

FORBES SOUTH SITE DESIGN STUDY

NEW MELLON COLLEGE OF SCIENCE HALL & SCHOOL OF MUSIC OPERA HOUSE



Carnegie Mellon University | School of Architecture | August 2020 | Isabella Ouyang

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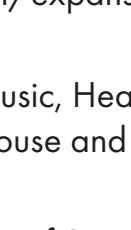
1.1 INTRODUCTION

This report documents the research and speculative designs for a site in Pittsburgh's Oakland Civic Center at the intersection of Forbes Avenue and South Craig Street, owned by Carnegie Mellon University. It follows the University's master plan for a building of no more than 435,000 square feet and 10 stories in height, as well as massing setbacks adjacent to the Carnegie Museum of Art and along Forbes Avenue. This research and design project was conducted as an Advanced Synthesis Options Studio in the School of Architecture. The design team is comprised of four fifth-year Bachelor of Architecture and one second-year Master of Architecture students led by a School of Architecture faculty member and supported by a team of six expert consultants and a larger group of 10 clients and stakeholders who were interviewed and participated in design reviews.

1.2 TEAM

PROFESSOR

Hal H. Hayes, AIA



Hal Hayes

STUDENTS

Edward Fischer: a rising fifth-year B.arch student

Martin He: a rising fifth-year B.arch student

Zehui Li: a rising second-year M.arch student

Isabella Ouyang: a rising fifth-year B.arch student

Crystal Xue: a rising fifth-year B.arch student

EXPERTS TEAM

S. Leonard Auerbach: Auerbach Pollock & Friedlander, Founder & Director of Design.

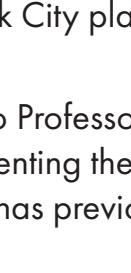
Len is an expert theater designer and founder of one of the largest theater consultancies in the world. He is also an alumnus who led the development of and supports the Theater Architecture program. He will lecture on the practice of theater architecture consulting and key principals of the building typology and planning process.



Len Auerbach

Richard Block: CMU School of Drama Associate Head and Professor

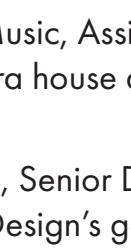
Dick co-teaches Theater Architecture and will participate in weekly individual student crit sessions and lecture on the history of theater and performance types. He will also be a client representing the School of Drama for a gallery of their design work (set design, lighting, costumes) and/or a flexible media-intensive performance space supplementing their current venues.



Dick Block

Jessica Bowser Arie: CMU Heinz College Master of Arts Management Program, Director

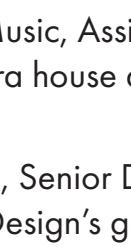
Jessica Bowser Arie, CMU Heinz College Master of Arts Management Program, Director. Jessica is an expert in professional arts management with diverse experience, including; box office manager for NYC's famed Roundabout Theatre Company, founding member of the Off-Off Broadway Confluence Theatre Company producing multimedia theatre, and manager of individual giving at the Children's Museum of Pittsburgh. She will lecture on the development, operations and administration of arts centers and will also be a client for the new MAM Training Center.



Jessica Bowser

Thomas Douglas: CMU School of Music Director of Opera Studies & Choral Activities

Thomas is a compelling and passionate conductor who has done more than 200 orchestral, musical theater, opera and oratorio productions.



Thomas Douglas

Nancy Felix: Mellon College of Science, Associate Dean

Vivian Loftness FAIA: CMU School of Architecture, University Professor and Track Chair for Building Performance and Diagnostics

Vivian is an internationally renowned expert in building systems, sustainability and human factors in design. She has previously studied this site in an ASO Studio for a mixed-use project including a master planning exercise. She will serve as a consultant and lecture on building systems and design for occupant wellness.

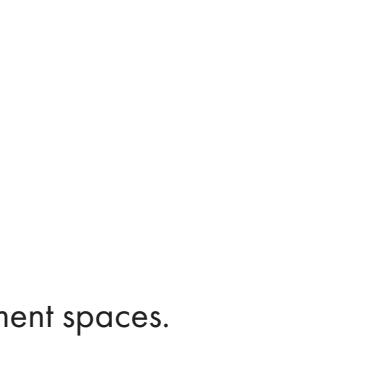


Vivian Loftness

CLIENTS/ STAKEHOLDERS GROUP

Elizabeth Chodos: Miller Institute of Contemporary Art, Director

Elizabeth is the client for the relocation/expansion of the Miller ICA.



Elizabeth Chodos

Dennis Colwell

Rebecca Doerge

Denis Colwell: CMU School of Music, Head

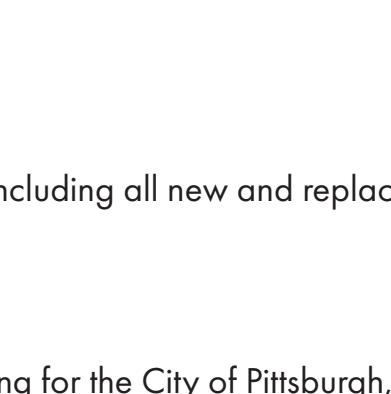
Denis is the client for the new opera house and all other School of Music facilities.

Rebecca Doerge: Mellon College of Science, Dean

Rebecca is the client for the relocation of primary operations for Mellon College including all new and replacement spaces.

James Duesing: Center for Art in Society, Director

Jim is the client for a new permanent facility for CAS.



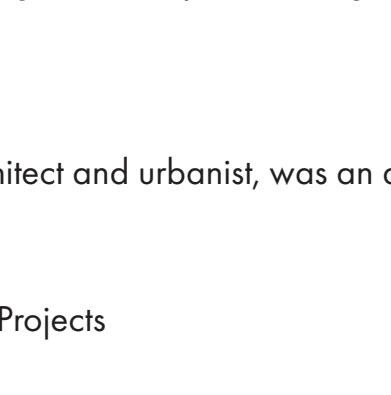
Thomas Douglas

James Duesing

Nancy Felix

Nancy Felix: Mellon College of Science, Associate Dean

Nancy is the fundraiser for the project and a client for the relocation of primary operations for Mellon College including all new and replacement spaces.



Ray Gastil

Jonathan Kline

Lance LaDuke

Ray Gastil: CMU Remaking Cities Institute Director

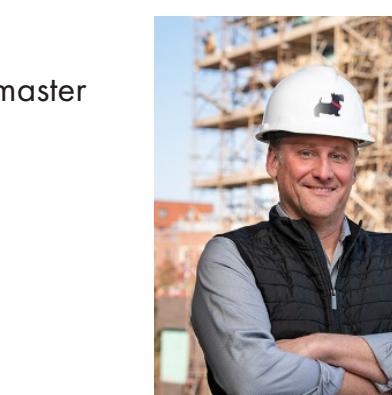
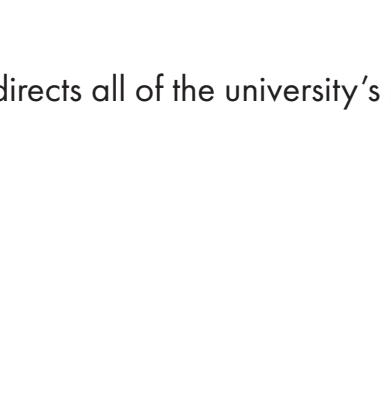
Ray is the stakeholder representing City Planning. He is an urbanist and was formerly the director of City Planning for the City of Pittsburgh, Seattle, and the Manhattan office of New York City planning.

