Flad

UNLOCKING POTENTIAL:

SPACE UTILIZATION & ASSET OPTIMIZATION

> I have worked with Flad on a strategic planning level—before a project has begun. They have provided good counsel, listened carefully, and offered options to help advance our planning mission and objectives at the earliest stages of project inception. What has been unique is their personal responsiveness at the leadership level, availability to help, and flexibility in working with me as our thinking and planning evolves.

Linda McCauley, RN, PhD
Dean and Professor of Nursing
Emory University

Contents

adapting to change

Many organizations are reexamining space utilization as they face mounting pressures to do more with less, attract and retain top talent, adapt to evolving work habits, and integrate new technologies. Market dynamics — including the implementation of AI, the rise of computational work, increased automation, and high-throughput instrumentation — are rapidly reshaping space requirements. With reduced funding and tighter budgets, new facilities are often out of reach. As a result, every existing asset must be fully leveraged to maximize value and extend the impact of available resources.

Pressure to do more with less

Adapt to evolving work patterns

Consider impact of increased automation

Unlock renewed space potential

Align with environmental stewardship

a proactive approach

Space utilization studies are a vital part of programming, offering a data-driven understanding of how space is being used. By grounding decisions in data rather than perception, organizations can uncover the transformative potential of their environments and reimagine tangible solutions to optimize space. Additionally, the data generates insights that enable operational changes to positively impact (or successfully reduce) energy consumption.

Data becomes a continuous source of discovery—informing design, uncovering hidden inefficiencies, extending human potential, and guiding spatial adaptations over time. As we continue to steer through uncertainty over the next decade, space utilization studies will empower organizations in leveraging data-driven insights to optimize their use of space while shaping / contributing to evolving benchmarks.

Is your space being used the way you think it is?

Data insights as a catalyst for change and innovation

Continual assessment and process improvement

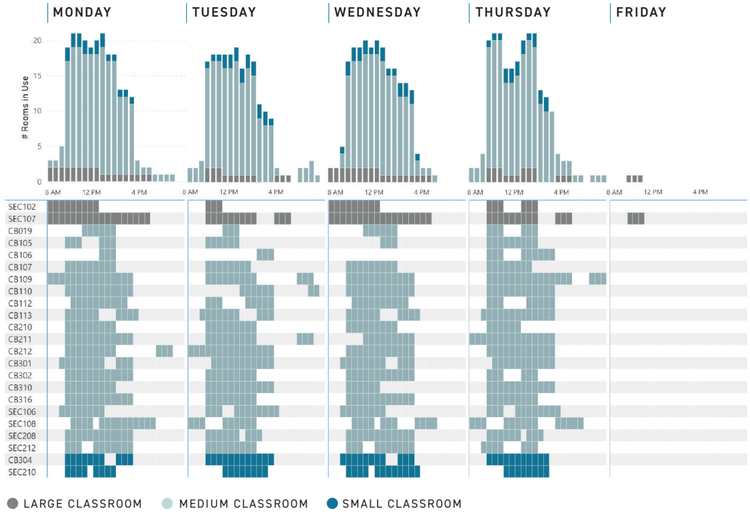
space utilization insights

Our space utilization studies are tailored to the individual goals of each organization and the information they are interested in gathering. Combining data from a variety of sources, our clients receive balanced and actionable insights about how their space is actually being utilized, not just assumed best practices. The following pages illustrate findings from a few of our recent studies.

Targeted operational improvements activate 40% of underused lab seat capacity

The Seattle Children's Research Institute's Space Utilization Study revealed that nearly half of bench knee holes sat unused due to latent equipment or materials storage. With recommendations like just-in-time Kanban inventory system and shifting toward shared labs and equipment, the institute unlocked significant efficiency gains. Flad's space utilization services help clients uncover hidden inefficiencies like these, turning underused assets into productive space.

CLASSROOM UTILIZATION BY DAY OF WEEK AND TIME OF DAY:



PEAK DAYS AND TIMES:

10AM & 12:30PM
MON AND THURS

GENERALLY, 9:30AM-1:30PM
MON THROUGH THURS

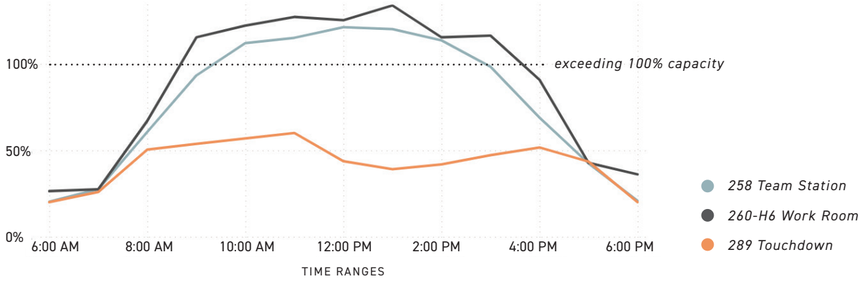
MOST AVAILABILITY IN AFTERNOONS AND ON FRIDAYS

AVERAGE DURATION 1.3 HOURS

Programmatic need reduced by 14%

Bluegrass Technical and Community College's Instructional Space Needs Analysis showed that operational adjustments in scheduling and multipurpose functions could rightsize their new classroom building. By setting new target utilization rates, the college avoided overbuilding and maximized existing assets. Flad partners with institutions to refine current requirements before expansion, ensuring growth strategies are based on real data rather than perceived shortages.

