MILESTONES

The Through lines

Oct 27 & 28, 2020

Keynote Sponsor:

Payette

REGENERATIVE LEADERSHIP

Bob Schaeffner, FAIA, LEED AP / October 27, 2020

Credit(s) earned on completion of this course will be reported to AIA CES for AIA members.

Certificates of Completion for both AIA members and non-AIA members are available upon request.

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

Course Description

Leadership transition, firm legacy and **longevity** are issues every firm faces.

Multigenerational leadership can shape an architecture firm into one with a **successful, collaborative, entrepreneurial culture**.

Learning Objectives

At the end of this course, participants will be able to:

1. Understand relationship between **Multi-generational leadership** and firm culture

2. Learn how a radical investment in **young designers**—with a focus on equity, diversity and inclusion—secures a firm's healthy evolution.

3. Learn how to operate as a **highly collaborative practice**

4. Identify key strategies in **successful leadership plans**

FIRM FACTS

Single Office in Boston
170 Person Studio
Science & Healthcare Focus
Leading-Edge in Sustainability

200+ Design Awards

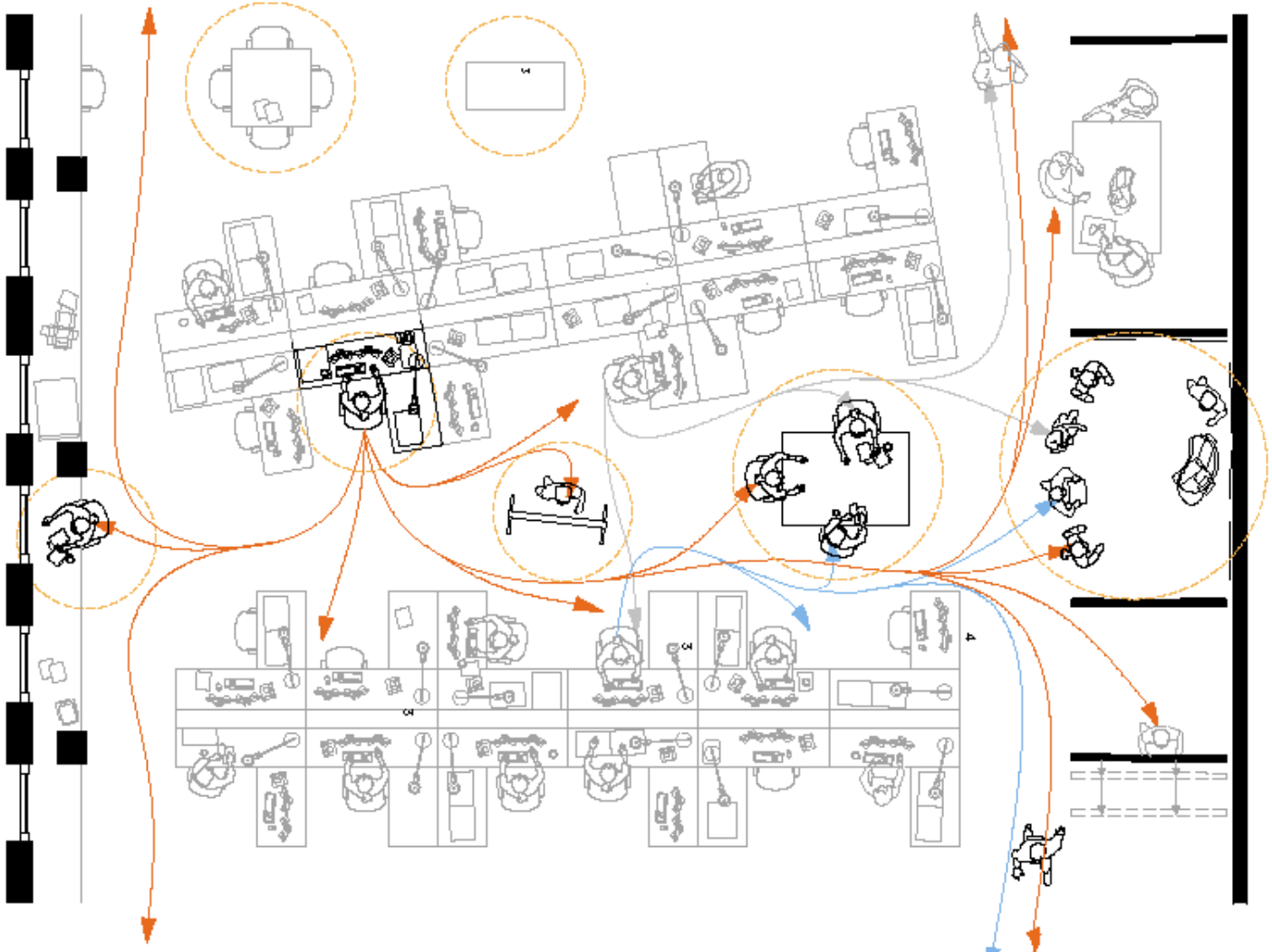
2019 AIA Firm Award Winner

FUSION OF DESIGN + PERFORMANCE

We are a collective of designers driven to create **boldly original buildings for science and healthcare** that are as **profoundly humane** in their accommodation of needs as they are **pioneering in their pursuit of environmental performance**.

4 AIA COTE Awards in 4 Years

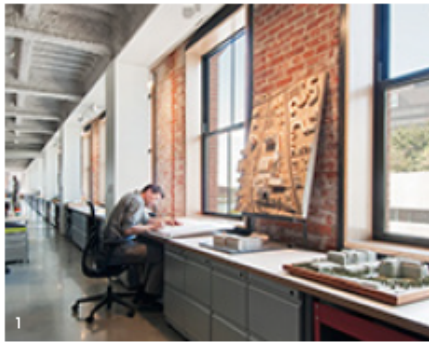
SINGLE OFFICE STUDIO: FLUID WORKFLOW

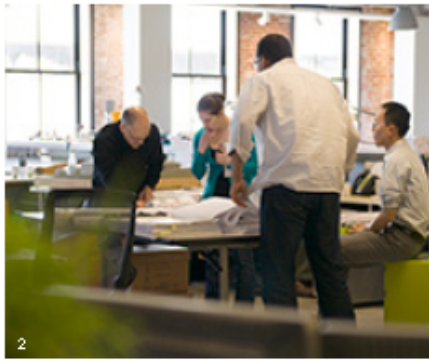


1 Perimeter Work Zone

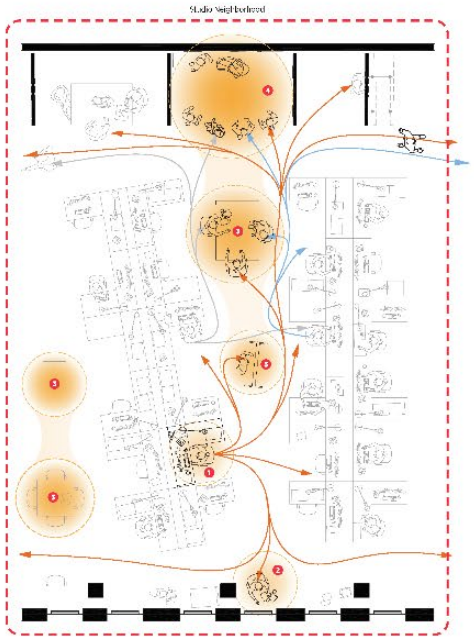
2 Studio Workstations

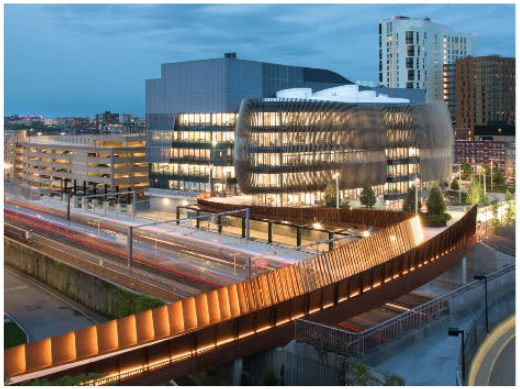
3 Pin-Up Alcoves

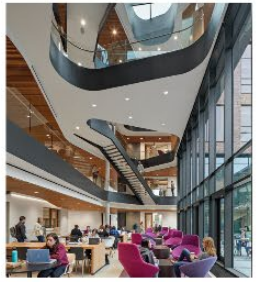




FIRM HISTORY







Markus & Nocka Founded
1932

1960
Tom Payette Joins

Tom Payette President
1965

1974
PAYETTE Associates Named

Leadership Transition Begins
1995

2012
ENGINE Launched

AIA Firm Award
2019

VALUES

We believe **architecture is about people**

Our work is grounded in a **deep reading of program** as an essential subtext of architecture, the key to the project's unique story.

CULTURE

We strive for **openness** in firm culture and how we practice.

We reject the notion of singular authorship and **view collaboration as the path to innovation**.

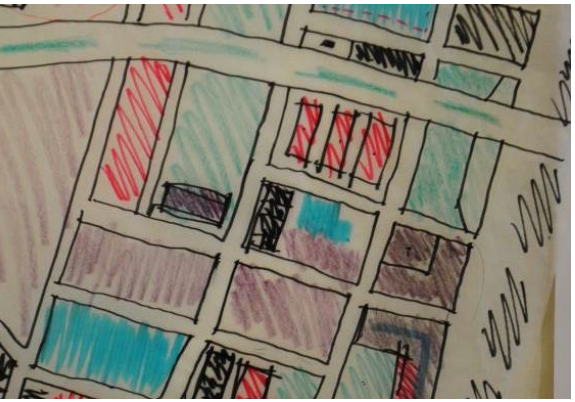
We believe that **diversity spurs creativity** and innovation.

Our strength is the **talent and continuity of our teams**.

