iowa
Joe Bilotta
Campus Planner

University of Kansas
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University of Kentucky
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University of Minnesota
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Mike Berthelsen
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Michael Haggans
Visiting Scholar, School of Architecture

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Monique Mackenzie
Director, Planning, Space, and Architecture

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University of New Hampshire
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University of New Mexico
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ITS Liaison to the Center for Faculty Excellence

University of North Carolina at Charlotte
Kathryn Horne
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Phil Jones
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University of North Carolina at Greensboro
Jorge Quintal
Associate Vice Chancellor for Facilities

University of North Dakota
Larry Zitzow
Facilities Director

University of Pennsylvania
Anne Papageorge
Vice President for Facilities and Real Estate Services

University of Richmond
Andrew McBride
Associate Vice President for Facilities and University Architect

University of San Francisco
Michael London
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University of Southern Mississippi
Christopher Crenshaw
Associate Vice President for Facilities Planning and Management

University of Texas at Dallas
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Associate Vice President for Facilities Management

University of Texas at El Paso
Chris Mandell
Manager, Space Information Resources

Gregory McNichol
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University of Texas at San Antonio
Dan Sibley
Director for Space Utilization

University of Toronto
Brian Armstrong
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Michael Perez
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University of Vermont
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University of Washington
Aaron Cheuvront
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University of West Georgia
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University of Windsor
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University of Wisconsin-Madison
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Bill Elvey
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University of Wisconsin-Stevens Point
Greg Diemer
Vice Chancellor for Business Operations

Carl Rasmussen
Director of Facilities Planning

Valparaiso University
Susan Scroggins
Vice President for Administration and Finance

Vanderbilt University
Judson Newbern
Deputy Vice Chancellor for Facilities and Environmental Affairs
(No longer in position)

Washington State University
Don Hulst
GIS Database Administrator

Olivia Yang
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Washington University in St. Louis
Art Ackermann
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Liz Peterson
Associate Director for Classroom Growth and Special Projects

Tim Vetter
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Webster University
Ken Creehan
Director of Process Improvement

Greg Gunderson
Vice President of Finance and Administration and Chief Financial Officer

West Virginia University
Randy Hudak
Associate Vice President of Facilities and Services

Western Illinois University
George Beckman
Deputy Director of Facilities Management

Scott Coker
Director of Facilities Management

Monte Colley
Associate Director

Ted Renner
Deputy Director
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