AVERAGE SEAT FILL RATE:

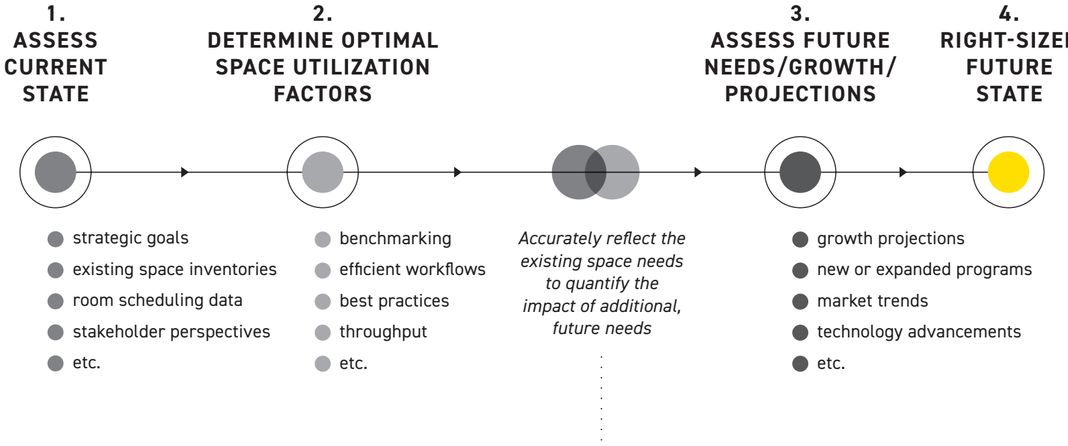


Sensor-based insights drive targeted improvements to staff workspace capacity

During a post-occupancy evaluation at UW Health's Transplant Clinic, Flad's proprietary Bluetooth sensors showed that centralized team spaces were routinely over capacity, with average seat fill rates exceeding 100% at peak usage times. This indicator prompted the addition of a workstation to better align space with demand. Flad's space utilization services help organizations quantify design performance and make targeted improvements that support operational excellence.

process overview

Space utilization studies involve a current-state assessment and an understanding of optimal space needs. By quantifying the differences between these two assessments—taking into account the data gathered and variables that impact space needs—we can determine how to appropriately rightsize spaces.



Variables that inform rightsizing

dependent variables	independent variables
# of occupants	room size
% of seats filled	room technology
% of time occupied	environmental attributes
satisfaction rating	building level
sq ft per person / seat	time of day
etc.	etc.

data collection methods

By integrating quantitative metrics, observational data, qualitative insights from occupants, and other stakeholder perspectives, we build a more accurate and nuanced understanding of the occupant experience within the space and outline actionable steps to optimize the utilization of space for better efficiency and productivity. The following pages offer a closer look at some of the methods we use to collect baseline data in space utilization studies and pre- and post-occupancy evaluations.

Indirect Observations

Direct Observations

Surveys

Focus Groups

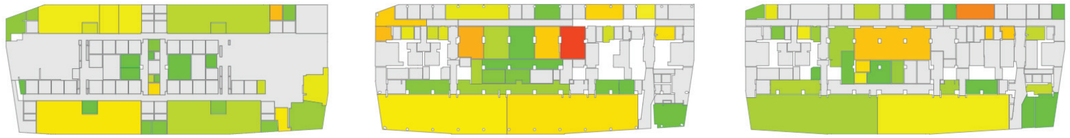
Interviews

Indirect Observations // Occupancy Sensor Technology

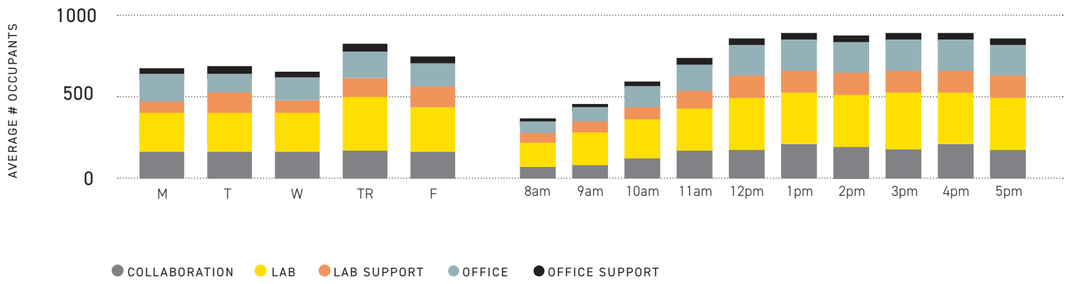
This method uses easy-to-install propriety Bluetooth sensor technology to understand space utilization and uncover hidden inefficiencies.

