



Tuning building design and operational goals to increase value by creating a culture of health and wellbeing on campus.

### AIA LUIHSW # 20230427

- Define the dynamic components of a campus ecosystem and their relationships with how students, faculty, and staff experience building environments
- 2. Understand how Well Standard-driven building concepts create value
- 3. Help benchmark decisions on Well-centered building design via two case studies
- 4. Provide an overview of WELL Standard Concepts





### Presenting Team



Monika Avery, NCIDQ, LEED AP Principal, Interior Designer SLAM

Monika has over 20 years of experience as an interior designer focused on interior architecture, programming, planning, and design of workplace environments in diverse market sectors including higher education institutions.



Fred Godbolt, AIA, LEED AP Associate Principal, Architect SLAM

Fred has over 20 years of professional experience as a Project Manager, Construction

Administrator and Project Architect for programmatically and technically complex

College / University and Healthcare Projects.



Kimberly Robidoux
Higher Education Practice Leader
SLAM

Kimberly has more than 30 years of experience in the programming, planning, and design of higher education facilities with a focus on programming and planning of academic learning environments in STEM facilities, medical education, and simulation.



Carlie Bullock-Jones
Founder & Principal, WELL Expert
Ecoworks Studio

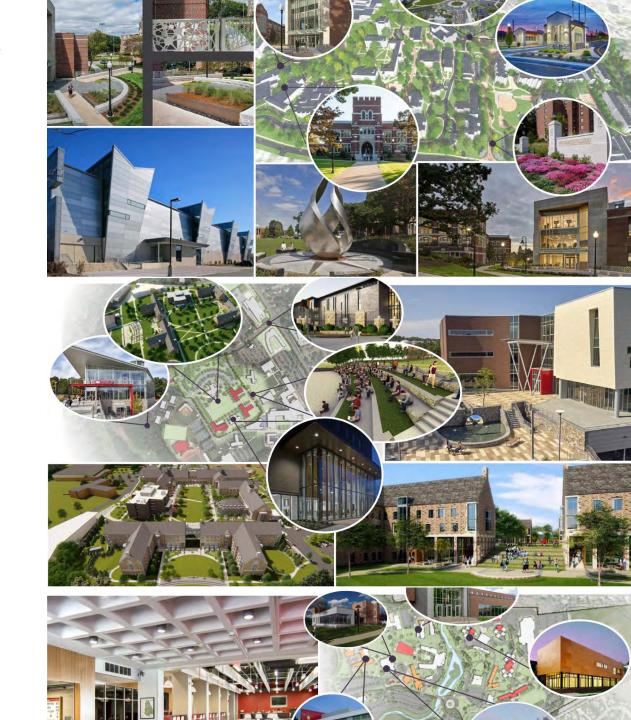
Carlie has dedicated her career to bringing about a greener, healthier built environment. As a nationally known expert in sustainability, LEED and WELL consulting, Carlie has facilitated on numerous award-winning higher education projects.

### Complexity of Campus Anatomy

The college campus is a dynamic system of various built environments and relationships that students, faculty, staff, and visitors are immersed in when they occupy its buildings and outdoor spaces, as they breathe, see, hear, move, and learn,

Tuning building design by creating a culture of **health and wellbeing**, affects its occupants' long-term productivity and satisfaction leading to key performance outcomes and symbiotic experiences.

Campus Anatomy: academic / learning, student life, social, athletics, faculty & staff workplace, nature and outdoor spaces



### Complexity of Campus Anatomy

The average student-teacher ratio at U.S. colleges is \*18 students per faculty member. This metric compares the number of enrolled students at a college or university to the number of full-time faculty members or full-time equivalent instructors (visiting instructors, teaching assistants, research faculty). With this in mind, the average ratio expresses that there is one faculty member for every 18 U.S. college students. One of the largest state institutions in the country in Florida employs 12,000 faculty and staff.

The wellbeing of academic faculty & staff is important as it directly influences student results



### Well Building Design & KPIs

- **1.Graduation Rates:** The percentage of students who graduate and the amount of time it takes them.
- **2.Student Engagement:** The number of students who study abroad, live on campus, participate in research activities, are enrolled in honors programs, etc.
- **3.Student Outcomes:** Keep track of students after graduation to see where their education takes them.
- **4.Transfer Rates:** How many students who apply and are accepted are transferring from other institutions?
- 5. **Year-Over-Year Enrollment:** Monitor daily enrollment data to make year-over-year comparisons.
- 6. **Retention Rates:** What percentage of students return for the next semester?