LEADERSHIP IN A HIGHLY COLLABORATIVE PRACTICE

15 Design Partners Share Equal Roles

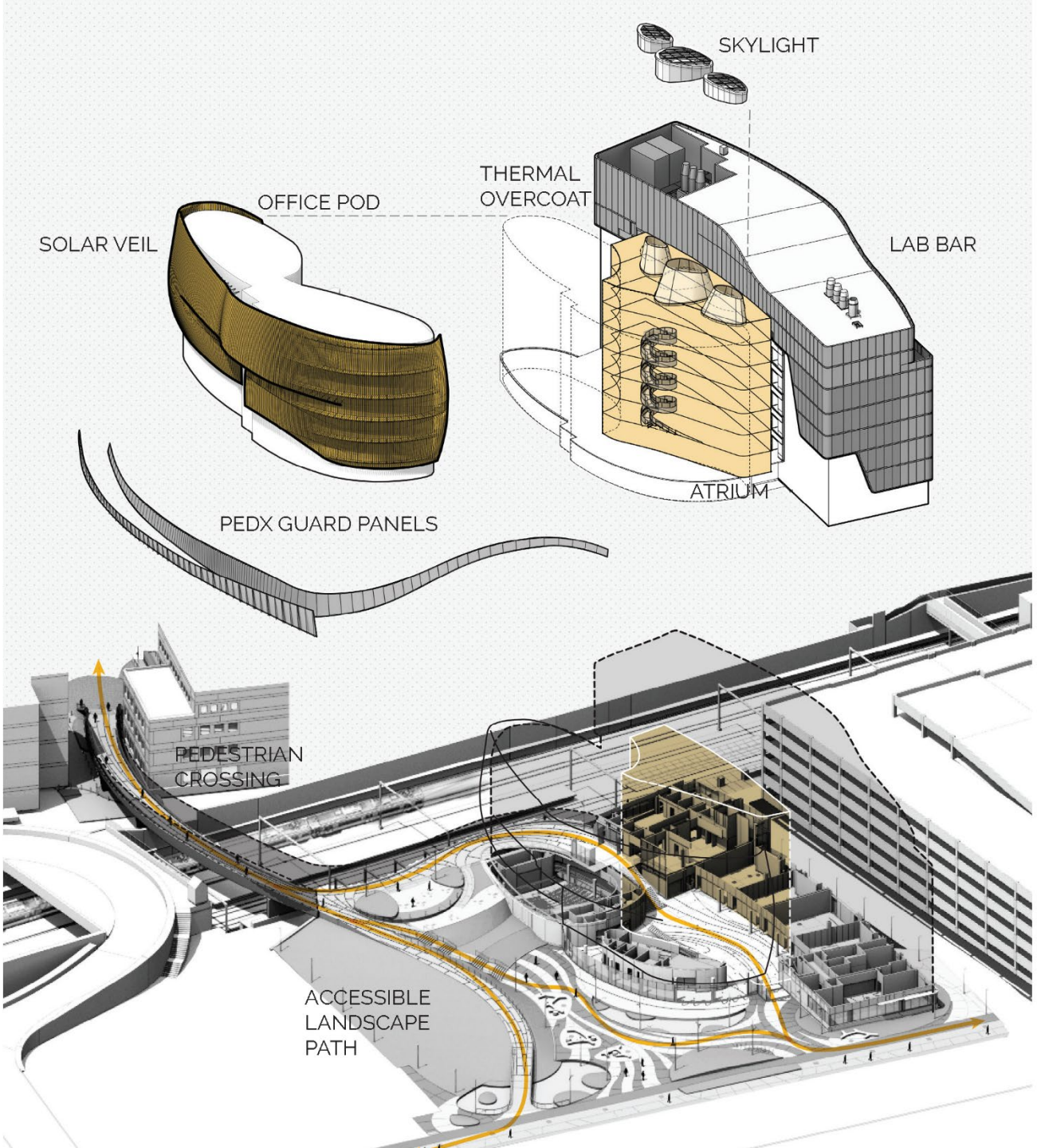
ELEVATING / MENTORING YOUNG DESIGNERS

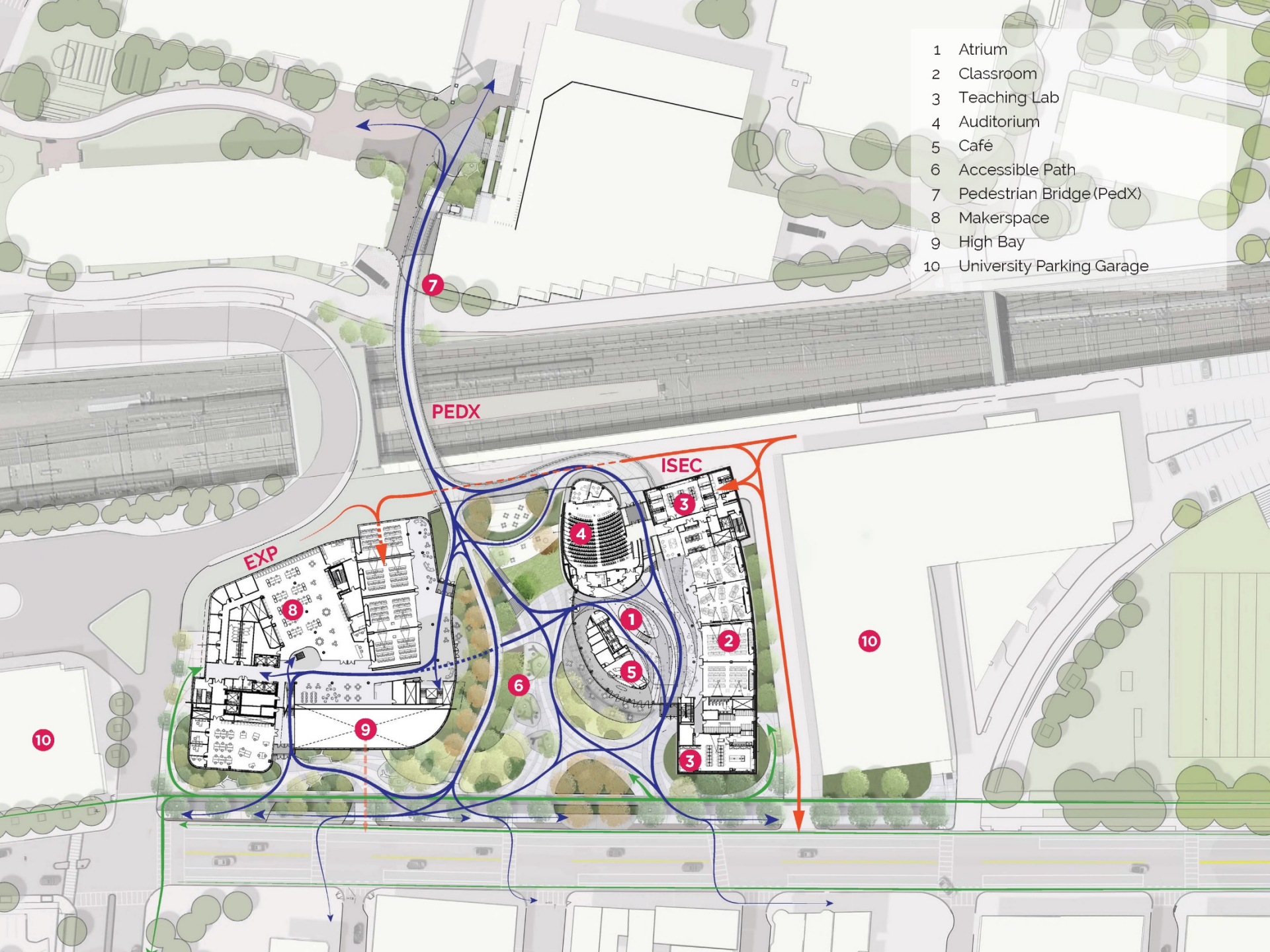


Northeastern University ISEC

CAMPUS FLOW

FORM LANGUAGE

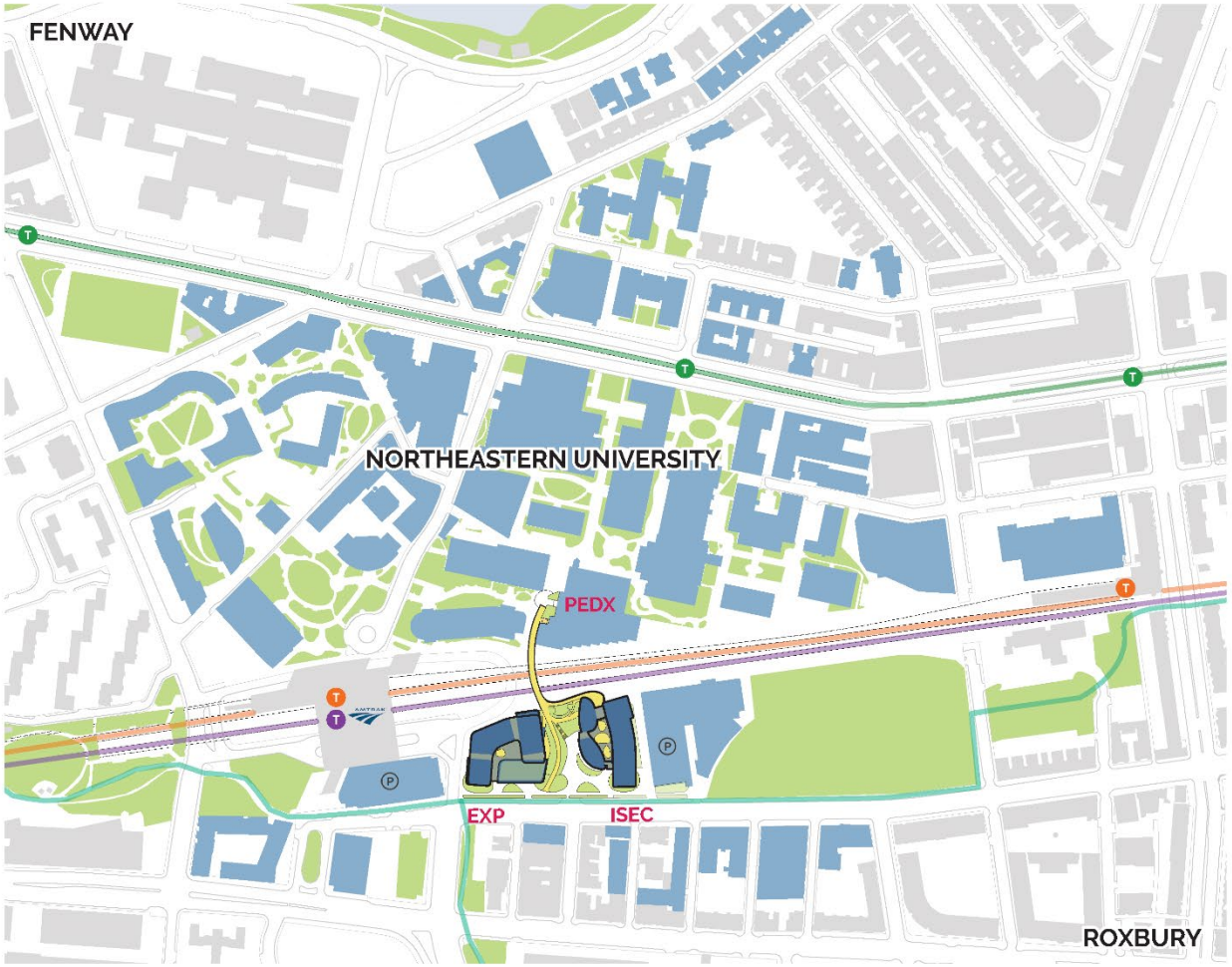



1 Atrium
2 Classroom
3 Teaching Lab
4 Auditorium
5 Café
6 Accessible Path
7 Pedestrian Bridge (PedX)
8 Makerspace
9 High Bay
10 University Parking Garage
PEDX
ISEC
EXP