Jonathan Kline: CMU SoA Studio Professor & Studio for Spatial Practice, Principal

Jonathan will be a stakeholder representing the Oakland Planning and Development Corporation. He is an architect and urbanist, was an author of the Oakland 2025 Master Plan, and has previously studied this site.

Lance LaDuke: CMU School of Music, Assistant Teaching Professor & Coordinator of Special and Creative Projects

Lance will be a client for the new opera house all other School of Music facilities.



Bob Reppe

Raymund Ryan

Keith Webster

Bob Reppe: CMU Campus Design, Senior Director of Planning & Design

Bob is the representative of Campus Design's goals for this specific site and all campus projects in general. He directs all of the university's master planning and design projects, and is the former zoning administrator for the City of Pittsburgh.

Raymund Ryan: Carnegie Museum of Art Heinz Architectural Center (HAC) Curator

Ray is the client for the relocation/expansion of HAC and bring a perspective from the Carnegie Museums.

Keith Webster: CMU Dean of Libraries & Director of Emerging and Integrative Media Initiatives

Keith is the client for the new IDEATE & Integrated Innovation Institute facilities and will also advise on the design of interdisciplinary learning spaces.

1.3 PROJECT BRIEF

This mixed-use development is primarily comprised of a major new laboratory facility and administrative hub for Mellon College of Science and an Opera House for the School of Music. Additional major program components include the relocation and expansion of IDeATe, the Miller Institute for Contemporary Arts, the Integrated Innovation Institute, a full service restaurant, and possibly the relocation of the CMoA's Heinz Architecture Center.

1.3.1 Mellon College of Science. The program for the lab facility was provided by Mellon College and has been the subject of previous professional design studies by CMU Campus Design.

1.3.2 School of Music Opera House. The program for the opera house and its support facilities was developed by the studio research/design team in consultation with the expert consultants, clients and stakeholders.

1.3.3 IDeATe,

1.3.4 Miller ICA,

1.3.5 Panther Hollow Inn,

1.3.6 Heinz Architecture Center,

1.3.7 Other Uses (III, Lunar Gala, CFA Exhibition, etc.

Space Name	Code	Unit	Occupants	Net Area (ft²)	Gross Area (ft²)	Description						
School of Music Opera House	M			30,685	50,630							
Front Of House	MF			4,485	7,367							
Foyer	MFF	1	50	500	825	Vestibule, security area for patrons to handle tickets for events (current or future); countered and staffed or electronic kiosks						
Box Office/Information	MFB	1	2	100	105	Cash Office/Mail Bookings Office separate space near ticketing office that is heavily secured as box office handles most of cash and credit						
Box Office Manager & House Manager Office	MFM	1		150	248	~1/4 of audience leave coats and speed is most important						
Coat Check	MFC	1		50	83	gathering space/waiting area for event - may act as circulation space either related to performance or owned by theater, possible display						
Lobby	MFL	1	150	2,250	3,713	space/wall filler or own space						
SoM Exhibition & Retail Space	MFE	1		250	413	Usher podium & audience queuing						
Usher Ticket Check	MFU	2		80	132	vestibule in front of house entry						
Sound and Light Lock	MFS	2		80	132	stocking and displaying variety of quick eats (flexible by event)						
Retail & Beverage Cart	MFR	2		80	132	storage for cleaning supplies						
Toilets	MFT	15		375	618	12 All-Gender WCs + 6 Lavatories						
Janitor's Closet	MFJ	1		50	83	case for emergency, positioned where full-length stretchers can be utilized						
First Aid/Idealization Room	MFI	1		250	413	storage solely for front of house events						
Storage	MFX	1		250	413	House	MH			3,190	5,264	
Audience Chamber	MHA	1	290	2,900	4,934	Flexible, can move up/down, can be used for piano and harp storage when not performing. Elevator platform accessing trap level, conductor stand, double door, folding chairs, music stands						
Control Booth	MHC	1		100	165	Flexible, can move up/down, can be used for piano and harp storage when not performing. Elevator platform accessing trap level, conductor stand, double door, folding chairs, music stands						
Sound Booth	MHS	1		100	165	Flexible, can move up/down, can be used for piano and harp storage when not performing. Elevator platform accessing trap level, conductor stand, double door, folding chairs, music stands						
Catwalk/Tension Grid	MHG	1		900	1,485	7ft off customized tension grid with pipe railings						
Stage	MS			8,160	13,484	Stage Proscenium	MSS	1		2,500	4,125	can be used for piano and harp storage when not performing. Elevator platform accessing trap level, conductor stand, double door, folding chairs, music stands
Orchestra Pit	MHD	1	30	360	584	Backstage	MBB	1		2,500	4,125	same size as performance area
Wing	MWS	2		2,500	4,125	Wing	MSW	2		2,500	4,125	1/2 width of performance area, minimum
Arbor	MSA	1		250	413	Stage Manager Position	MSM	1		50	83	Fully under the performance area a usage of orchestra pit
Trap/Understage Storage	MST	1		2,000	3,300	Fly Loft	MSF	1		2,500	4,125	5' catwalk around the fly loft perimeter plus 1 or 2 bridges parallel to proscenium in the center
Catwalk	MSC	1		900	1,485	Back Of House	MB			14,870	24,536	6' wide U-shaped corridor running behind the stage, connecting both sides of the stage to the green room and dressing rooms
Crossover Corridor	MBC	1		360	594	Rehearsal Room	MBR	1		2,500	4,125	as a break space for Production and Administration when not in use by Talent.
Green Room	MBC	1	20	400	660	Opera Star Dressing Rooms	MBD	3	1	300	495	Shared dressing room for costume changes and makeup application for up to 15 persons. May be designated by gender if desired. Ensuite WC
Opera Ensemble Dressing Rooms	MBD	2	8	800	1,320	Orchestra Locker Room/Instrument Storage	MBO	1	30	1,500	2,475	Shared dressing room for costume changes and makeup application for up to 15 persons. May be designated by gender if desired. Ensuite WC
Wardrobe/Costume Shop	MBW	1		2,200	3,630	Scene Shop	MBS	1		4,300	7,095	Shared dressing room for costume changes and makeup application for up to 15 persons. May be designated by gender if desired. Ensuite WC
Costume Storage	MBW	1		-	-	Wardrobe/Costume Shop	MBW	1		400	660	Open office area with room for up to 5 cubicals
Shop Offices	MBO	2		200	330	Storage (sound/lighting/projection)	MBX	1		200	330	Formal meeting space for SBC staff or visiting talent/artists; Can also be used for small, closed receptions
Storage (insets/platforms/stairs)	MEX	1		500	825	Storage (instruments)	MEX	1		400	660	Space to store lighting/sound and projection instrumentation for production.
Piano storage	MEP	1		50	83	Storage (instruments)	MEX	1		400	660	For grand piano only, close to the stage to minimize movement and need for re-tuning
Electrical/Dimmer Room	MEE	1		200	330	Amplifier room	MBA	1		50	83	Space for utilities to terminate and deviate throughout building
Amplifier room	MBA	1		100	165	IT/Server room	MBI	1		100	165	Isolated space for sound equipment
Meeting Room	MEM	1		250	413	IT/Server room	MBI	1		100	165	Dedicated space for data storage, telecommunications, and other technical equipment for administrative team
Water Closets	MBT	2		60	99	Meeting Room	MEM	1		250	413	Formal meeting space for SBC staff or visiting talent/artists; Can also be used for small, closed receptions
Stage Door	MBS	1		500	825	Water Closets	MBT	2		60	99	6m x 6m French door or Roll-up door for load-in to stage