The KPIs for Higher Education are in these five most common categories:

Financial, Student Success,
Admissions and Enrollments,
Faculty & Staff, Facilities &
Resources

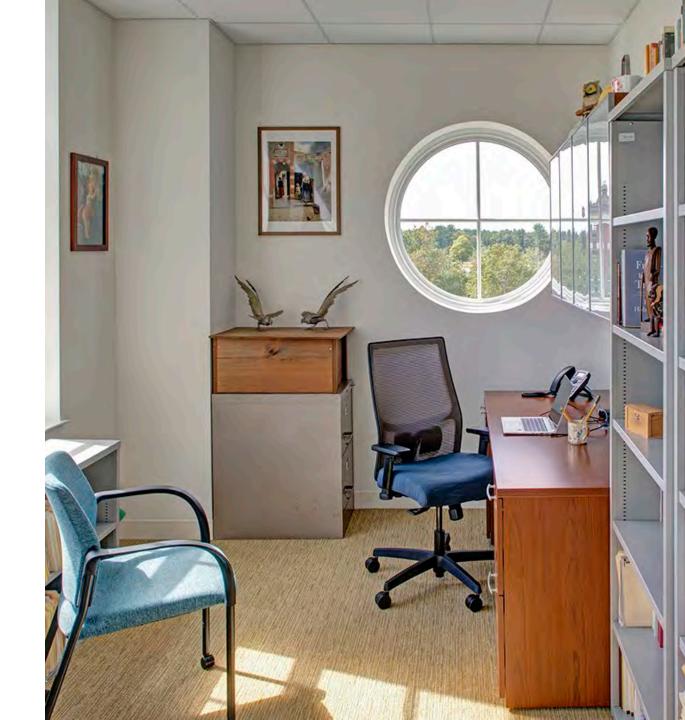


### Well Building Design & KPIs

- **1.Faculty Workload & Productivity:** Keep track of your instructors on an individual and departmental basis.
- **2.Student-to-Faculty Ratio**: The number of students per faculty member, on a campus-wide basis or by department.
- **3.Faculty & Staff Tenure Rate:** The length of employment for faculty members and other support staff members.
- **4.Faculty Turnover:** Supporting tenure numbers, turnover rates identify areas with weak employee retention.
- **5.Part-Time vs. Full-Time Faculty:** Examine the costs and benefits for both types of instructors.
- **6.Weekly Student Contact Hours:** Analyze productivity by certain courses, sections, instructors and other variables

The KPIs for Higher Education are in these five most common categories:

Financial, Student Success, Admissions and Enrollments, Faculty & Staff, Facilities & Resources



### Creating Value & ROI in the Workplace

Investing in health pays back.





Health strategies boost employee productivity.

### \$200b/ in productivity gains

Healthy building solutions could support \$200 billion in productivity. gains among U.S. office workers, according to research by Berkeley Lab.

### 10pt jump / in productivity scores

A study in Building and Environment found WELL Certified offices were connected to a 10-point jump in median occupant productivity scores.

### 8% increase /

in worker performance

In a peer-reviewed study, Harvard researchers found that higher ventilation rates improve the performance of workers by 8%, equivalent to a \$6,500 increase in productivity per employee per year.



## Creating Value & ROI in the Workplace

Investing in health pays back.



### Attract and retain top-tier talent.

**U.S. businesses lose <u>\$1 trillion every year</u>** due to voluntary turnover. According to the <u>Society for Human Resource Management</u>, replacing just one employee costs a company, on average, six to nine months of that person's salary.

30% drop \( \square\) in employee turnover

The employee turnover rate fell by almost a third at <u>CBRE's Toronto</u> and <u>Vancouver offices</u> after achieving WELL Certification.



### 28% increase /

in overall workplace satisfaction

WELL Certification drove a near 30% improvement in overall satisfaction with the workplace, jumping from 42% to 70%, according to research published in Building and Environment.



## Creating Value & ROI in the Workplace







Reduce medical and healthcare costs.

\$225

per employee cost reduction

Johnson & Johnson's Health and Wellness Program helped the company reduce medical costs by approx. \$225 per participating employee per year.

300% /

return on wellness programs

Every dollar spent on workplace wellness programs saved \$3.27 on medical costs, according to a meta-study by Harvard scholars.



### Creating Value for Students

Investing in health pays back.

The coronavirus pandemic has upended business as usual for college and universities... institutions are suddenly grappling with grave financial challenges as the domestic and global economies may now face what looks to be a major recession. (1)

At US Colleges, there has been a 6.6 percent decline in undergraduate enrollment since 2019. (2)

UCAS has observed a 450% increase in student mental health declarations over the past decade. (3)

"We've looked at [more than] 200 studies. The school building influences student health, student thinking, and student performance, even affecting reading comprehension and test scores. [Things like] higher ventilation rates and better filtration are associated with reductions in headaches, fewer asthma attacks, better performance on cognitive function scores."