93
Walker's Paradise

99
Rider's Paradise

91
Biker's Paradise

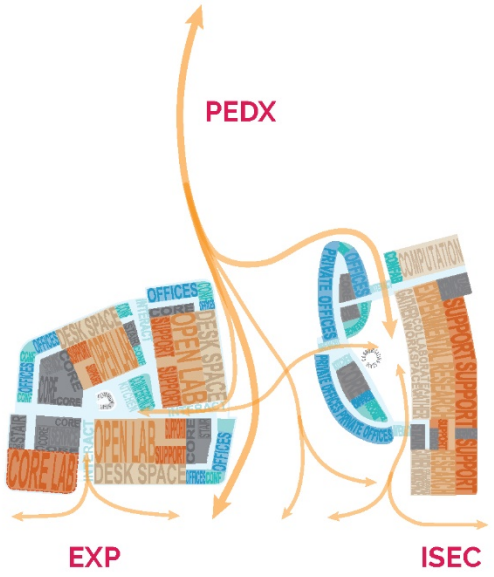


Restored Southwest Corridor Park and Bike Path

Pedestrian Bridge — View of North

Pedestrian Bridge — View of North Landing

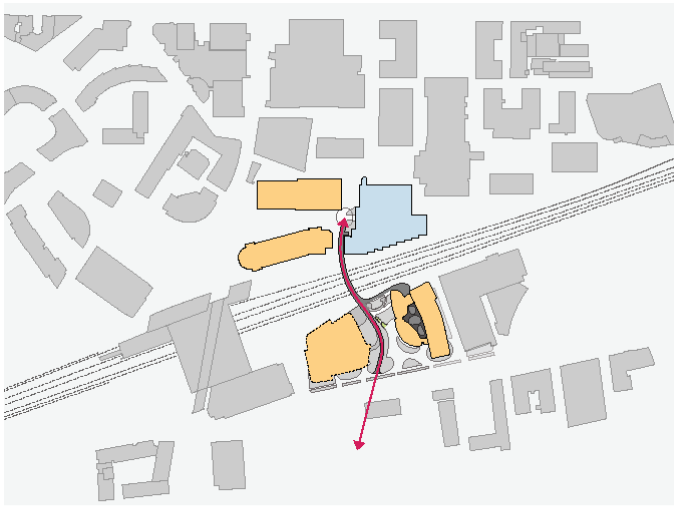
PRECINCT AS GATEWAY



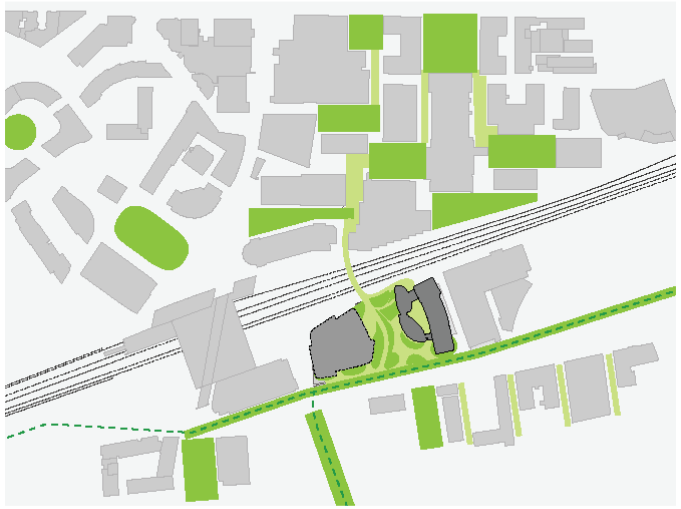

NORTHEASTERN IS A
SMOKE-FREE
CAMPUS

ACTIVATING ACADEMIC & CIVIC LIFE

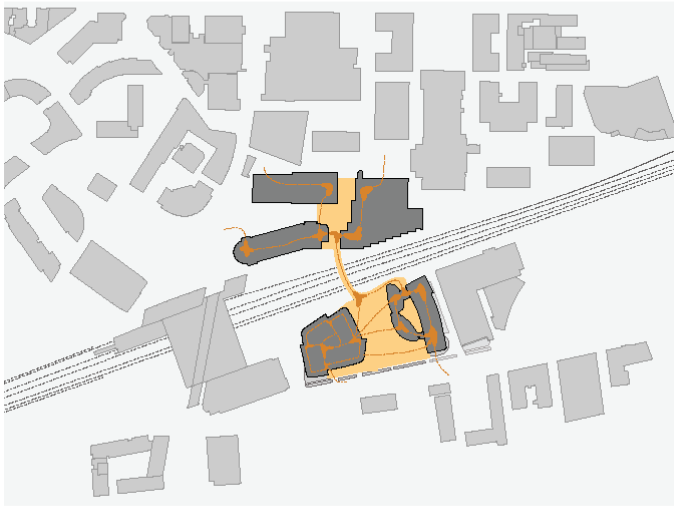
ENERGY



VILLAGE-LIKE CLUSTER

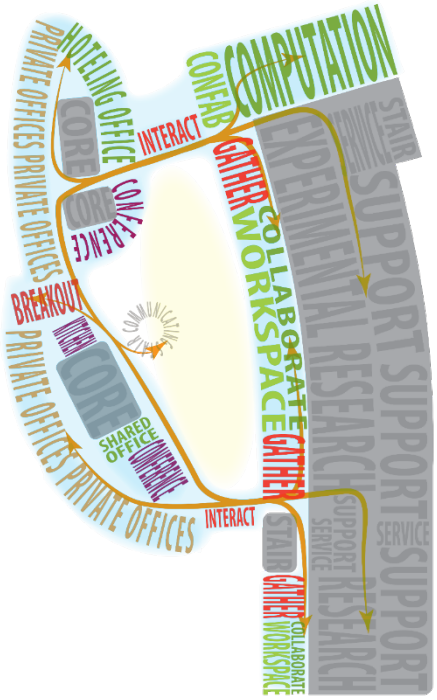


GREEN SPACE NETWORK

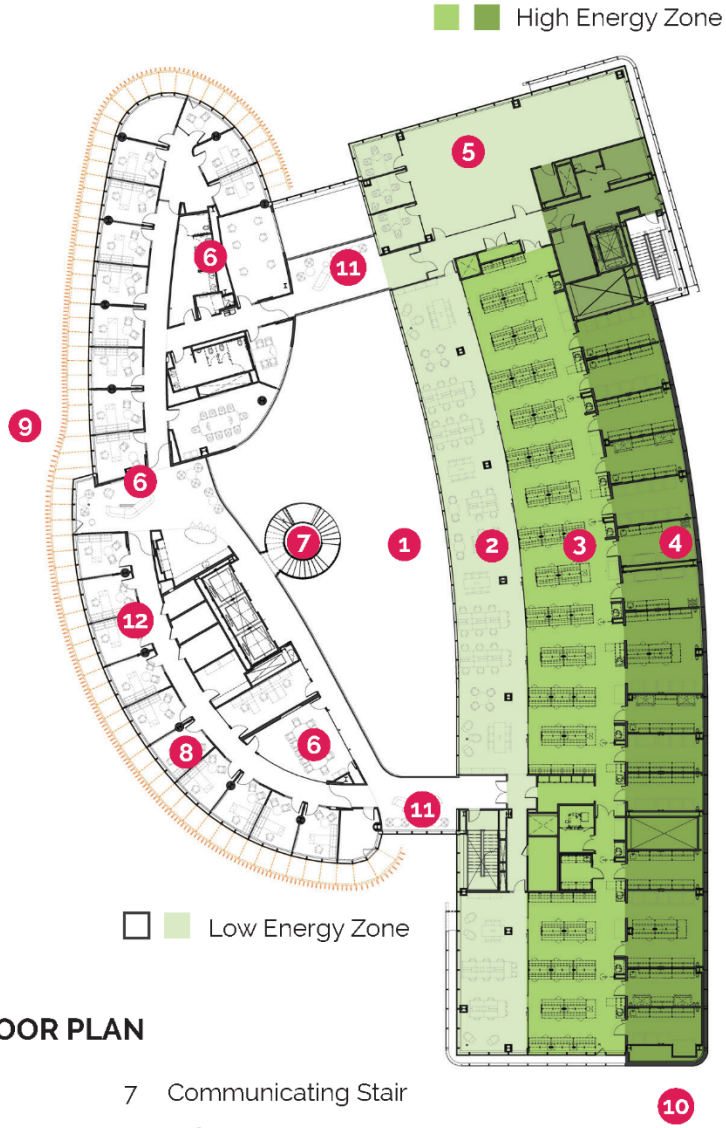


NEUTRAL NETWORK

LIVING ROOM FOR CITY & CAMPUS



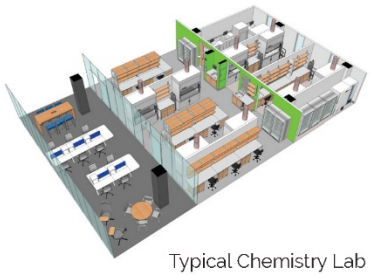
LAYERED TRANSPARENCY



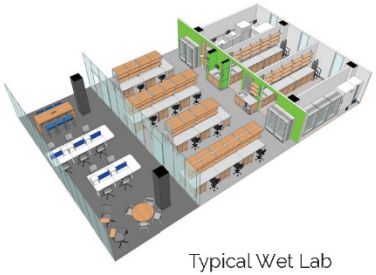
TYPICAL RESEARCH FLOOR PLAN

1 Atrium
2 Lab Write-up Zone
3 Open Research Lab
4 Lab Support / Equipment
5 Computational Research
6 Conference Room
7 Communicating Stair
8 Office
9 Solar Veil
10 Thermal Overcoat
11 Study Space
12 Kitchenette

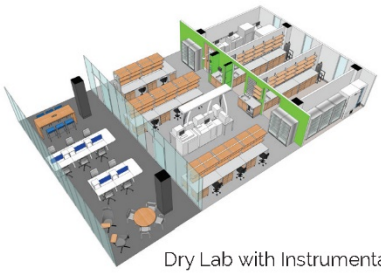
ADAPTABILITY



Typical Chemistry Lab



Typical Wet Lab



Dry Lab with Instrumentation

HIGH ENERGY LABORATORY

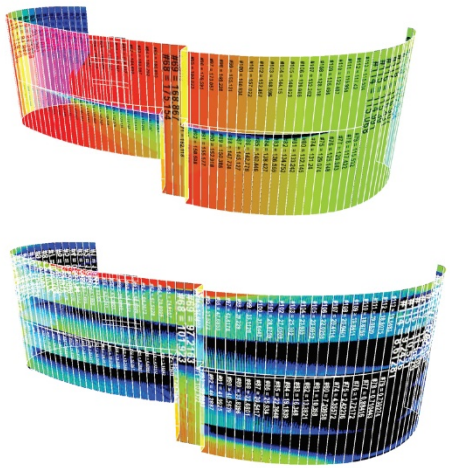
LOW ENERGY WRITING DESKS

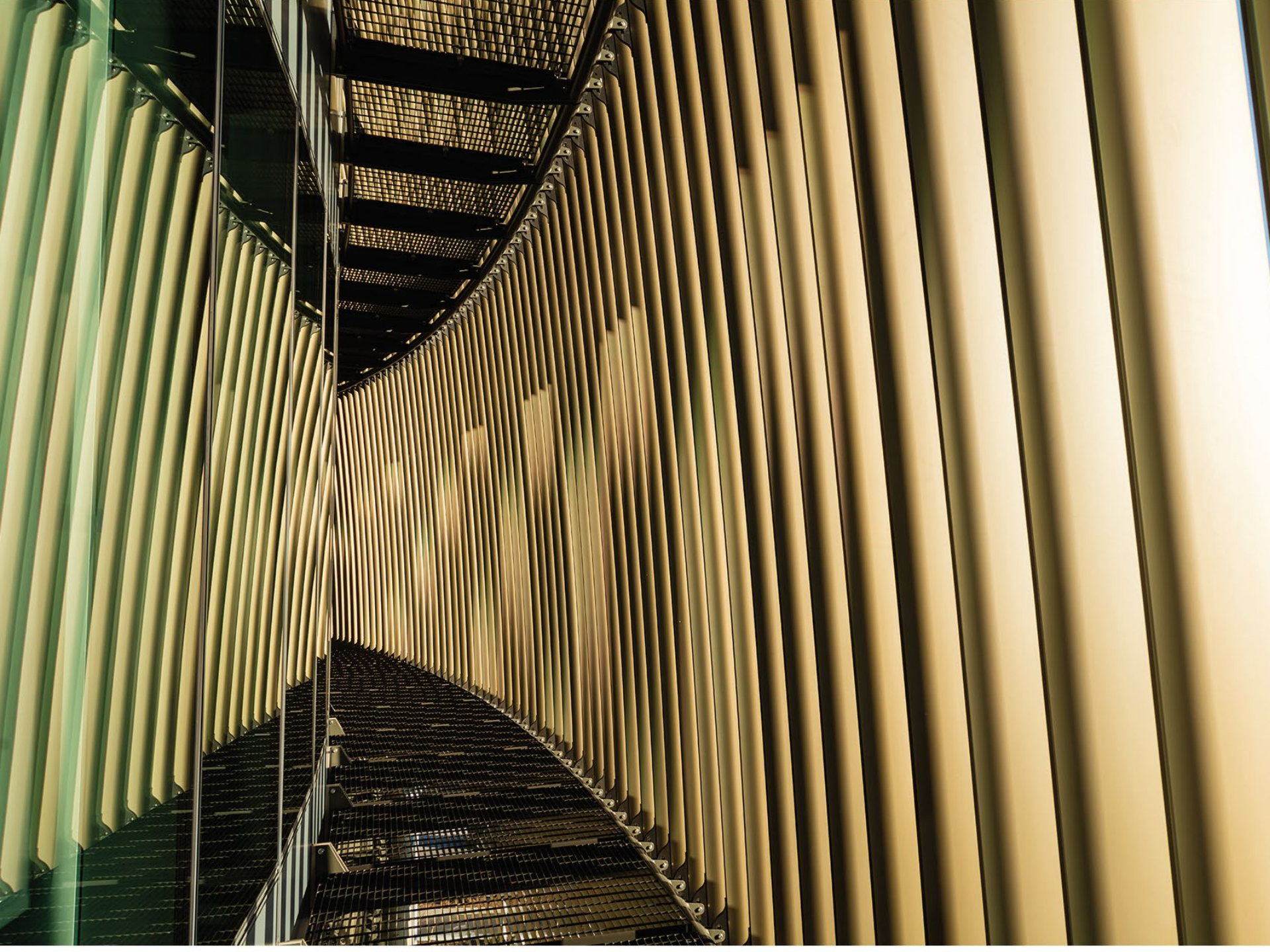
INTEGRATED DESIGN

33% Energy Cost Savings over Code

78% Peak Solar Heat Gain Reduction

62% Cumulative Solar Radiation Reduction from Shading



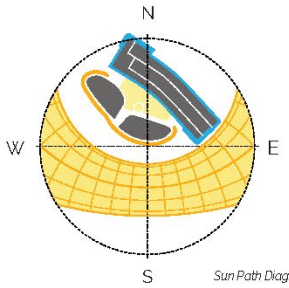


78% Average energy savings over typical lab/2030 baseline

91 kBtu/SF

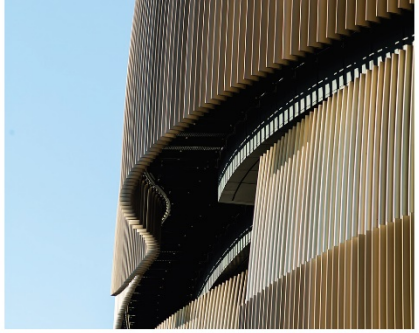
57% Reduction in potable water use for flush and flow fixtures

1,316 Houses Energy Reduction Equivalency to annual energy usage



Sun Path Diagram


Northeastern University

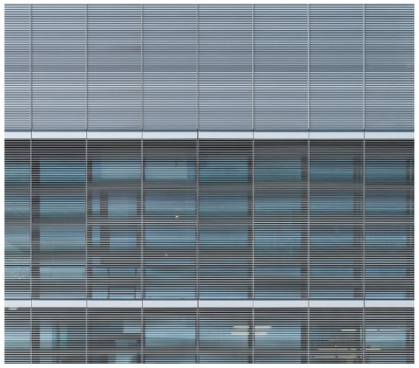


1 SOLAR VEIL

Minimizes heat gain to reduce peak loads and equipment sizing

2 THERMAL OVERCOAT

Insulated panels and triple glazing minimize external loads on sensitive research space