- Supports data-driven decisions regarding rightsizing of spaces based on number of occupants, percentage of time occupied, seat fill rates and peak use times.
- Generates insights to improve workflow and key adjacencies when paired with qualitative data from occupants.
- Empowers clients to make informed, energy-efficient, and cost-saving decisions.
- Does not rely on client network infrastructure and does not intrude on operations.
- Does not collect sound, images, video, or other personal info.
- Data signals are encrypted, and only device counts are monitored.
- Web-based platform available for client to view data and can be customized to client requirements.
- Provides data on actual vs. scheduled utilization of reservable spaces.

SAMPLE HEAT MAP:



SAMPLE BUILDING UTILIZATION DASHBOARD:



Indirect Observations // Time-lapse Videos

Time-lapse videos are a powerful visual tool that can capture and condense several hours of footage into a few minutes.

- Installed at strategic locations aligned with research goals.
- Effective way to capture movement/flow and validates manual observations.
- Helps client understand peak hours of utilization when sensor technology cannot be used.
- Done with prior consent from client, ensuring compliance with building policies.

STILL IMAGE FROM TIME-LAPSE VIDEO:

Direct Observations // Contextual Inquiry

An immersive method of observing and additionally interviewing occupants as they are performing day-to-day tasks in their regular work environments.

- Highly effective in uncovering insights that might not have been evident otherwise.
- Reveals inconspicuous insights regarding workflows, preferences and pain points.
- Provides important insights and emphasizes the importance of end-user engagement during data collection.

INSIGHTS:




40% of knee holes at benches are full of storage or equipment, not being used as intended.

The knee holes typically fall into four categories:

1. *Being used as intended*
2. *Used for dry storage, but bench space above knee hole is still used for research*
3. *Used for dry storage, and bench space above is also unusable*
4. *Equipment is taking up knee hole space*

In addition, storage on top of highest shelving blocks lighting, requires use of step stools, and may impede 18" from ceiling requirement.

Direct Observations // AEIOU Framework

An organization framework with an easy mnemonic for collecting data during observations. Each element of the framework is interrelated by critical interactions between them.

- Activities - Actions and processes taking place
- Environments - Quality/type of spaces
- Interactions - Interactions among people and between people and the environment
- Objects - Key elements in the environment
- Users - Occupant group types and behaviors in the environment

- The framework serves as a checklist to document crucial aspects of the environment.
- Also helps with categorizing observational notes under relevant topics and streamlines the process of synthesizing insights.
- Using web-based workflow platforms, like the Layer App, to develop AEIOU-based templates enables efficient data collection.

A	E	I	O	U
Activities	Environments	Interactions	Objects	Users

Sample template questions for Interactions category

How is the space being utilized?
Describe the interactions that are occurring.
Where are the interactions occurring?
Does the layout allow for effective flow?

Direct Observations // Direct Shadowing

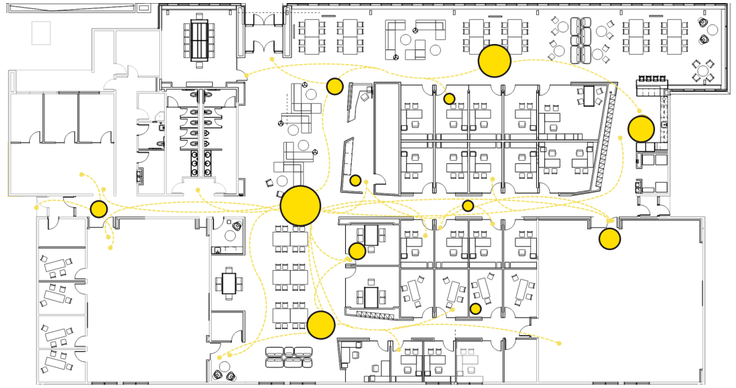
This process involves the shadowing of pre-selected user groups based on research goals.

- The primary objective is to understand how the design relates to workflows.
- Data collected by direct shadowing helps identify areas of improvement and rethink current operations, if necessary.
- Various tools and technologies used for direct shadowing track flow, time spent in a location, activity, and interactions.