Dr. Joseph Allen | Associate Professor of Exposure Assessment Science, Environmental Health, Harvard TH Chan School of Public Health (4)



https://www.washingtonpost.com/education/2022/01/13/fall-college-enrollment/

https://www.ucas.com/corporate/news-and-key-documents/news/450-increase-structure-mental-health-declarations-over-last-decade-progress-still



WELL Process



OUR BUILT ENVIRONMENT HAS THE POWER TO IMPROVE OUR HEALTH, WELL-BEING AND PRODUCTIVITY – AND OVERALL LIFESTYLES.

# WHAT DETERMINES YOUR STATE OF HEALTH?









AIR

14 FEATURES
4 preconditions
10 optimizations



WATER

8 FEATURES
3 preconditions
5 optimizations



**NOURISHMENT** 

13 FEATURES 2 preconditions

11 optimizations



LIGHT

8 FEATURES

2 preconditions

6 optimizations



MOVEMENT

12 FEATURES

2 preconditions

10 optimizations



THERMAL COMFORT

7 FEATURES

1 precondition

6 optimizations



SOUND

**5 FEATURES** 

1 precondition

4 optimizations



MATERIALS

14 FEATURES

3 preconditions

11 optimizations



MIND

**15 FEATURES** 

2 preconditions

13 optimizations



COMMUNITY

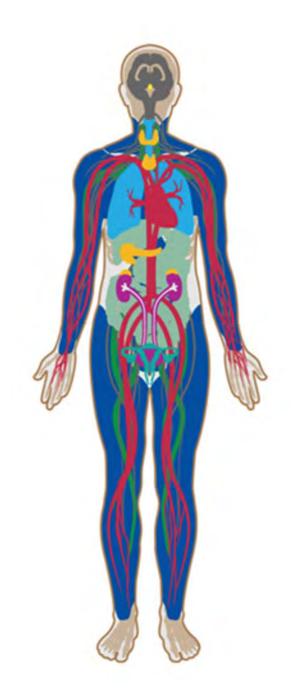
16 FEATURES

3 preconditions

13 optimizations

## BODY SYSTEMS APPLIED TO WELL FEATURES

A SIMPLE WAY TO EXPRESS
THE COMPLEX IMPACT THAT
BUILDINGS CAN HAVE ON
THE HUMAN BODY



Cardiovascular

Digestive

Endocrine

Immune

Integumentary

Muscular

Nervous

Reproductive

Respiratory

Skeletal

Urinary

## VERIFIED PERFORMANCE

WELL prioritizes accountability through a data-driven performance review and on-site environmental assessment.



## ON-SITE TESTING + PERFORMANCE REVIEW

PERFORMANCE VERIFICATION

### **Environmental Parameters Evaluated**

Air Quality	particulate matter, formaldehyde, VOCs
Water Quality	dissolved chemicals and suspended solids
Light Attributes	color temperature, intensity and spectral power distribution
Thermal Comfort	radiant temperature, humidity and air speed
Acoustic Elements	decibel levels and reverberation



Occupants have significantly improved cognitive function scores when working in well-ventilated spaces compared to working in a conventional environment.





Disruption of the body's circadian rhythm has been linked to obesity, diabetes, depression and metabolic disorders.

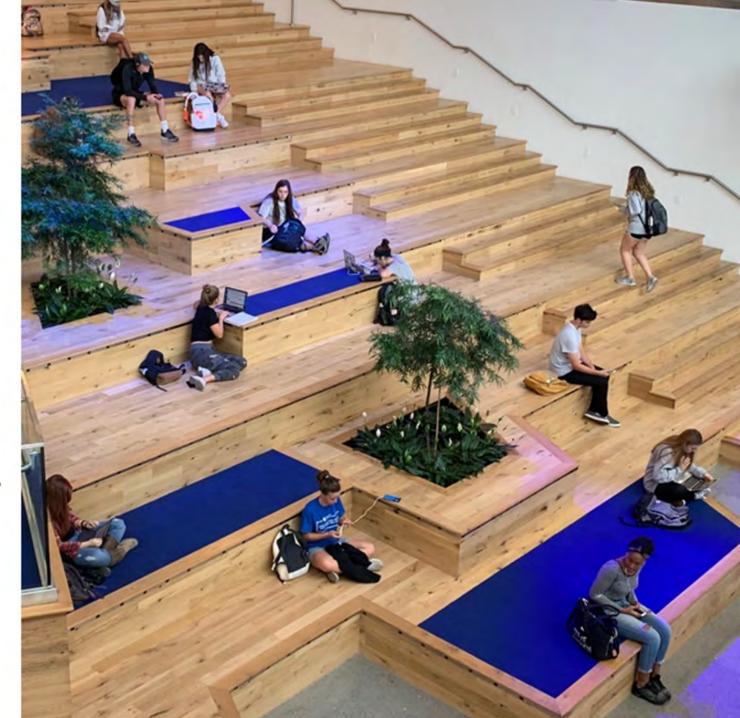
Providing indoor access to daylight can positively influence the productivity and mood of individuals.