3 RIBBED PANELS

Become solar shading at key areas filtering natural light into research space while minimizing heat gain

4 BOARD FORMED CONCRETE

Site cast sandwich panels utilize fiberglass rebar to create a simply constructed highly insulating fully thermally broken envelope

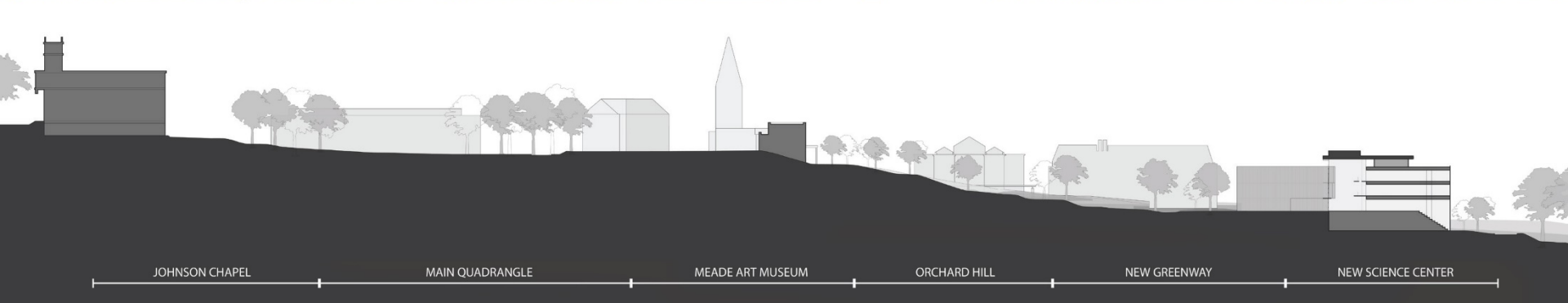
30–55% Reduction in Lighting Power Density Achieved with High Efficiency LED Lights

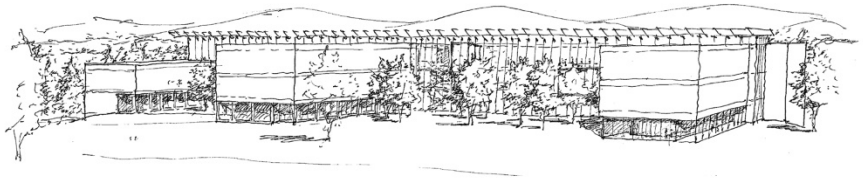
83% Daylight Autonomy in Atrium

100% Occupants have Lighting and Daylight Control


Health Economics
• Access: who gets healthcare; ability to pay?
• Equity
• Finance: private or public
• Delivery:private or public
• International comparisons
• Outcomes

Amherst College New Science Center


JOHNSON CHAPEL
MAIN QUADRANGLE
MEADE ART MUSEUM
ORCHARD HILL
NEW GREENWAY
NEW SCIENCE CENTER



"This is the biggest transformation of the campus since its founding. It says that we care deeply about *science*, and it says the same thing about *community*, about our *commitment to sustainability*, about our commitment to *beauty*."

BIDDY MARTIN, PRESIDENT OF AMHERST COLLEGE

"One of the defining features of this building is *transparency*. It really *demystifies the sciences*."

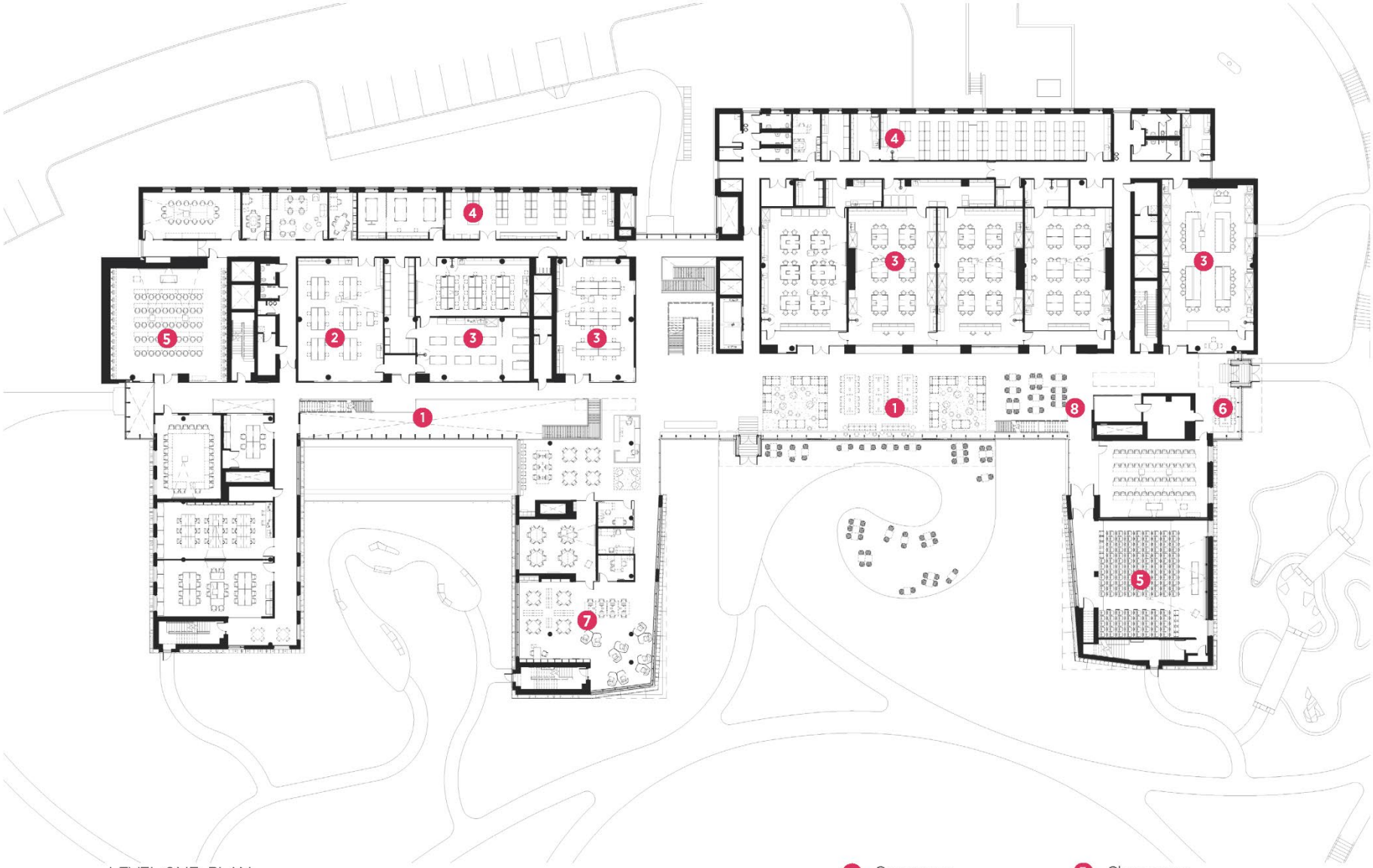
CHIEF OF CAMPUS OPERATIONS

HIVE OF ACTIVITY

"It truly is where the students are *all the time*. I think it's really changed *the culture of the place* beyond what my own expectations are."

CATHERINE SANDERSON, PSYCHOLOGY PROFESSOR

SCIENCE ON DISPLAY



LEVEL ONE PLAN

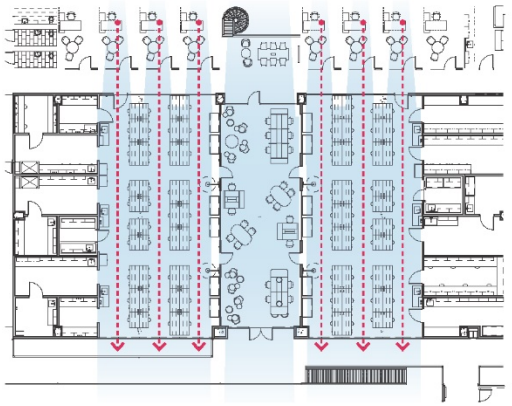
1 Commons
2 Research Lab
3 Teaching Lab
4 Lab Support
5 Classroom
6 Informal Study
7 Library
8 Café


KEEFE SCIENCE LIBRARY
MOSS QUANTITATIVE CENTER

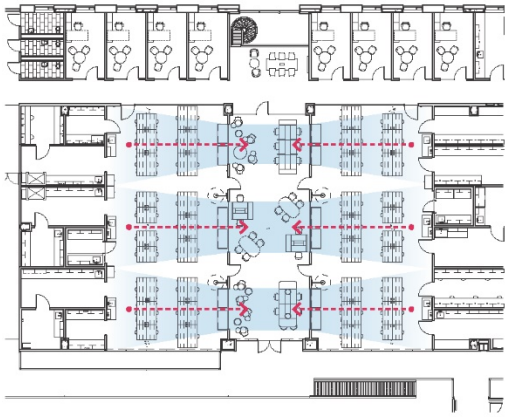
INTEGRATED LANDSCAPE

1. **AMPHITHEATER**
   accommodates up to 1600 people, constructed utilizing excavation spoils
2. **ORCHARD**
3. **RAIN GARDEN &**
6. **NATIVE PLANTINGS**
   native and adaptive plantings
7. **POROUS PAVEMENT**
   new, accessible paths throughout Greenway
8. **GREENWAY STORMWATER**