DATA COLLECTION / ACTIVITY TRACKING ▸ **DATA ANALYSIS** ▸ **INSIGHTS DISTILLED** ▸ *Understanding of:*

- *Workflows*
- *Paths of travel*
- *Adjacencies*
- *Activities and durations*
- *Interactions*

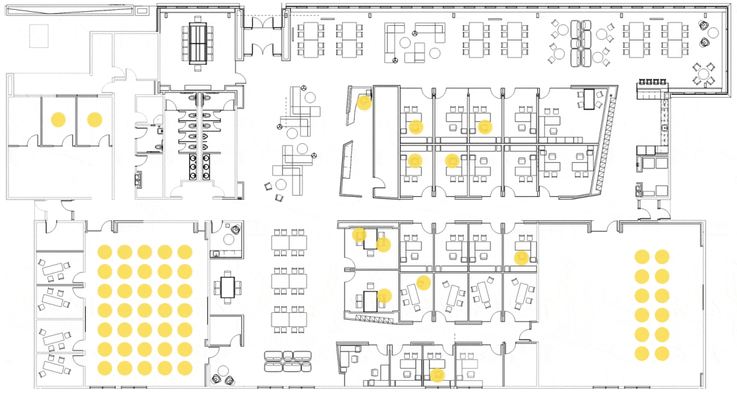
PATH OF TRAVEL FOR INDIVIDUAL PARTICIPANTS:



size of circles indicates quantity of interactions occurring (larger = more interactions)

common movement paths

UTILIZATION FOR A SPECIFIC POINT IN TIME: VIEW THE ANIMATION >>



WEDNESDAY 8:20AM

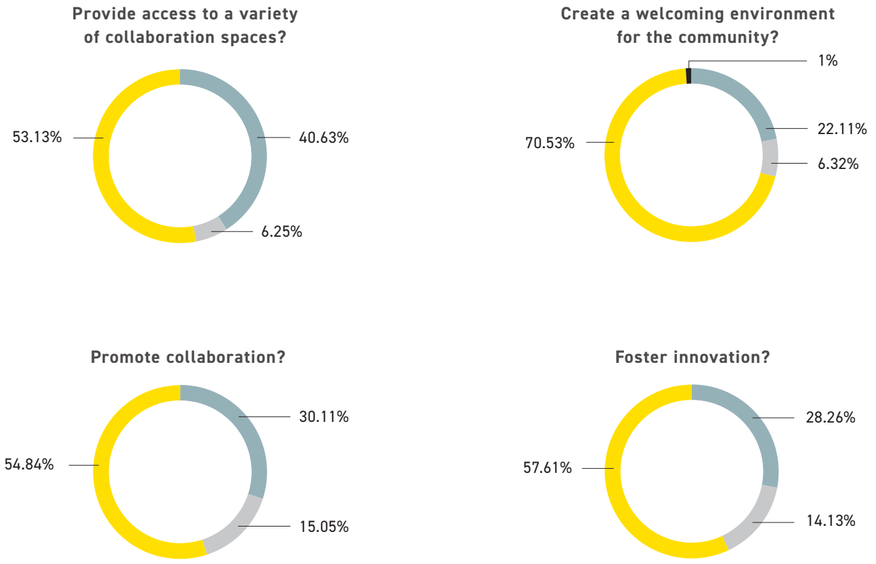
Surveys

Surveys are a quick and easy way to collect data from large groups using a curated list of questions on specific topics.

- Surveys collect qualitative and quantitative data, which provide valuable insights on targeted areas of research.
- Electronically sent using platforms such as SurveyMonkey, Qualtrics, Microsoft Forms, etc.

SAMPLE SURVEY INSIGHTS:

Does the building layout ...



Focus Groups

Focus groups are a method of collecting data from a group of carefully recruited, demographically diverse participants.

- Helps provide an understanding of the attitudes, opinions, and experiences from a large group of stakeholders with the goal of identifying potential areas of improvement.
- Dynamic interactions in a group setting lead to a richer and more nuanced understanding of the topics or perspectives being explored.
- These interactions uncover insights that might be overlooked in individual interviews.

Interviews

Interviews are an effective data collection method to gain in-depth understanding of individual stakeholder experiences.

- Provides great detail on specific topics from a single perspective.
- Includes role-appropriate interview questions based on study goals.

Flad Architects is a national planning and design firm committed to creating environments that enhance human potential. In partnership with leading research organizations, universities, healthcare institutions, and science-based companies, Flad designs innovative facilities that enable revolutionary discoveries that have a profound impact on society.

Over 95 years of passionate and rigorous focus on buildings devoted to the sciences has earned Flad consistently high rankings among the top 20 architectural firms, both overall and in the specific areas of science & technology, academic, and healthcare design.

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