Mellon College of Science	S		87,025	167,088
Laboratories	SL		37,520	
Research Labs	SLR		33,360	64,051
Teaching Labs	SLT		4,160	
Classrooms	SC		5,250	
Medium size, flat floor	SCM	10	25	3,250
Classrooms (raked)	SCL	4	50	2,000
Offices	SO		28,835	
Faculty	SOF	1		7,500
Entrepreneur/Malott's Temporary Offices	SOE	1		14,400
Graduate Student Spaces	SOG	1		14,640
Computational Biology HUB Suite	SOCB	1		2,285
Chemistry Dept HUB Suite	SOC	1		2,205
Biology Dept HUB Suite	SOB	1		2,205
Deans Suite	SD		4,200	
Deans Office	SDO	1		500
Bathroom	SDB	1		50
Executive Assistant to the Dean	SEDE	1		150
Conference Room	SDC	1		300
Kitchenette	SDK	1		100
Associate Deans Offices	SDA	3		900
Staff Offices	SDS	15		1,500
Mall/CopySupply Room	SDM	1		200
Lounge/Break Room	SDL	1		300
Storage	SDX	1		200
Miscellaneous	SM		11,220	
Social Spaces	SMS		6,420	Lounges, Huddle Spaces, etc.
Observatory	SMO			
Building Support	SMB		4,800	
Panther Hollow Inn - Restaurant	R		4,000	6600
Dining & Bar			3,000	
Kitchen & Storage			1,000	
IDeATe Hub & Maker Spces	I		20,000	33,000
Miller Institute for Contemporary Art	ICA		20,000	33,000
CMoA Heinz Architecture Center	HA		8,000	13,200
Exhibition Gallery	C		4,000	
Storage/Admin.			4,000	
CFA Schools Exhibition Studios	CFA		2,000	3,300
Heinz College Master of Arts Management Training Center	MA		1,000	1,650
Lunar Gala Design Studio & Student	LG		2,000	3,300
Integrated Innovation Institute	III		2,610	4,307
Center for Arts in Society	CAS		1,000	1,650
Common Core	C	floo	8,000	13,200
Mechanical Systems	CM		Part of Gross Floor Area	
Mechanical Equipment Room		1	1	
Chiller		1	1	
Vertical Circulation	CV		4,000	6,600
FOH Personnel Lift	Mf	3	4	1,980
FOH Stairs	MVs	2	4	2,640
BOH Personnel Lift	MVb	1	4	660
BOH Stairs	MVs	1	4	800
Service	CS		4,350	7,178
Receiving	MRp	2		1,320
Dumpster Staging	MRd	4		200
Loading Dock	MRI	1		150
Freight Lift	MRI	1	15	2,700
Receiving Storage	MRs	1		500
TOTAL			181,320	317,725