Over time, our homes, schools, workplaces, communities, jobs and transportation systems have been physically designed to demand less movement and require more sedentary activities.

Design spaces that encourage physical activity throughout the day.



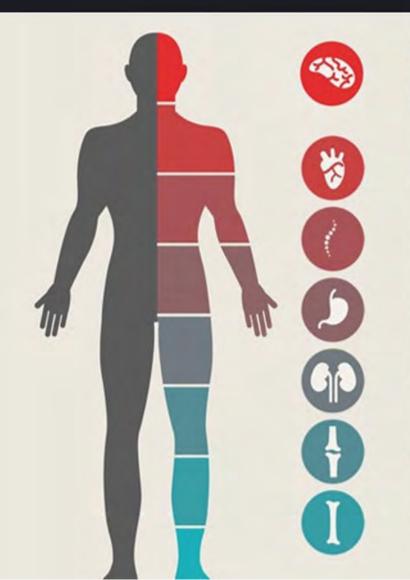


Noise within an enclosed space from sources such as HVAC equipment, appliances and other people has been shown to hinder productivity, focus, memory retention and mental arithmetic.





### THE EFFECTS OF STRESS ON THE BODY



Mood issues – anger, depression, irritability.

Lack of energy, concentration, sleeping issues and headaches.

Mental issues – anxiety disorders and panic attacks.

Increased blood pressure, heart rate, higher cholesterol and risk of heart attack.

Immune system – reduced ability to fight and recover from illness.

Stomach cramps, reflux and nausea.

Loss of libido, lower sperm production for men and increased period pain for women.

Aches and pains in the joint and muscles.

Lower bone density.



Design strategies and policies that support restoration, productivity and focus can help relieve stress and anxiety, reduce absences and enhance overall perceived health status.

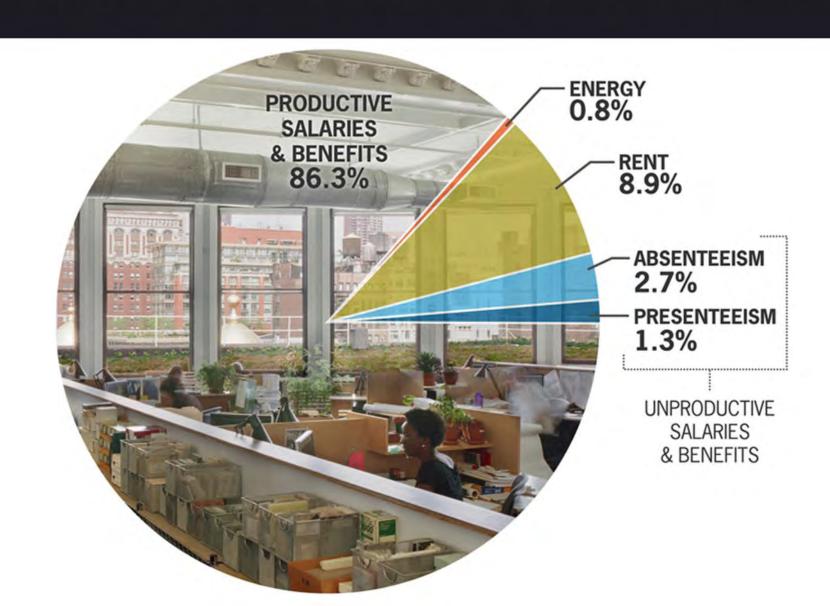




ONE OF THE MOST COMPELLING DESIGN STRATEGIES IS INCORPORATING NATURE INTO THE BUILT ENVIRONMENT.



### INVEST IN **PEOPLE** FOR RETURN ON INVESTMENT





Emory University R. Randall Rollins Building

### WELL Process

- Initial Stakeholder Session Introducing WELL
- Stakeholder Session to Help Establish Initial Scorecard and Potential Optimizations
- Review Operational Requirements with Facilities
- Incorporate Optimizations into Design



## Emory Rollins School of Public Health R. Randall Rollins Building

- 185,000 GSF
- \$93 MILLION
- 10 Stories plus Penthouse
- New Construction connected to existing Grace Crum Rollins Building
- Classrooms, Offices, and Meeting/Conference Space
- Site Improvements