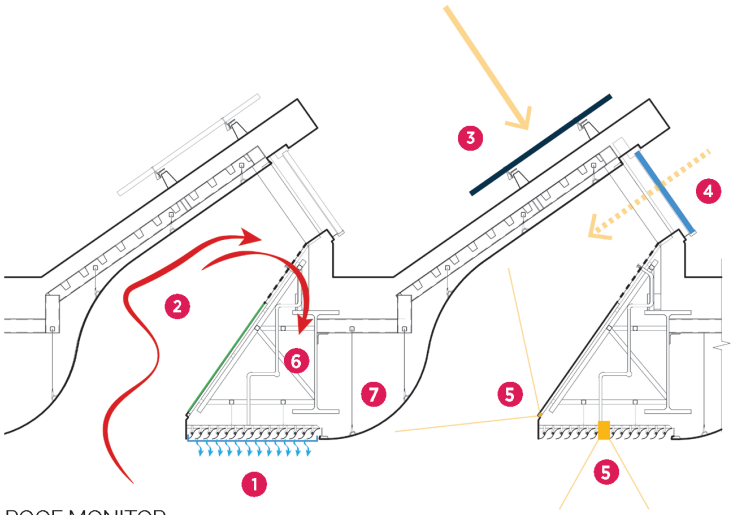
DESIGNED FOR COLLABORATION



TRANSPARENCY THROUGH THE LAB



TRANSPARENCY ACROSS THE LAB



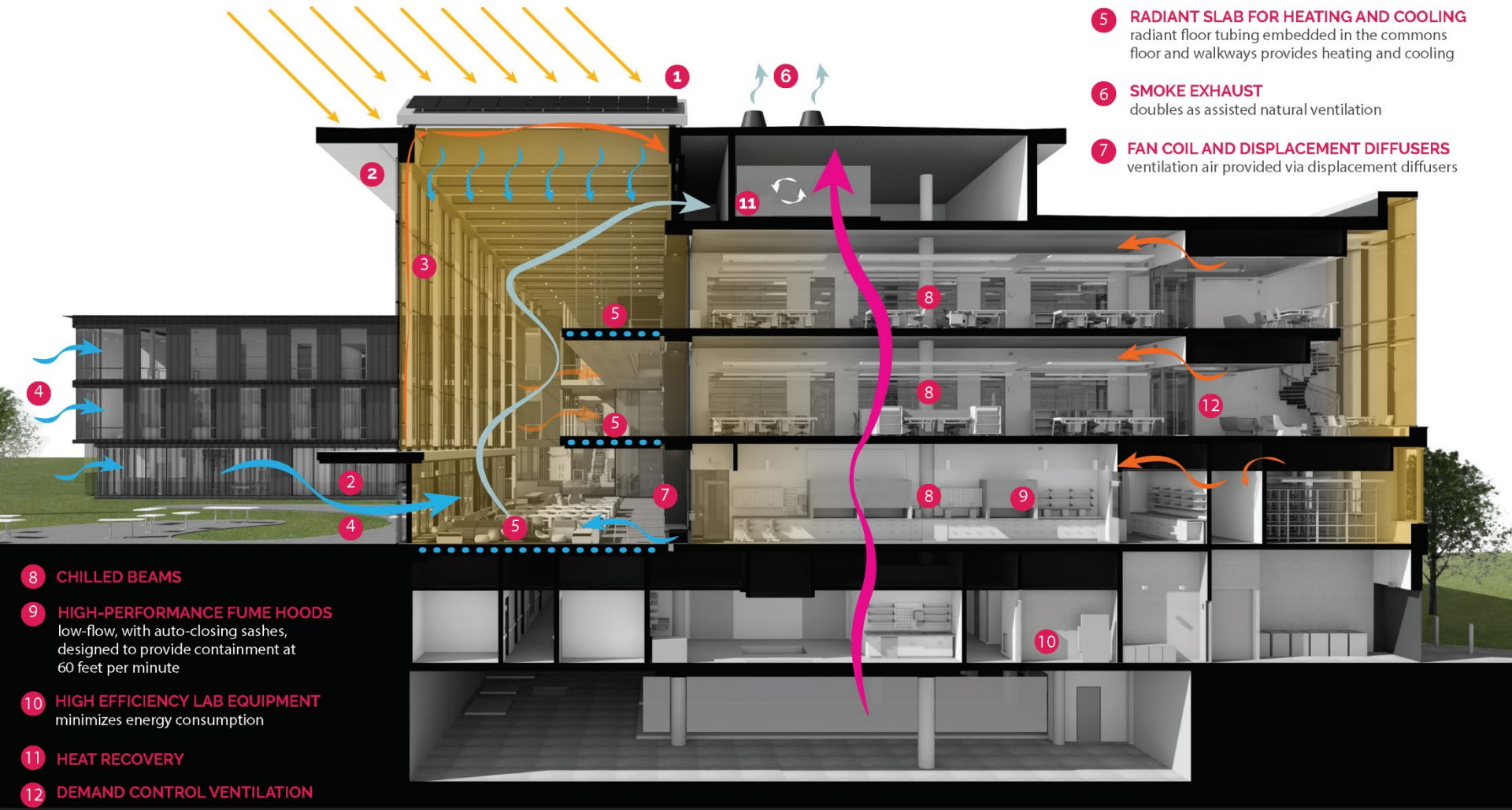
ROOF MONITOR

1. Radiant convective cooling
2. Acoustic sound absorption
3. Photo voltaic panels
4. North-facing daylight
5. Artificial LED lighting
6. Concealed structure
7. Concealed fire protection

DESIGNING FOR ENERGY

91 kBtu/SF

76% ENERGY REDUCTION
compared to 2030 baseline



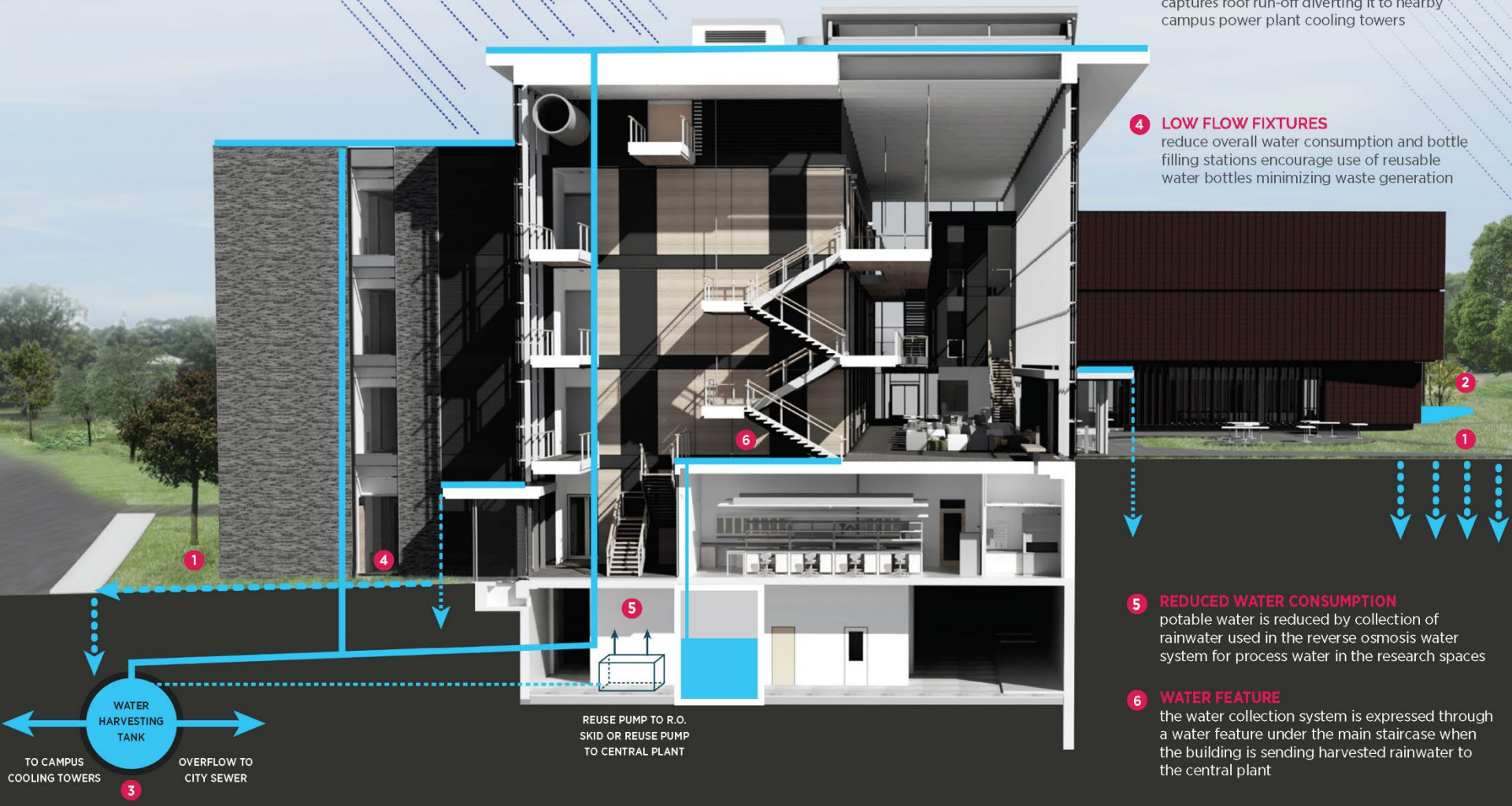
1. **SOLAR PV ARRAY**
integrated into the commons roof monitors and tilted to optimize energy production
2. **ROOF OVERHANG AND CANOPY SHADING**
provides external shading
3. **AUTOMATIC INTERIOR SHADES**
capture heat between shading and glazing
4. **NATURAL VENTILATION**
5. **RADIANT SLAB FOR HEATING AND COOLING**
radiant floor tubing embedded in the commons floor and walkways provides heating and cooling
6. **SMOKE EXHAUST**
doubles as assisted natural ventilation
7. **FAN COIL AND DISPLACEMENT DIFFUSERS**
ventilation air provided via displacement diffusers
8. **CHILLED BEAMS**
9. **HIGH-PERFORMANCE FUME HOODS**
low-flow, with auto-closing sashes, designed to provide containment at 60 feet per minute
10. **HIGH EFFICIENCY LAB EQUIPMENT**
minimizes energy consumption
11. **HEAT RECOVERY**
12. **DEMAND CONTROL VENTILATION**

LOW ENERGY PAVILIONS | COMMONS | HIGH ENERGY LABORATORIES

DESIGNING FOR WATER

41% **PREDICTED REDUCTION IN INDOOR WATER USE**
compared to LEEDV4 baseline

58% **RAINWATER MANAGED**
from a two year, 24 hour storm event



1. **STORMWATER MANAGEMENT PRACTICES**
swales and berms slow the speed of water, increasing ability to infiltrate, collect and limit run-off

2. **STORMWATER INFILTRATION**
rainwater drainage and infiltration systems, including rain gardens

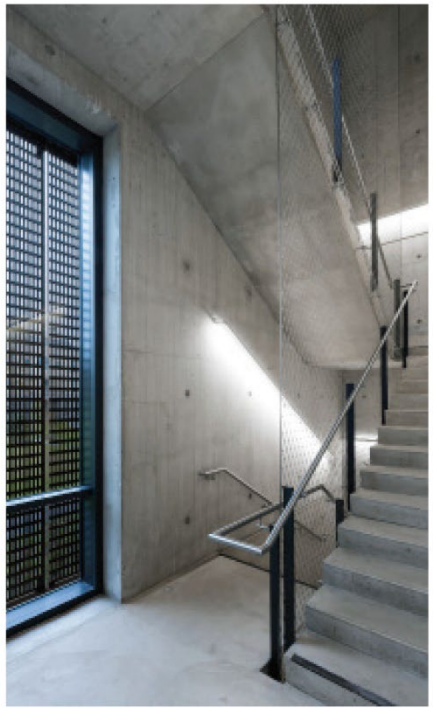
3. **RAINWATER CAPTURE**
20,000 gallon rainwater harvesting tank captures roof run-off diverting it to nearby campus power plant cooling towers

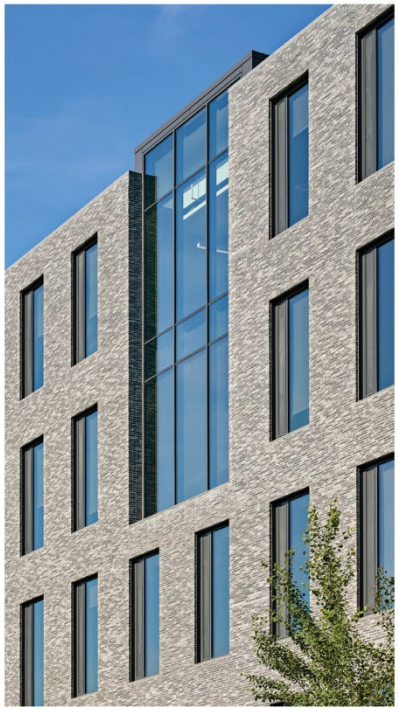
4. **LOW FLOW FIXTURES**
reduce overall water consumption and bottle filling stations encourage use of reusable water bottles minimizing waste generation

5. **REDUCED WATER CONSUMPTION**
potable water is reduced by collection of rainwater used in the reverse osmosis water system for process water in the research spaces

6. **WATER FEATURE**
the water collection system is expressed through a water feature under the main staircase when the building is sending harvested rainwater to the central plant