Hamerschlag Atrium

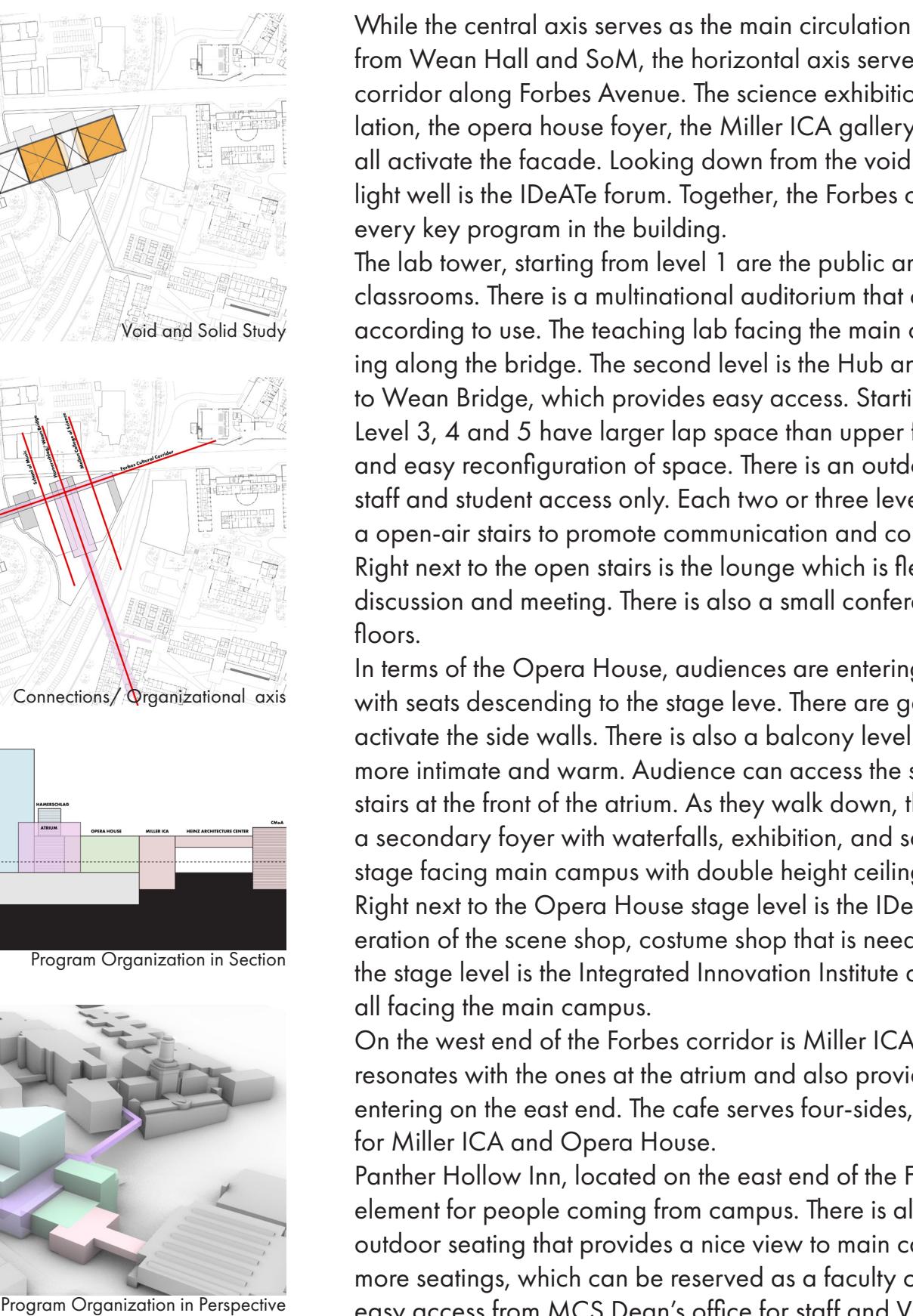
- the harmony between SCIENCE and ART

PROJECT NARRATIVE

My design concept seeks to facilitate and further develop the nascent symbiotic relationship of Science and Music at CMU. The two programs, sitting parallel to one another like counterpoint in music, are harmonically interdependent yet independent in rhythm and melodic contour. The Mellon College of Science on the east acts as the soprano voice while the School of Music on the west acts as the bass voice. The circular stairs on each side of the central atrium reinforces the conversation of the two studies. Together they compose a harmony between interdisciplinary studies as diverse as laboratory research and conservatory training as the essential, exceptional strength of CMU. The central view corridor, a divider but also a blender of two voices, embraces and transmits the reverberation of these two voices to the CMU main campus.

The project is organized around an axial view corridor to Hamerschlag Hall, the iconic building of the Hornbostel campus. Flanking each other across this axis is a new flexible laboratory building for Mellon College of Science on the east and an opera house for the school of Music on the west. The center axis extends to north of Forbes which is the university's future development site there through a tunnel on the lower level and continues to the south, the main campus, with a shirt sleeve connection bridge tucking directly into Wean hall across Junction Hollow. Connecting from the east side (the CIC building) is the Panther Hollow Inn, which brings in the students and faculties coming from main campus. Along this axis are the lobby for Science and foyer for Opera House. At the end of the horizontal axis is the Miller ICA and a bridge which hosts Heinz Architecture Center and connects to the Carnegie Museums on the west. The horizontal axis as a whole vitalizes Forbes avenue and enriches the cultural corridor from Oakland.

DIAGRAMS



PROJECT DESCRIPTION

While the central axis serves as the main circulation from main campus, especially from Wean Hall and SoM, the horizontal axis serves more as an extension of cultural corridor along Forbes Avenue. The science exhibition, the spiral stairs for atrium circulation, the opera house foyer, the Miller ICA gallery and the Heinz Architecture center all activate the facade. Looking down from the void of the spiral stairs and the central light well is the IDeATe forum. Together, the Forbes corridor provides a front door for every key program in the building.

The lab tower, starting from level 1 are the public areas such as medium to large classrooms. There is a multinational auditorium that can be divided and combined according to use. The teaching lab facing the main campus is visible for students walking along the bridge. The second level is the Hub and Deans' Suite, connecting right to Wean Bridge, which provides easy access. Starting from level 3 are the lab levels. Level 3, 4 and 5 have larger lap space than upper floors, providing more flexibility and easy reconfiguration of space. There is an outdoor lounge on Level 6 with MCS staff and student access only. Each two or three levels of lab floors are connected by open-air stairs to promote communication and collaboration among grad students. Right next to the open stairs is the lounge which is flexible for grad students to have discussion and meeting. There is also a small conference room for every two to three floors.

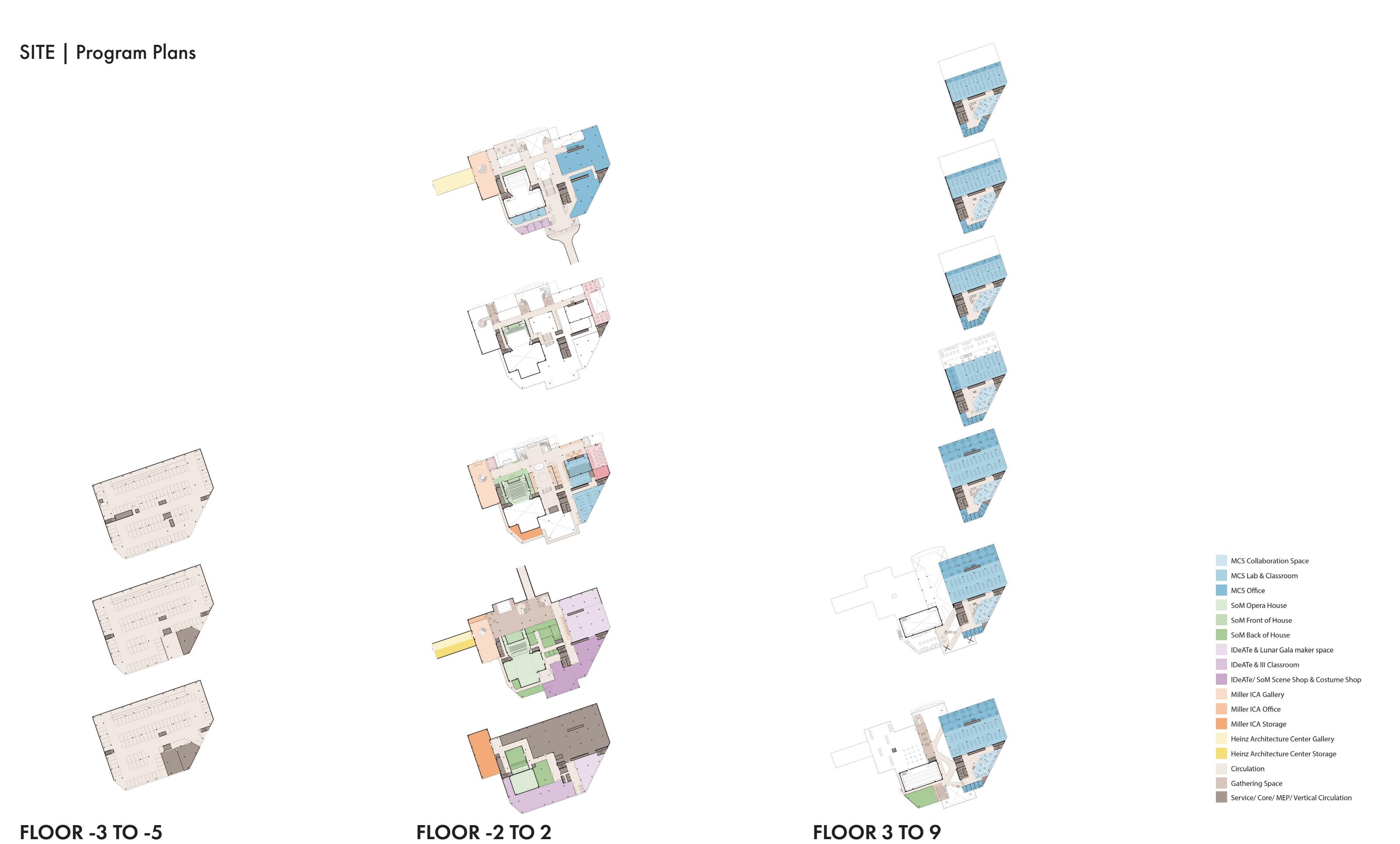
In terms of the Opera House, audiences are entering from the back of the chamber with seats descending to the stage level. There are gallery seatings on two sides to activate the side walls. There is also a balcony level that shapes the chamber to feel more intimate and warm. Audience can access the stage level from the grand circular stairs at the front of the atrium. As they walk down, there is a display for costume and a secondary foyer with waterfalls, exhibition, and so on. The scene shop is at the back stage facing main campus with double height ceilings.