### **Certification Tracking:**

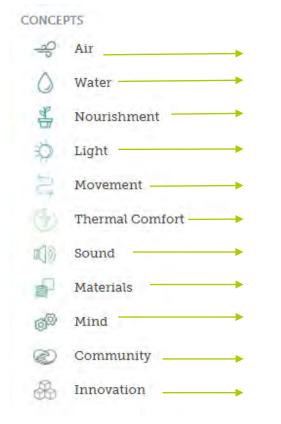


Designed with WELL Principles, Highly Sustainable Building Design



### Emory RSPH and WELL Go 'Hand-in-Hand'

- From the beginning, the effort was less about selling Emory on WELL, but more about implementing a strategy to achieve WELL
- Discovered that there's a strong synergy between WELL Building Standard's key concepts and the Culture & Policy of RSPH
- Optimization points within the WELL scoring system moved quickly to the "YES" column because they were already a part of the school's plan to implement and/or part of their existing culture and school policy



#### **OPTIMIZATIONS**

- Enhanced Air Ventilation
- Hand Washing
- Nutrition Education
- Occupant control of Lighting Environments
- Enhanced Daylight Access
- Physical Activity Promotion
- Active Furnishings
- Individual Thermal Comfort
- Impact Noise Management
- Material Transparency
- Mental Health Support
- Enhance Access to Nature
- New Mother Support
- Health Promotion
- WELL AP







### Implementation Process

Introduction & Primer on WELL

- 2. Preliminary Costs and Responsibilities
- 3. Incorporated WELL Principles into the design



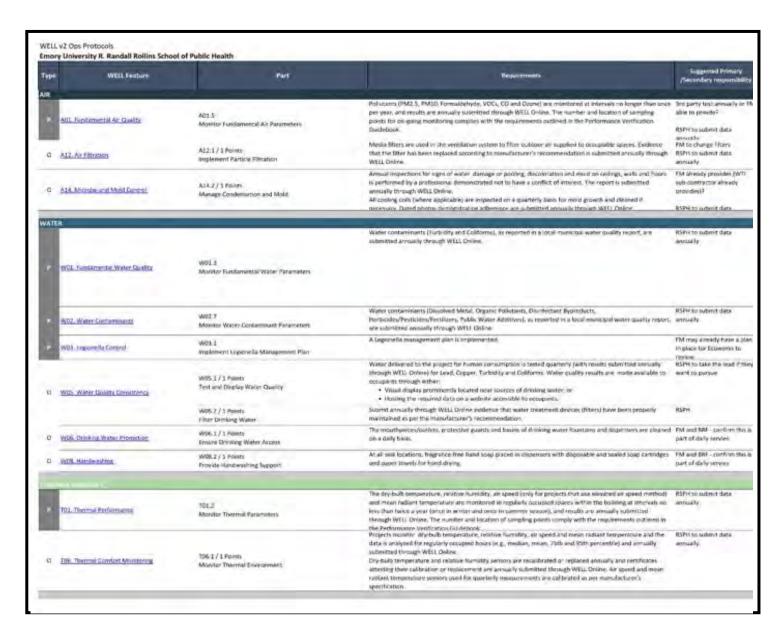
### Operational Costs & Responsibilities

- Review Achievable Optimizations
- Determine Responsible Party for O&M for Various Optimizations
- Determine Rough Order Magnitude Costs