NATURAL, HIGH PERFORMING MATERIALS

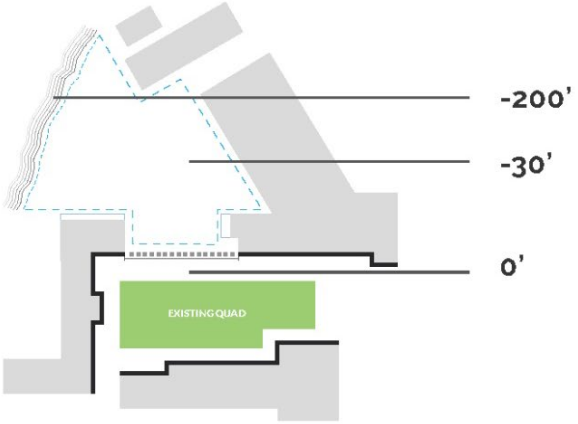




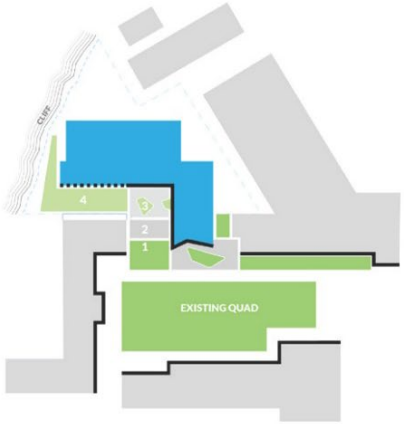
A NEW CAMPUS HEART

Lafayette College Rockwell Integrated Sciences Center

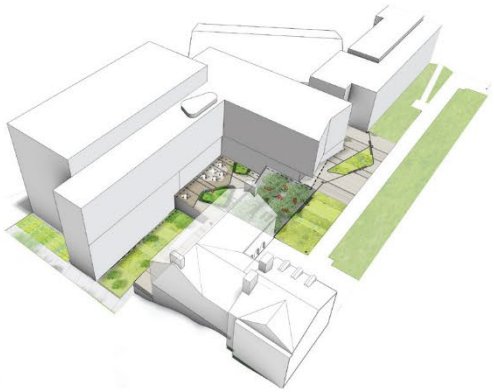
THE MISSING TOOTH



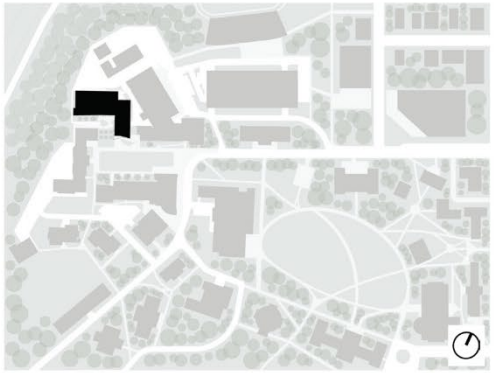
Existing: "Missing Tooth" Site

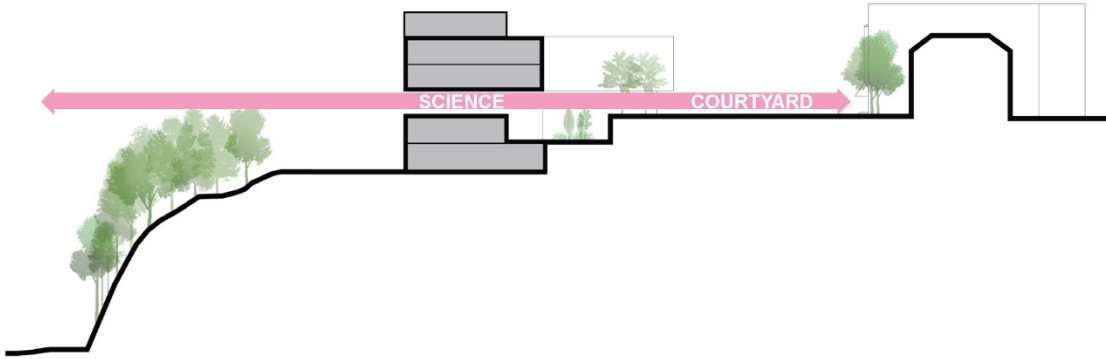


Solution: Completing the Outdoor Room

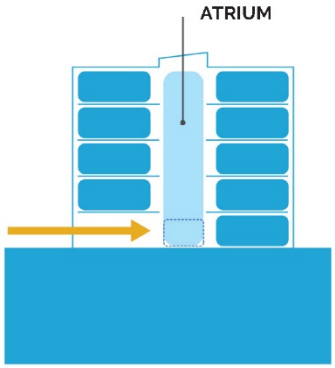


Cascading Landscape Rooms

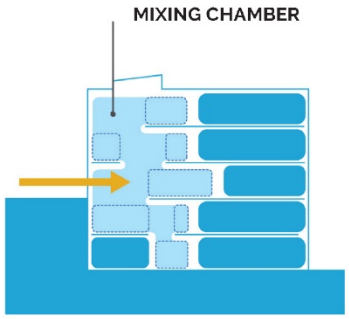



SCIENCE
COURTYARD

USING THE HILL

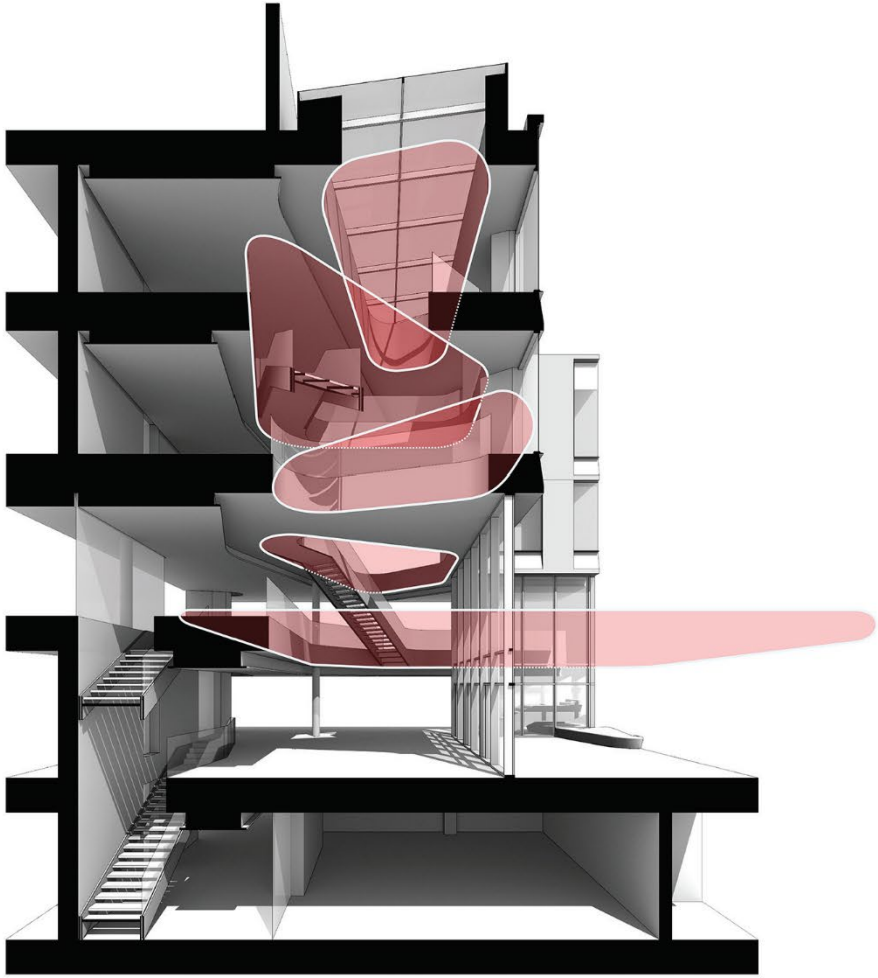


Conventional Approach

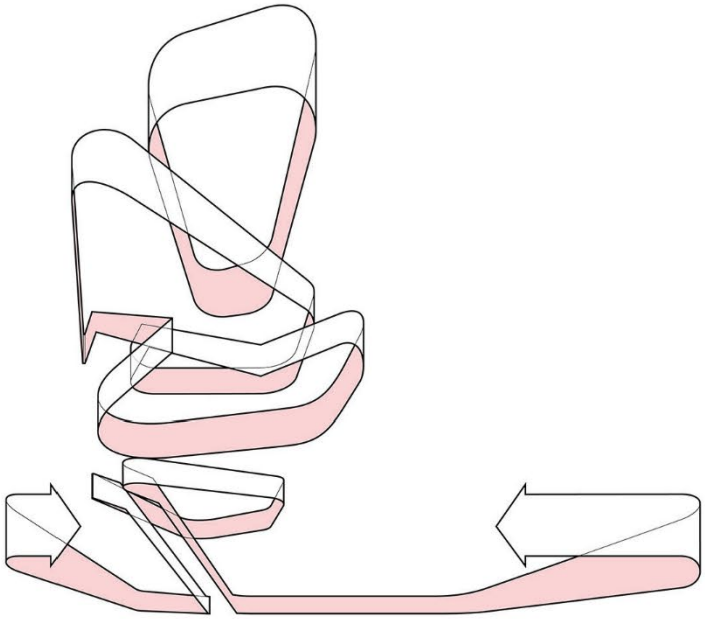


Design Solution

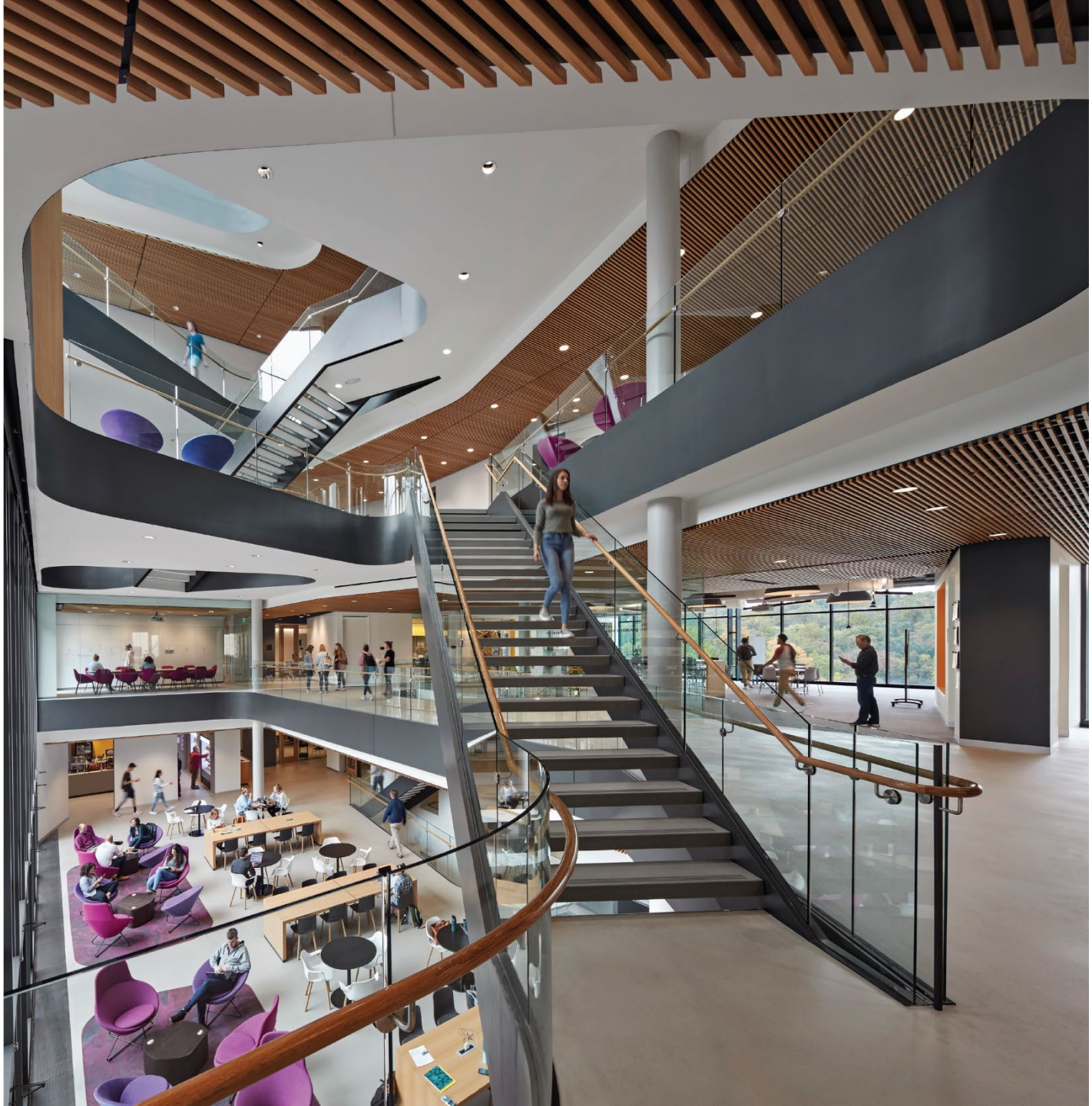
VERTICAL COMMONS



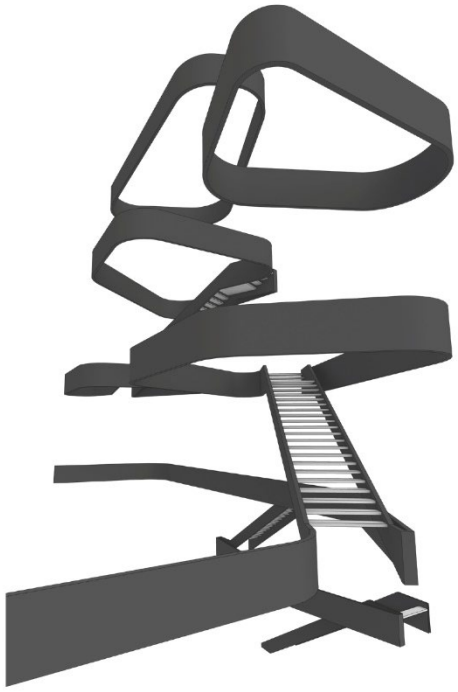
Floor openings shift and spread between levels



Visually unified through continuous expression

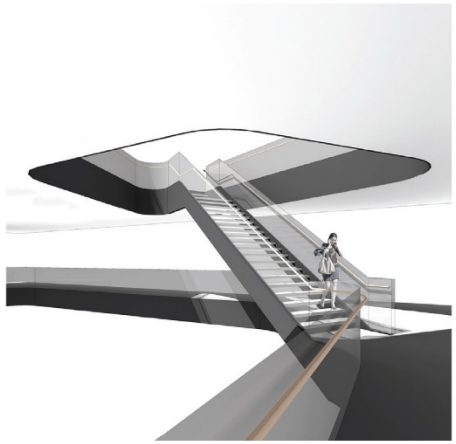


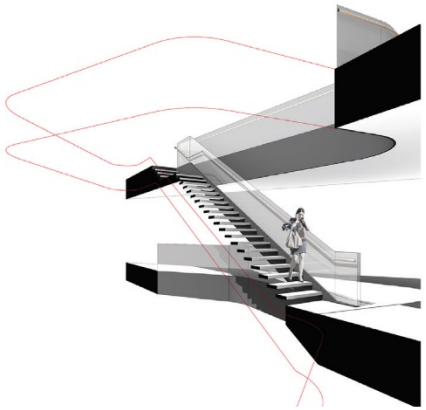
RIBBON AS CONNECTOR



"This collaboration space, this building, attests to dreams far beyond our imagining. That will resonate with not only our current students, but those yet to arrive here. For them, thank you."