Right next to the Opera House stage level is the IDeATe workspace. It allows easy operation of the scene shop, costume shop that is needed for Opera production. Under the stage level is the Integrated Innovation Institute and Lunar Gala studio, which are all facing the main campus.

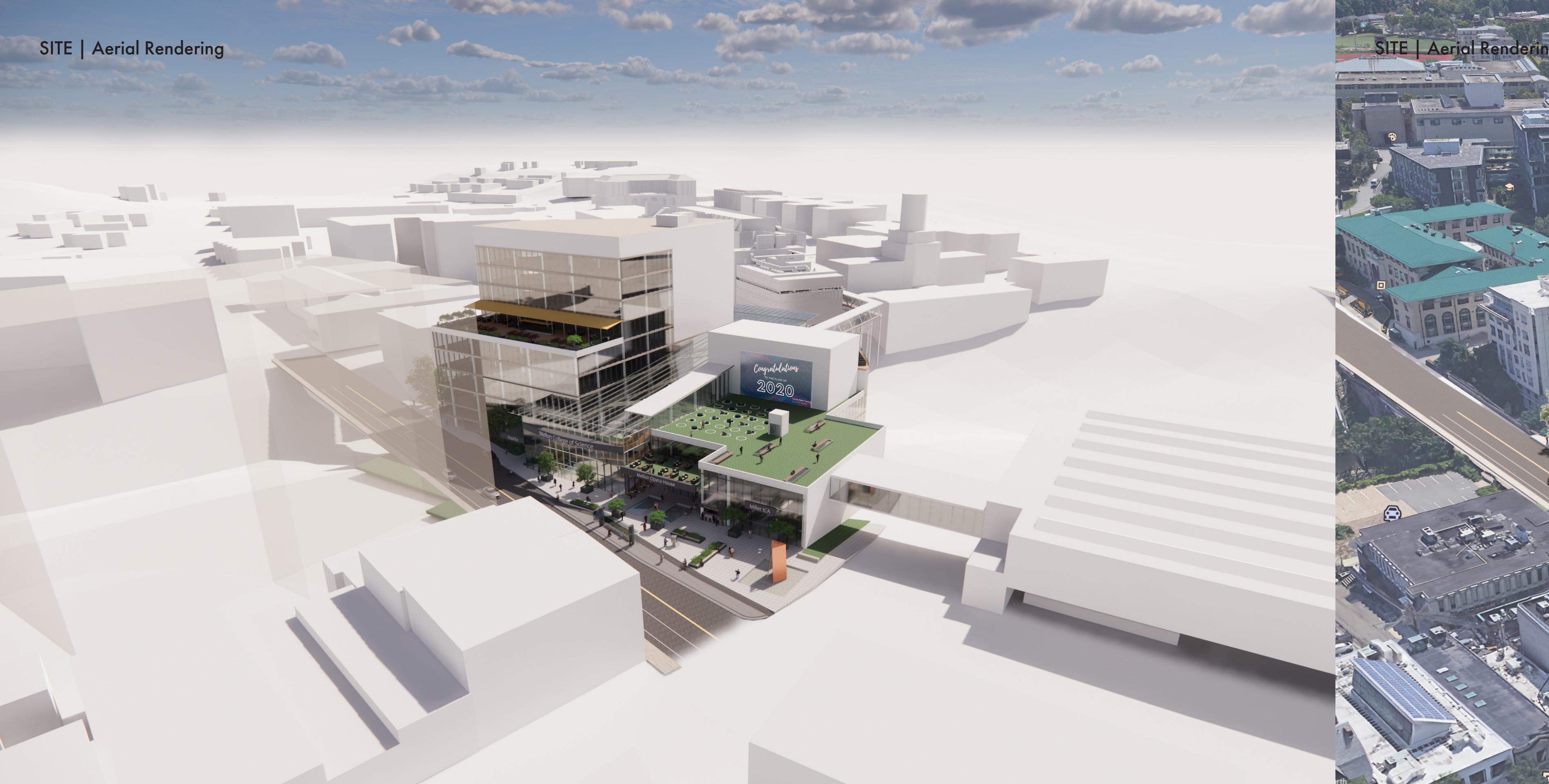
On the west end of the Forbes corridor is Miller ICA. The Circular staircase at the end resonates with the ones at the atrium and also provides a visual destination for people entering on the east end. The cafe serves four-sides, both indoor and outdoor, mainly for Miller ICA and Opera House.

Panther Hollow Inn, located on the east end of the Forbes Corridor is the main visual element for people coming from campus. There is also a beer garden downhill for outdoor seating that provides a nice view to main campus. The mezzanine floor have more seatings, which can be reserved as a faculty club that provides a nice view and easy access from MCS Dean's office for staff and VIPs.





SITE | Aerial Rendering



CARNEGIE MELLON UNIVERSITY SCHOOL OF ARCHITECTURE



FORBES-CRAIG DEVELOPMENT

2.0 DESIGN PROPOSAL | Isabella Ouyang

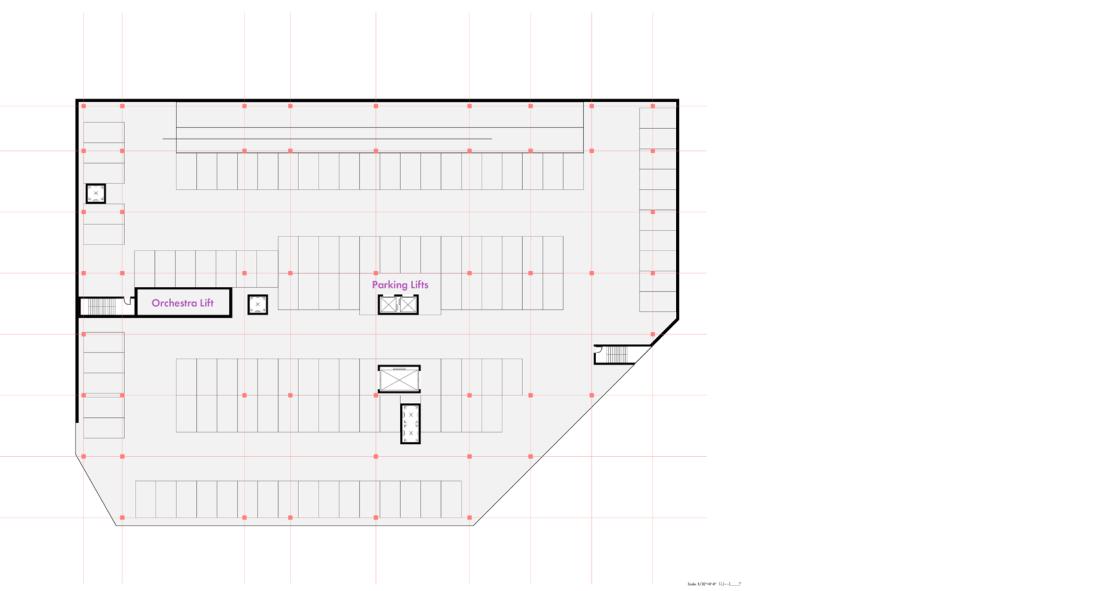
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BUILDING | Plans