ID	Feature Name	Feature Requirements & Notes
A02	Smoke-Free Environment	Signage required for outdoors. Signs at the entry doors will be part of the standard sign package for the building.
A08	Air Quality Monitoring and Awareness	Not currently pursuing this Optimization: requires installation of indoor air quality monitors for at least three parameters: PM2.5 or PM10, Carbon dioxide, Carbon monoxide, Ozone. Nitrogen dioxide, Total VOCs, and Formaldehyde. If pursued, information can be integrated into the Lucid digitial display.
A10	Combustion Minimization	implement "no idling" policy for engines at pick-up/drop-off and delivery areas.
W05	Water Quality Consistency	Requires quarterly water quality testing for lead, copper, turbidity, coliforms. Testing must be provided via WELL Online annually and shared with building occupants. Meng could develop the sign to share website location of results, if pursued.
W06	Drinking Water Promotion	Requires that mouthpieces/outlets, protective guards and basins of drinking water fountains and dispensers are cleaned on a daily basis.
W09B	Onsite Non-Potable Water Reuse	Signage to occupants to help them to clearly distinguish potable from non-potable water (where applicable) as well as informative displays to highlight the safety features and conservation goals of the non-potable water system. Condensate water for irrigation is an example within the building. Water testing and maintenance logs must be provided via WELL Online annually.
N02	Nutritional Transparency	Nutritional information, primary ingredients, common allergens, high sugar content and partially hydrogenated oils content are clearly displayed (per meal or item) at point-of-decision on packaging, menus or signage for all packaged foods and beverages sold. Information can be digital if source is indicated at point of decision. Meng could develop the sign if needed.
NO4	Food Advertising	Designated eating areas or common areas contain 3 instances of messaging to communicate at least one of the following: Encouragement whole, natural foods and drinking water. Kaldi's may have graphics; Meng could develop the graphics if needed.
N05	Artificial Ingredients	Label all foods and beverages sold to indicate whether they contain artificial ingredients on packaging, nearby menus or signage. Share with Kaldi's to gather information that will be available; Meng could develop the sign if needed.
N07	Nutrition Education	If pursued, one of the following would need to be offered at no cost:  - Cooking demonstrations on a quarterly basis, at minimum.  - Nutrition or dietary education workshops on a quarterly basis, at minimum.  - Individual nutrition consultations by registered dictitians or certified nutrition professionals on a quarterly basis, at minimum.  - Educational materials including cookbooks, magazines or other literature that promotes healthy eating and nutrition, with at least three different resources available for every 100 regular building occupants or students.
N08	Mindful Eating	Confirm that eligible employees and students (as applicable) have a daily meal or lunch period of at least 30 minutes and the opportunity to eat away from their workstation.
N10	Food Preparation	Confirm the following will be provided in break room areas: Reusable eating utensils, including spoons, forks, knives and microwave-safe plates and cups.
N12	Food Production	Provide gardening space with food bearing plants for 1 ft2 per eligible employee or 0.5 ft2 per student, whichever area is greater (up to a maximum of 750 ft2. The area calculated is the actual growing area (vertical or horizontal) used for the production of food-bearing plants.
L01	Light Exposure and Education	Educational signage on circadian rhythm, sleep hygiene, age-related increases in light requirements and/or importance of daylight exposure on circadian and mental health; signage to be placed at high traffic points around the space.
LOB	Occupant Control of Lighting Environments	Occupants can increase the light level on the task surface; task lights are provided at no cost, upon request. Requests are met within eight weeks of request.
V02	Visual and Physical Ergonomics	Projects provide education that is appropriate for employees, workstations and type of work being conducted in the space. At a minimum, topics include: Information on how to recognize risk factors for musculoskeletal disorders and ergonomic issues in the work environment relevant to the project.  - Information on how to recognize signs and symptoms of musculoskeletal disorders relevant to the type of work conducted in the project space Information on the reporting processes for risk factors and musculoskeletal disorders: - Information on the process for employees to request ergonomic furnishings (e.g., seating) and workstations (e.g., height adjustment stands) provided by the project team - Information on the process for employees to request ergonomic furnishings (s.g. sapplicable) Information on proper posture and/or form (e.g., proper posture while seated, standing, lifting, bending).
V03	Movement Network and Circulation	Point-of-decision signage that encourages stair use at elevators, point of entry to stairs and corridor transitions to stairs & elevators,
V04	Active Commuter and Occupant Support	Confirm If the following will be met: - Bicycles are allowed in tenant spaces. In multi-floor buildings, building occupants and visitors are able to utilize elevators or freight elevators to transport bicycles between floors - Basic bicycle maintenance tools, including tire pumps, patch kits and hex keys, are provided on-site.
V06	Physical Activity Opportunities	Provide age and ability appropriate physical activity/exercise opportunities, led by a qualified professional, to eligible employees at no cost at least 1 time per month.
V08	Physical Activity Spaces and Equipment	Confirm if Blomeyer Health Fitness Center is available to occupants at no cost.
V10	Enhanced Ergonomics	At least twice per year, a certified ergonomist or an individual with a professional degree in human factors/ergonomics (or equivalent) offers the following services to all employees:  - An audit of existing ergonomic conditions in the space, including workstations, furnishings, work areas and existing policies.  - On-site adjustments to existing furnishings at occupant request and/or on-site training for staff on how to adjust workstation furnishings.
V11	Physical Activity Promotion	Confirm available of at least two of the following physical activity incentives for all eligible employees:  Financial rewards including direct payments or subsidies, gift cards or prizes.  Tax-exempt payroll deductions related to active transportation, mass transportation or other types of physical activity opportunities (e.g., gym membership).  Bike share memberships, gym memberships, fitness classes or other types of opportunities (e.g., acres, sports teams or training) that are offered at no cost or subsidized by at least 50%.  Healthcare bonuses (e.g., additional coverage for health programs or lower co-pays and/or premiums).  Paid time off (at least one eight-hour day per quarter).  Flexible scheduling to accommodate physical activity that is not deducted from paid time off,  Other non-monetary awards or programs (e.g., employee recognition, wellness challenges or similar activities).