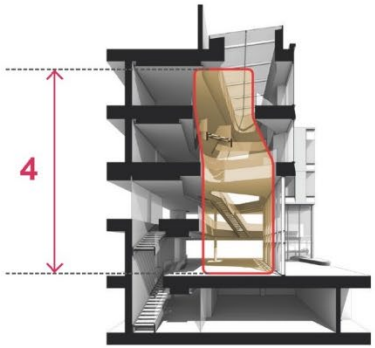
LAURIE CASLAKE
BIOLOGY PROFESSOR, DEPARTMENT HEAD



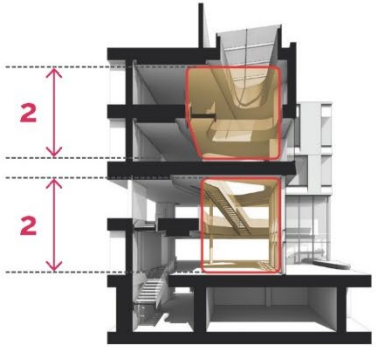


Stair landings concealed in continuous ribbon

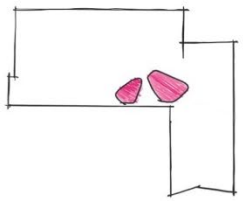
SCALES OF INTIMACY



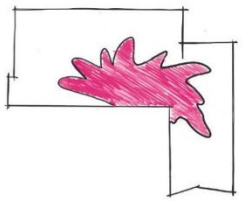
Single spatial volume connects all four floors



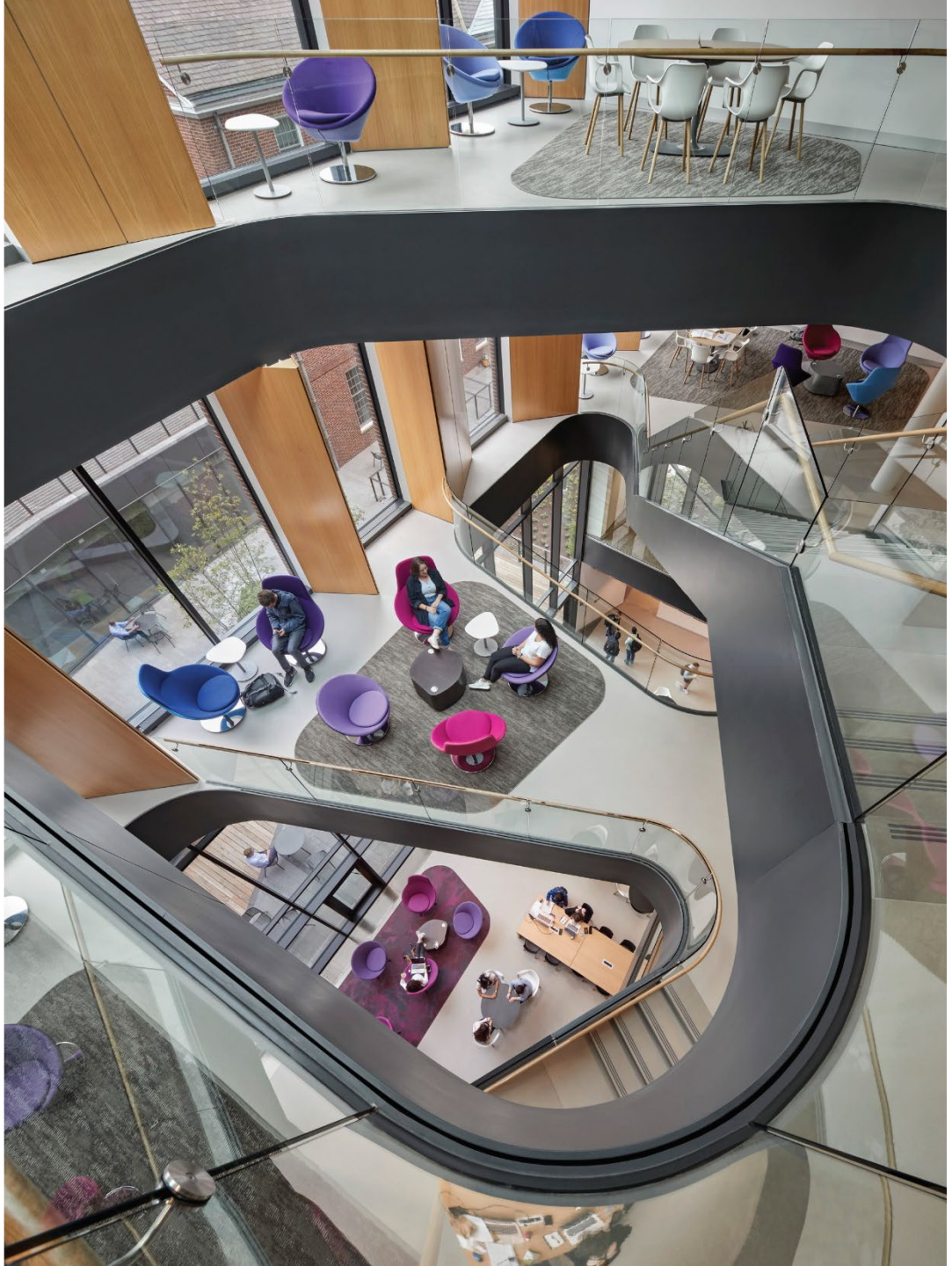
Study spaces on L4 and L5 distinct from main commons



Reality
Modest footprint and small openings



Perception
Expansive and connecting space

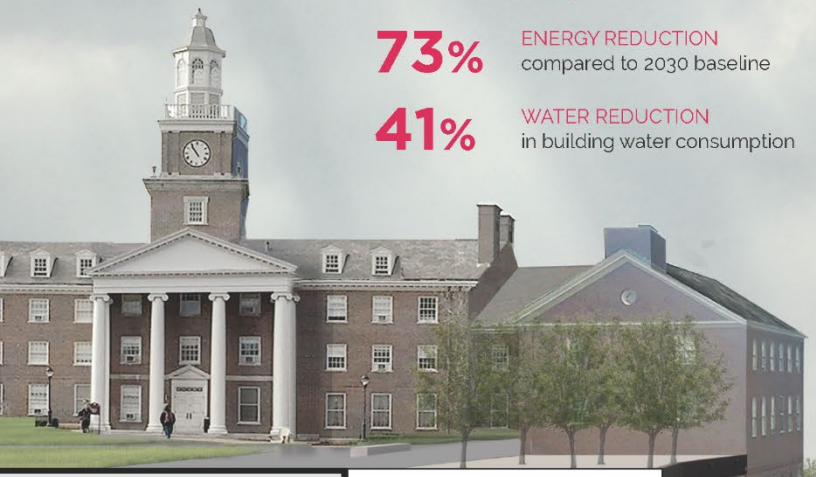


LEED PLATINUM CERTIFIED

77 kBtu/sf

73% ENERGY REDUCTION
compared to 2030 baseline

41% WATER REDUCTION
in building water consumption



ATRIUM AND ENERGY

1 SKYLIT ATRIUM AND PERFORATED FLOORS
Balanced daylight for visual comfort and maximized productivity

2 HEAT RECOVERY
Enthalpy waste heat captured for preheating outside air

3 HIGH PERFORMANCE FILTERED FUME HOODS
Calibrated to research, allowing for minimized air changes and energy consumption

4 DEMAND CONTROL VENTILATION
Reduce heating and cooling energy by decoupling ventilation from process, occupant and air change loads

5 AIR QUALITY MONITORING AIRCUITY
CO2 and hazardous chemical monitoring integrated into optimized air delivery and purge safety modes

6 COMMUNICATING STAIRS
Emphasize active movement through the building over the passive vertical transportation systems

7 LIGHTING CONTROLS
Light level and occupant sensing tied to daylight monitoring

8 HEAT SHIFT CHILLER
Free energy source for concurrent heating and cooling needs across seasonal variation of primary load demand

9 HIGH EFFICIENCY LAB EQUIPMENT
Minimizes energy consumption

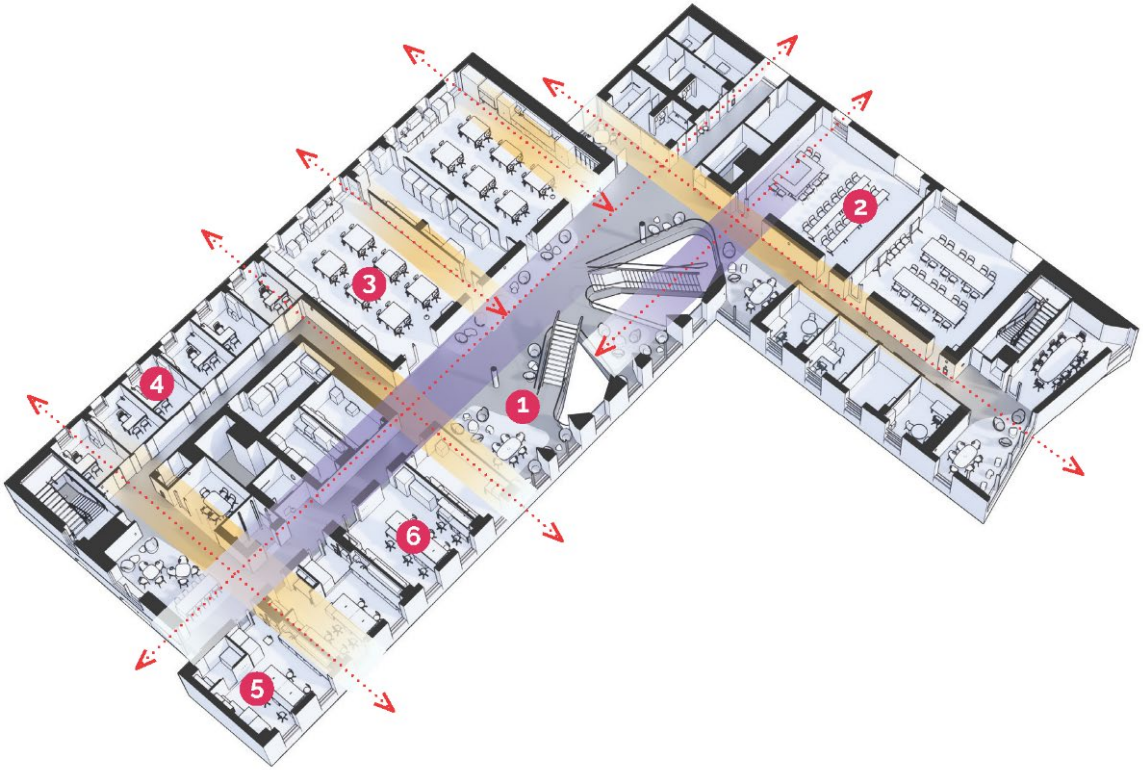
10 AUTOMATED INTERIOR SHADES
Deployed sequentially to maximize views and capture heat between shading and glazing

"The Rockwell Center is a game-changer for the sciences at Lafayette. The clear walls and the flow of the building put the work of research and learning on full display, and the open spaces facilitate frequent interactions and collaboration among students and faculty, outside of the classroom. The building puts students first."