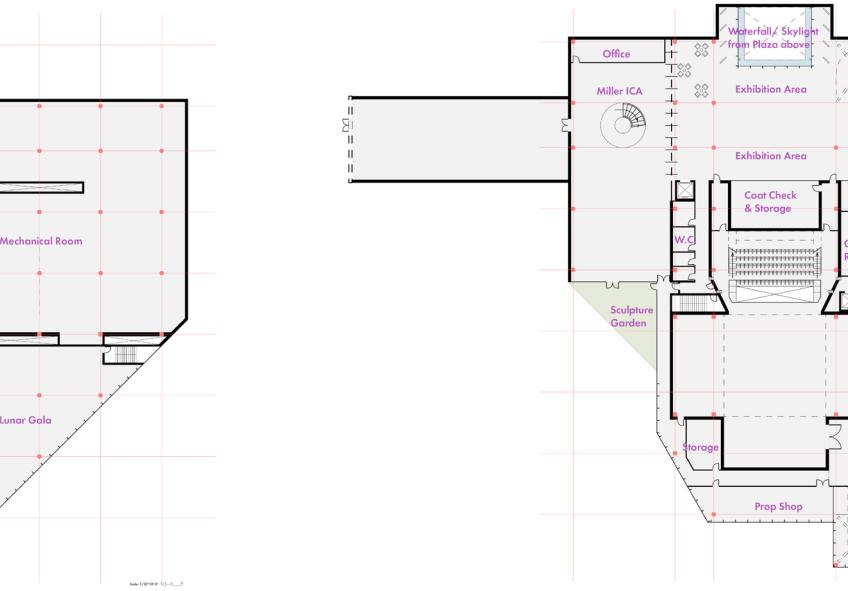
-5 (&-4 sim.) PARKING B2&B3 (-60'-0")



-3 PARKING B1 (-40'-0")



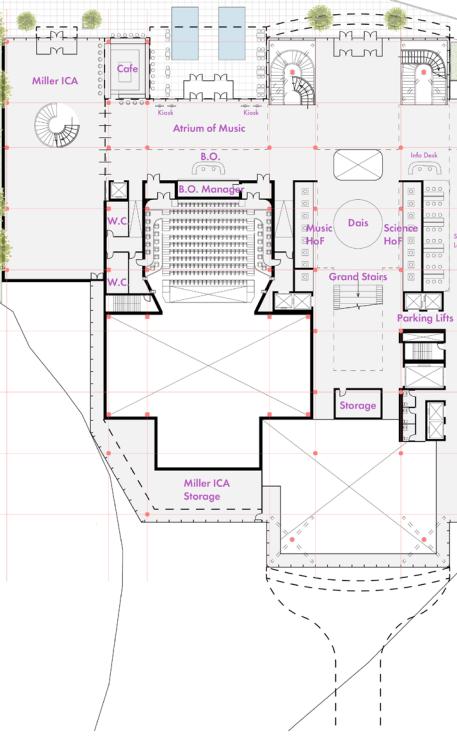
-2 PIT LEVEL (-30'-0")



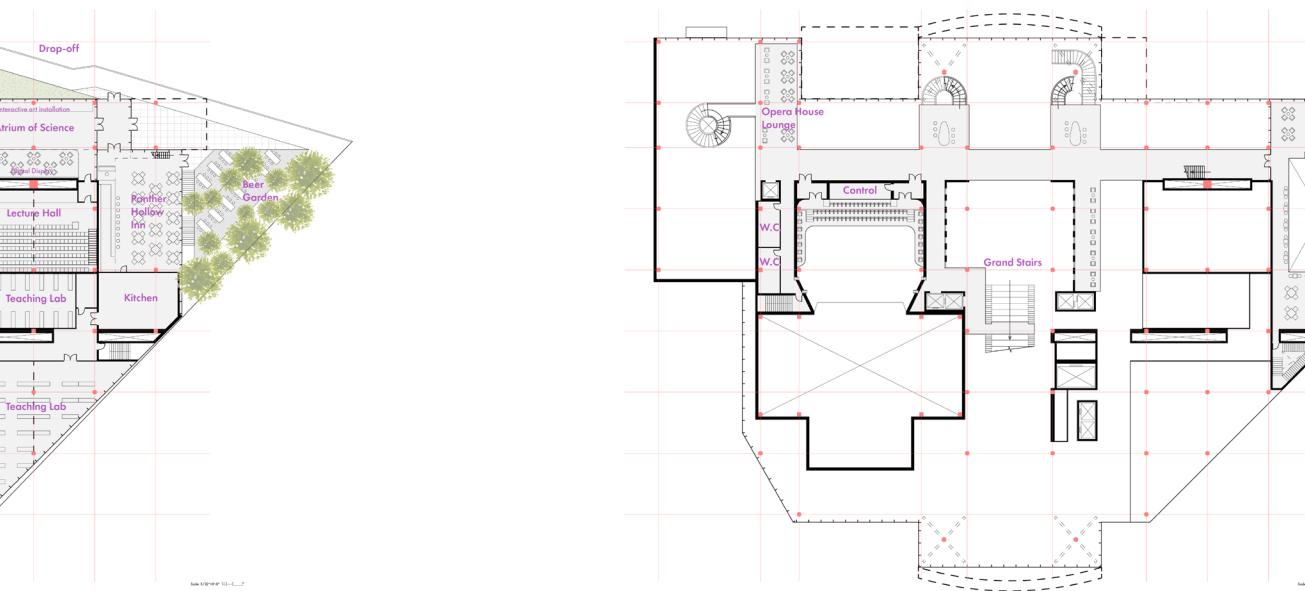
-1 IDEATE/ STAGE LEVEL (-15')