### Operational Costs & Responsibilities

- Review Achievable Optimizations
- Determine Responsible Party for O&M for Various Optimizations
- Determine Rough Order Magnitude Costs



# Glazing Design – Daylight Analysis

DAYLIGHT

52%

sDA

200lux/40%

of floor area receives at least 200 lux for at least 40% of the annual occupied hours.

#### What does this mean?

WELL's lower sDA lux threshold is significantly more obtainable than other daylight options

Glass Assumed: 47% Visual Transmittance

#### **BREAKDOWN**

Level 1: 53% sDA Level 2: 42% sDA Level 3: 50% sDA

Level 4: 56% sDA

Level 5: 60% sDA

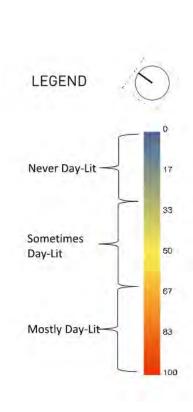
Level 6: 52% sDA

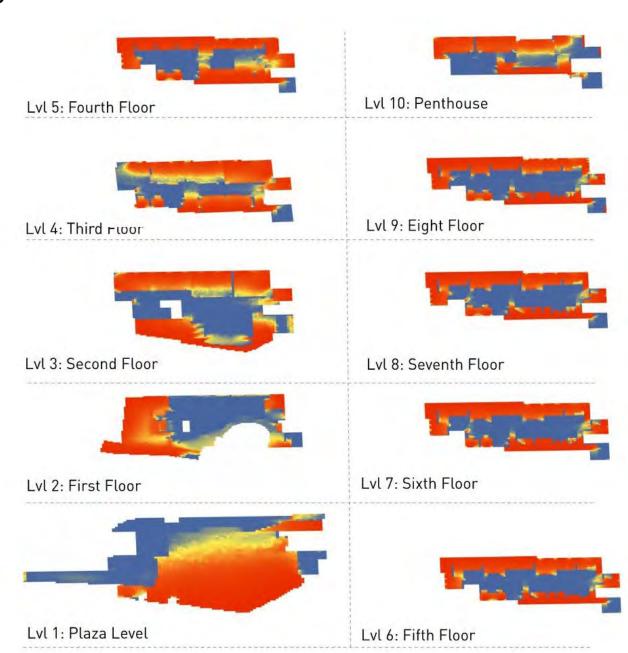
Level 7: 53% sDA

Level 8: 53% sDA

Level 9: 52% sDA

Level 10: 49% sDA

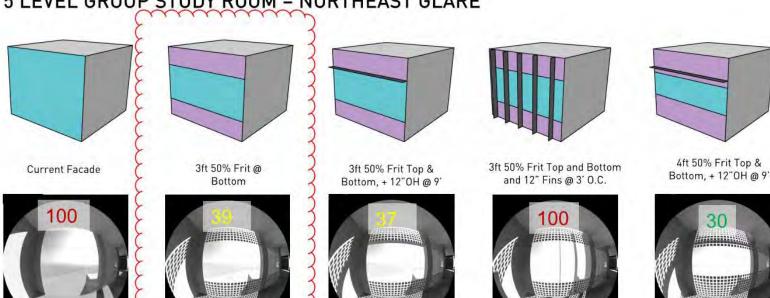




# Glazing Design - Glare Analysis

## **RSPH 3 GLARE ANALYSIS**

5 LEVEL GROUP STUDY ROOM - NORTHEAST GLARE











# Sound Management – Sound Masking

 Raises the ambient noise level

- Allows for greater speech privacy
- System composed of speakers



Typical Office Suite Sound Masking Plan

# Acoustically Friendly Finishes



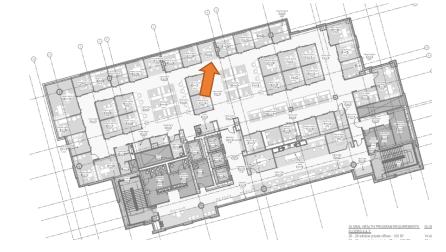
Typical Office Suite - Collaboration Area at North Edge

Acoustic Ceiling Tile Noise Reduction Coefficient (NRC) – 0.80

Acoustical felt blanket above wood slat ceiling in Collaboration Spaces

Acoustic Wall Panels in Collaboration Spaces and Phone Booths

Carpeted floors







Temple University
Paley Hall Addition & Renovation for
College of Public Health

# Temple University College of Public Health

- 310,000 GSF
- \$111 M
- 6 floors + mezzanine
- Complete gut renovation + New Addition horizontally & vertically
- Creates a new quad central to campus
- 31,000 SF Integrative Simulation Center,
   Active Learning Classrooms, Offices & Dry
   Research, Student Life Quiet Reading
   Room, open collaboration & social spaces

## **Certification Tracking:**











## Goals of CPH to be WELL

- Transform the college into a center of excellence in the production of new public health and social welfare knowledge and education.
- A new state of the art headquarters is central to realizing this vision.
- It is paramount CPH's building be environmentally responsible and encourage fitness, well-being, and is accessible for all.
- WELL helps guarantee the building will meet these goals by focusing on the occupants' health & well-being.