NANCY WATERS, BIOLOGY PROFESSOR

LIVING LABORATORY

LAYERED TRANSPARENCY

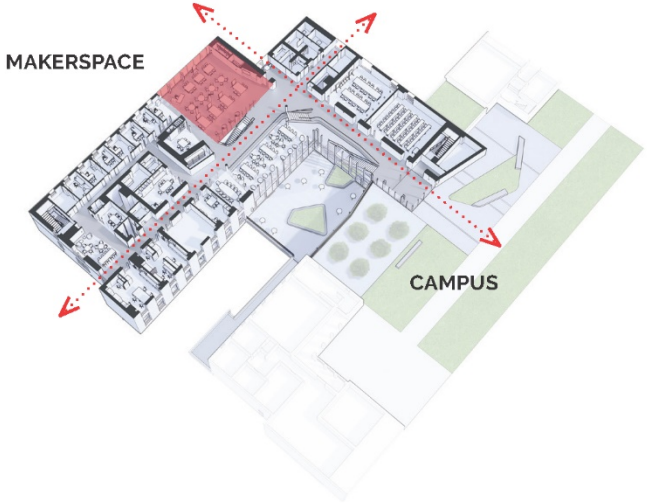


TYPICAL RESEARCH FLOOR ORGANIZATION

1 Commons
2 Classrooms
3 Teaching Labs
4 Faculty Offices
5 Wet Research Labs
6 Computational Lab

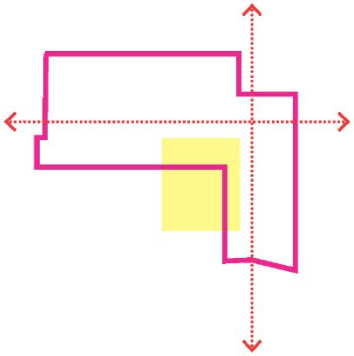
INITIMATE STUDY

MAKERSPACE & COLLABORATION



Visually connected to campus and context

HEART AT THE CROSSROADS



LEVEL TWO

LEVEL THREE

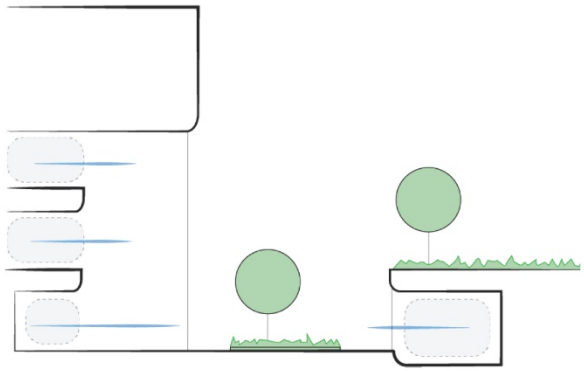
LEVEL FOUR

LEVEL FIVE

FLOOR PLANS

1 Offices
2 Teaching Labs
3 Research Labs
4 Computational Lab
5 Classrooms
6 Vertical Commons
7 Courtyard
8 Closed Study (Conference Center)
9 Open Study
10 Makerspace
11 Future Growth Labs
12 Support

LANDSCAPED COURTYARDS



CONTEXT RESPONSIVE SITE DESIGN

1 BIRD SAFE GLAZING
Custom Frit Glazing with building wide America Bird Conservancy Avoidance Index of 76%

2 GREEN ROOF
Over engineering labs connects back to campus with plantings adapted to Easton, PA environment

3 LOWER COURTYARD
Featuring native and adaptive plantings

4 OUTDOOR CLASSROOM
With blackboard, seating, power and wifi infrastructure

5 NATIVE NON FOOD BEARING PLANTINGS
Reducing irrigation need and discouraging bird proximity to glazing for increased safety

6 VIEWS TO EXTERIOR
92% of regularly occupiable spaces have visual connection to the rest of campus

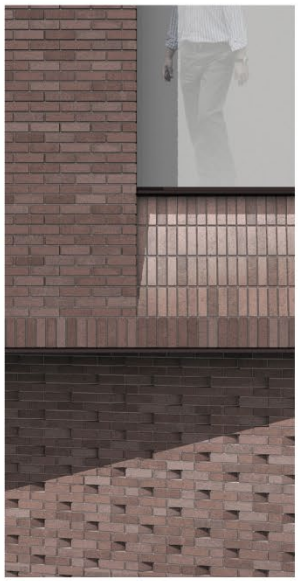
7 POROUS PAVEMENT
Reducing storm water run-off

8 BENCHES AND FLEXIBLE SEATING
At multiple levels around the site activate exterior rooms

9 STORMWATER BEST MANAGEMENT PRACTICES
Swales and berms slow the speed of the water increasing the ability to infiltrate, collect and limit run-off

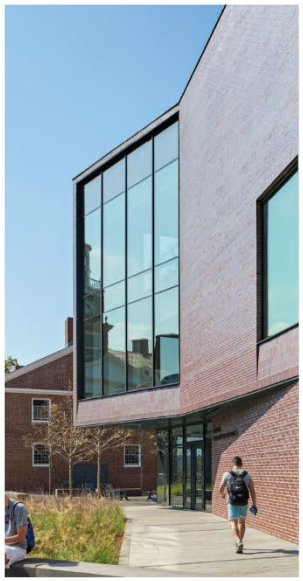
10 SITE TREES
At all levels of landscape improve occupant comfort

CONTEXT RESPONSIVE FAÇADE DESIGN



REDUCTIVE DETAILING

Intently minimal brick details include concealed window jambs, crisply folded brick sills, and dimensionally unfamiliar expression at the masonry corners and copings.

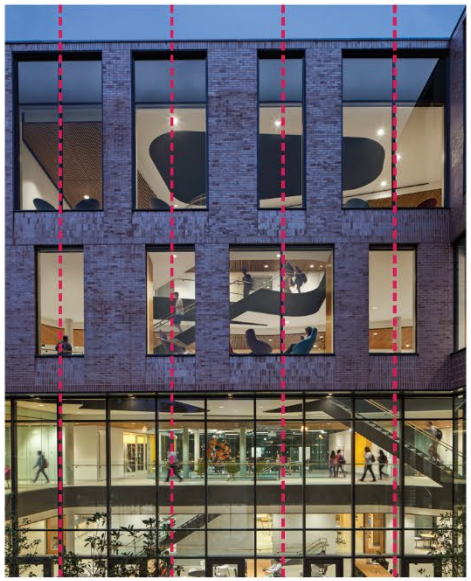


REFERENTIAL MATERIALITY

Extruded iron spot bricks reference the tonality of adjacent buildings yet embrace a contrasting crispness and reflectivity that varies with the light throughout the day.

FRITTED BIRD SAFE GLAZING

Custom ceramic frit dot pattern calibrated to provide total building Bird Safety Avoidance Index over 75% reduces solar gain, maintains visual connections from the interior and blends clear and spandrel glazing.

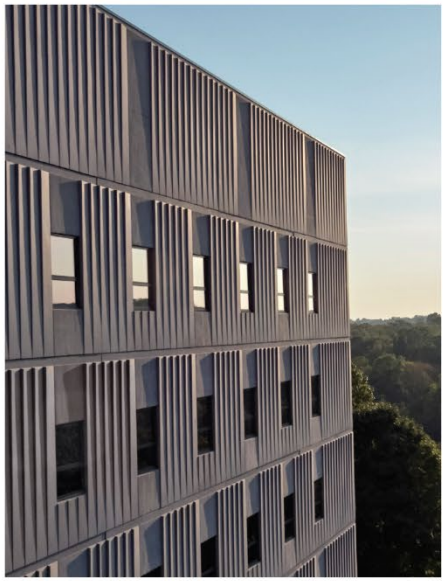


EMBRACING SYMMETRY

Nodding to the rigorous symmetrical order of its more classical neighbors, window heights vary from floor to floor, always embracing centered symmetrical order.

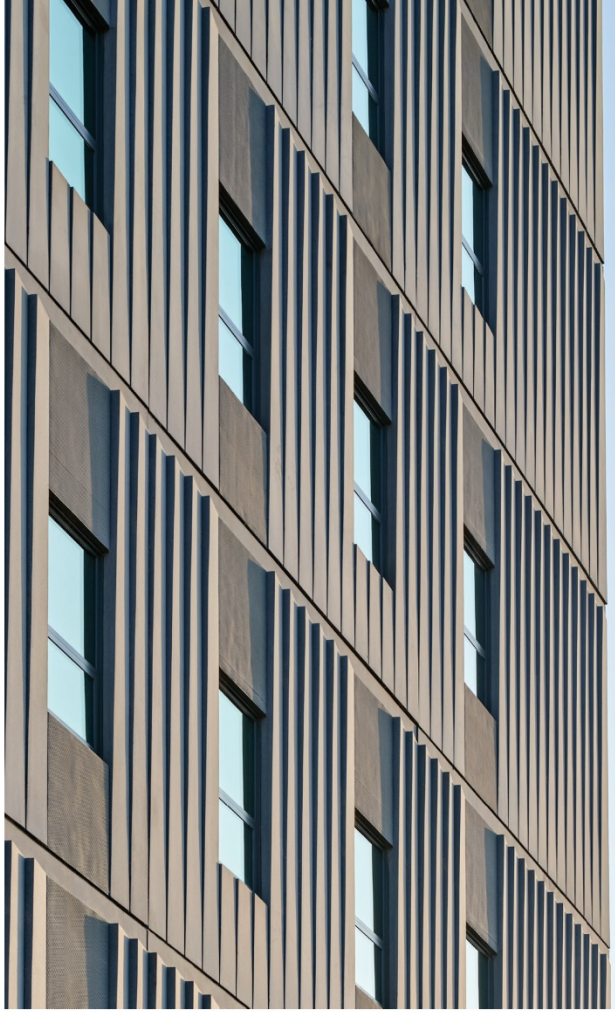
REDUCED GLAZING TO WALL RATIO

Building wide window-wall ratio of 24% for optimized envelope thermal performance and reduced bird collision threat.

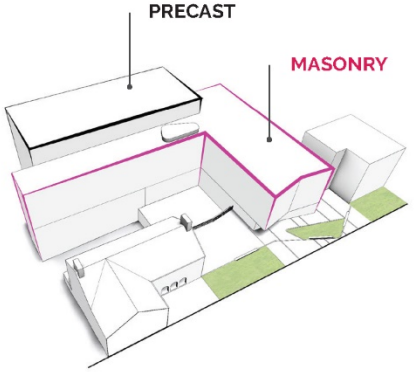


OPERABLE PUNCHED WINDOWS

Operable north-facing office windows sized and located for optimized daylight autonomy (86%) and maximized thermal comfort.



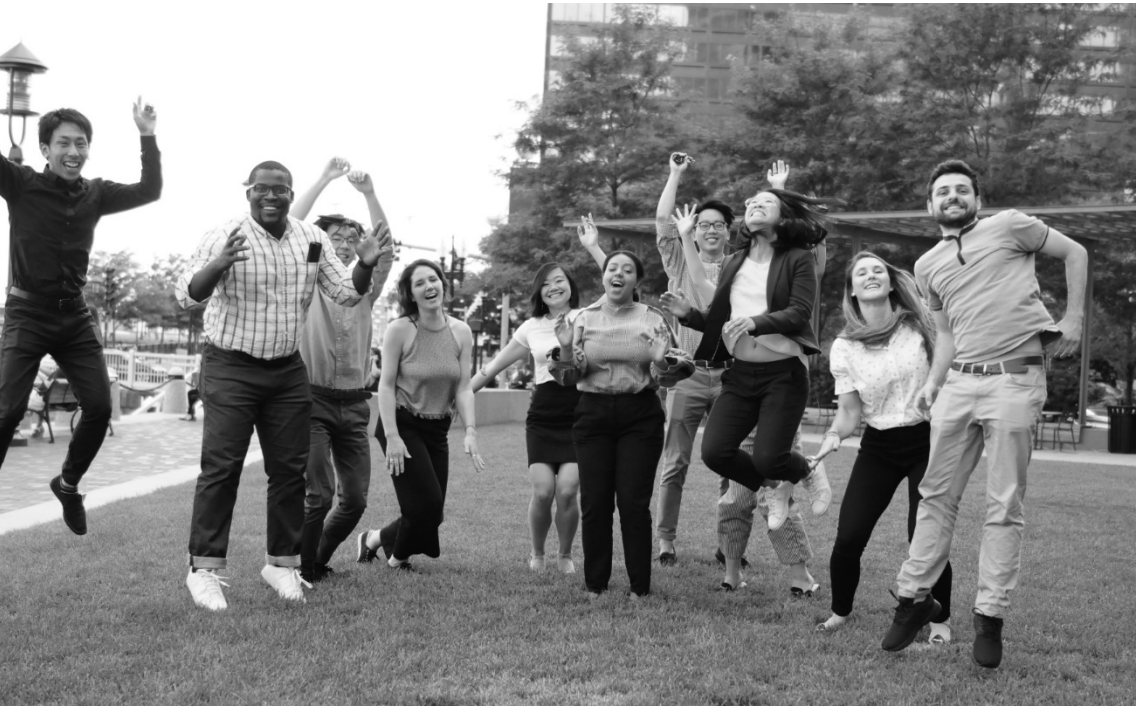
SCALE SHIFT




LAFAYETTE
ROCKWELL
INTEGRATED SCIENCES CENTER

Conclusion

1. Create a successful, collaborative, **entrepreneurial culture**
2. **Empower the next generation** of leaders
3. Focus on a **healthy dynamic** between expertise and innovation
4. **Diversity = Innovation = Excellence**



Have fun. Do great architecture. Make a difference.

This concludes the presentation.

The American Institute of Architects Continuing Education Systems Course

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