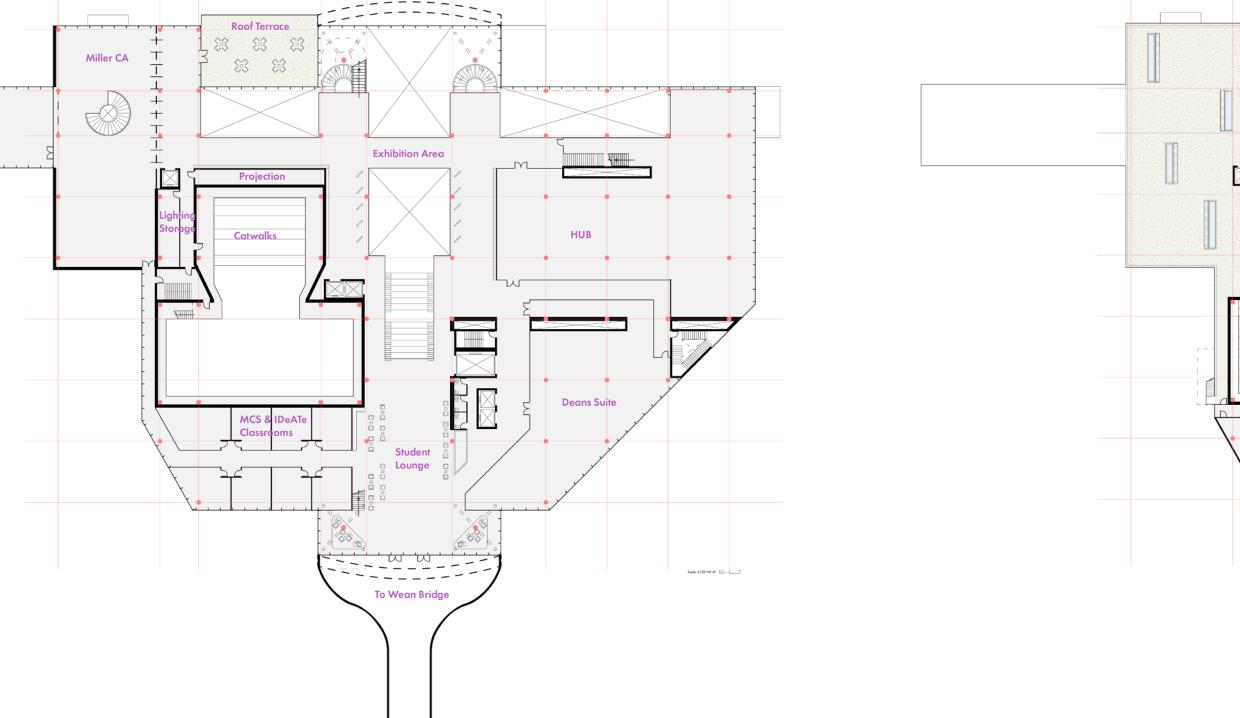
1 FORBES LEVEL (0')



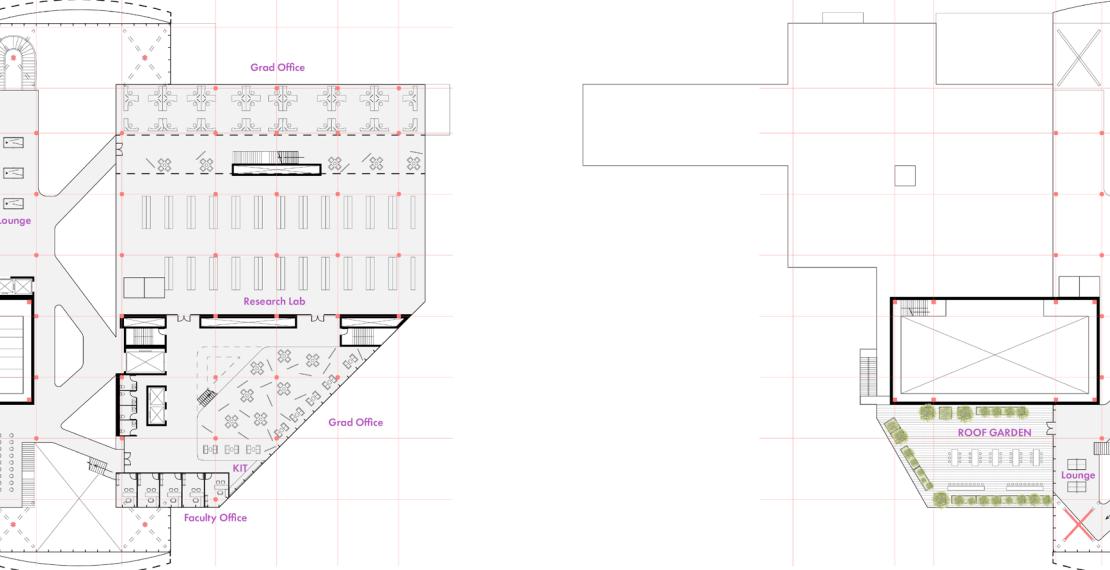
1.5 MEZZANINE LEVEL (+10')



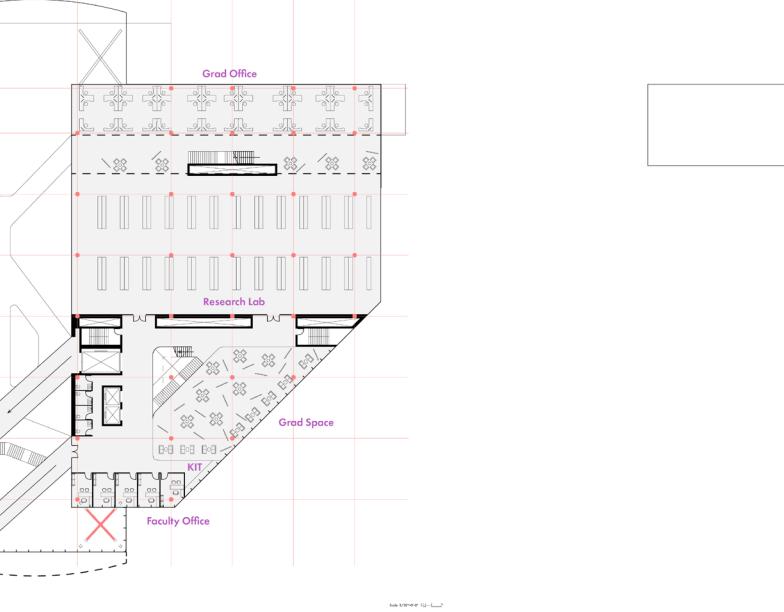
2 WEAN BRIDGE LEVEL (+20')



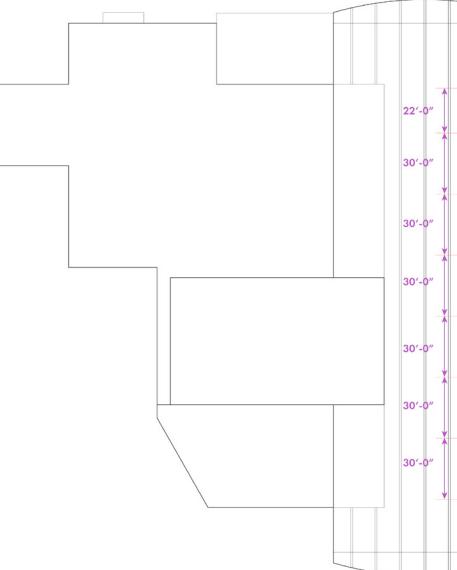
3 ROOF AMPHITHEATER LEVEL (+35')