# Selection of Paley Hall

- With the addition of the new Charles Library, Visualize Temple Master Plan called for repurposing of Paley Hall.
- CPH was considered for Paley due to its size and potentially adaptable structure, plus its prominent location.
- Paley also seemed a good fit for CPH programs: research, labs, offices, and classrooms.



# Aspirations

Collaboration Inclusiveness Accessibility

Transparency
Natural Light
Culture of Ca

Maximize Views

Home for College of Public Health

College of Public Health REIMAGINED

Healthiest
Building
on Campus

Consolidate CoPH Innovative Space

First WELL Building Resilient, Sustainable

Goals

# Challenges

- Limited Windows in Existing Façade
- Very Deep Floor Plates
- Heavy Concrete Structure
- Small Site







## Interior Design Inspiration







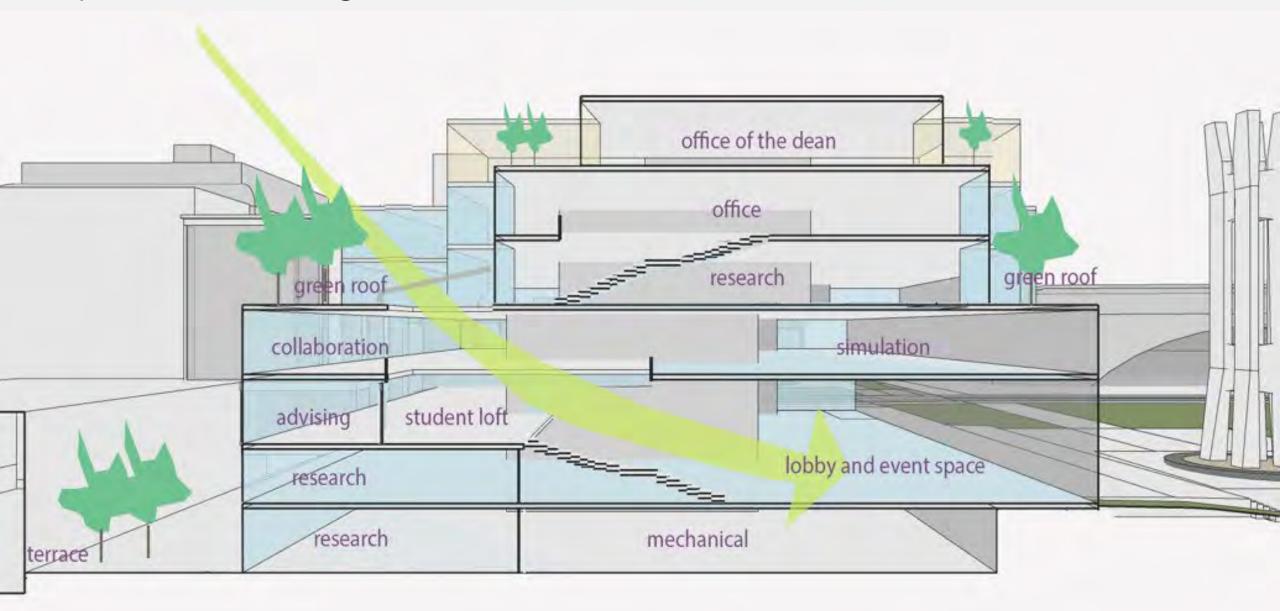
## The healthiest place on campus

will be unified by a nature-inspired materials palette, biomimicry, blended with nature, wood tones that soften stone grays, mix of textures; biophilic concepts of prospect, mystery, and refuge. Live green walls will be a significant biophilic factor throughout main circulation and assembly areas.

Design elements include timeless patterns seen in nature - wood, stone, flora, fauna, water, and sky.

Embedding Color - incorporating a few key tones - blue, yellow, green - will create collaboration of nodes along the office corridors and feature walls. The colors emphasize the connection between different special notes while aiding with wayfinding and always tying back to the nature inspired palette.

## Inspiration Building Section

















# Tips & Takeaways

- Start Early
- Select a Champion
- Outside Expertise
- Find your Path to Certification
- Pre-condition Pitfalls







Q&A





Tuning building design and operational goals to increase value by creating a culture of health and wellbeing on campus.