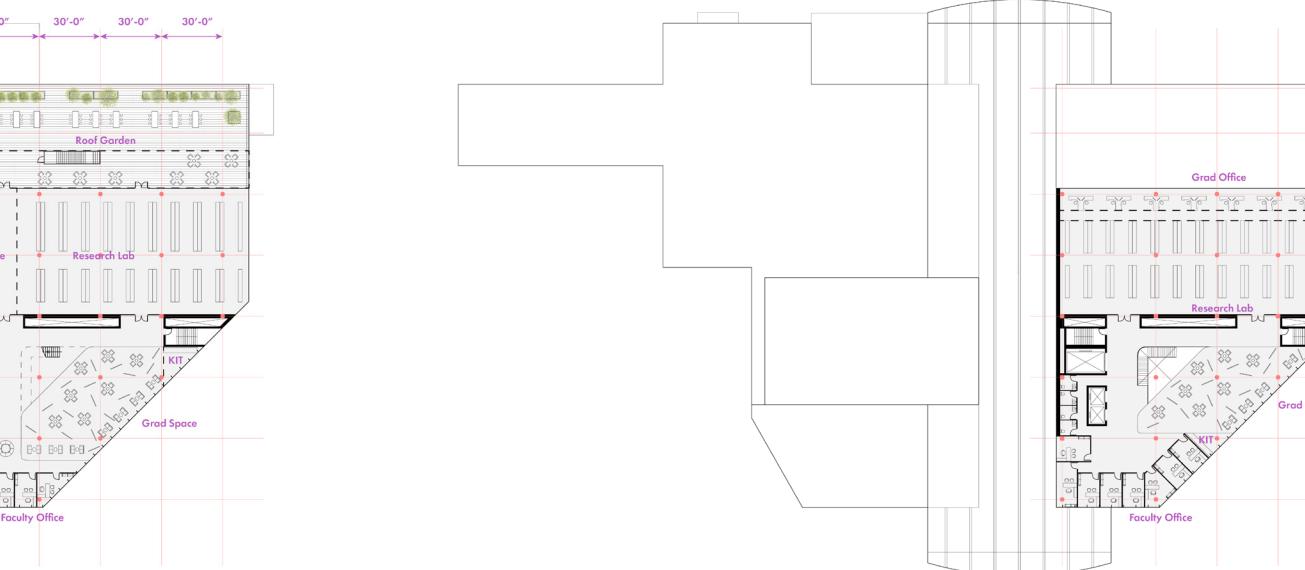
4 (&5 sim.) LAB LEVELS (+65')



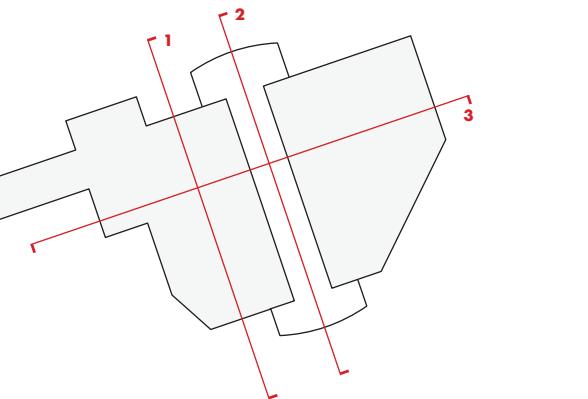
6 (&8 sim.) Lab Levels (+95')



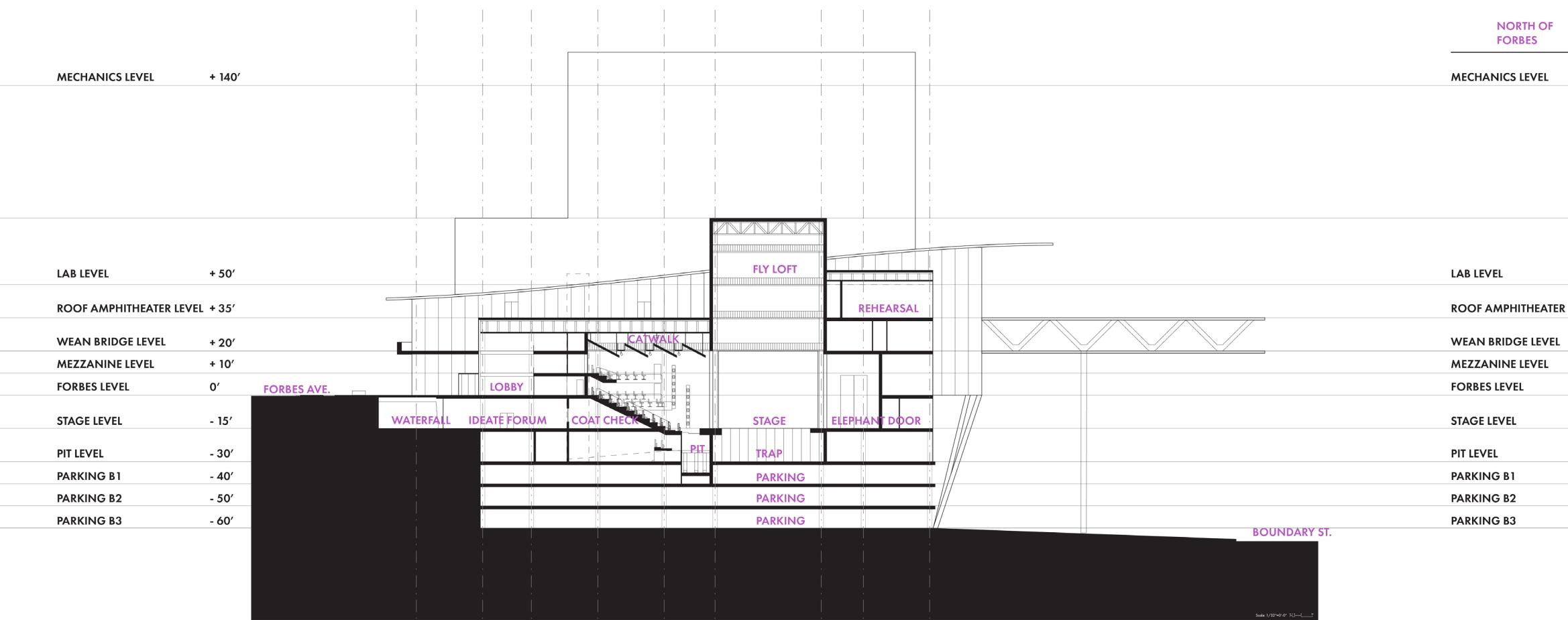
7&9 Lab Levels (+140')



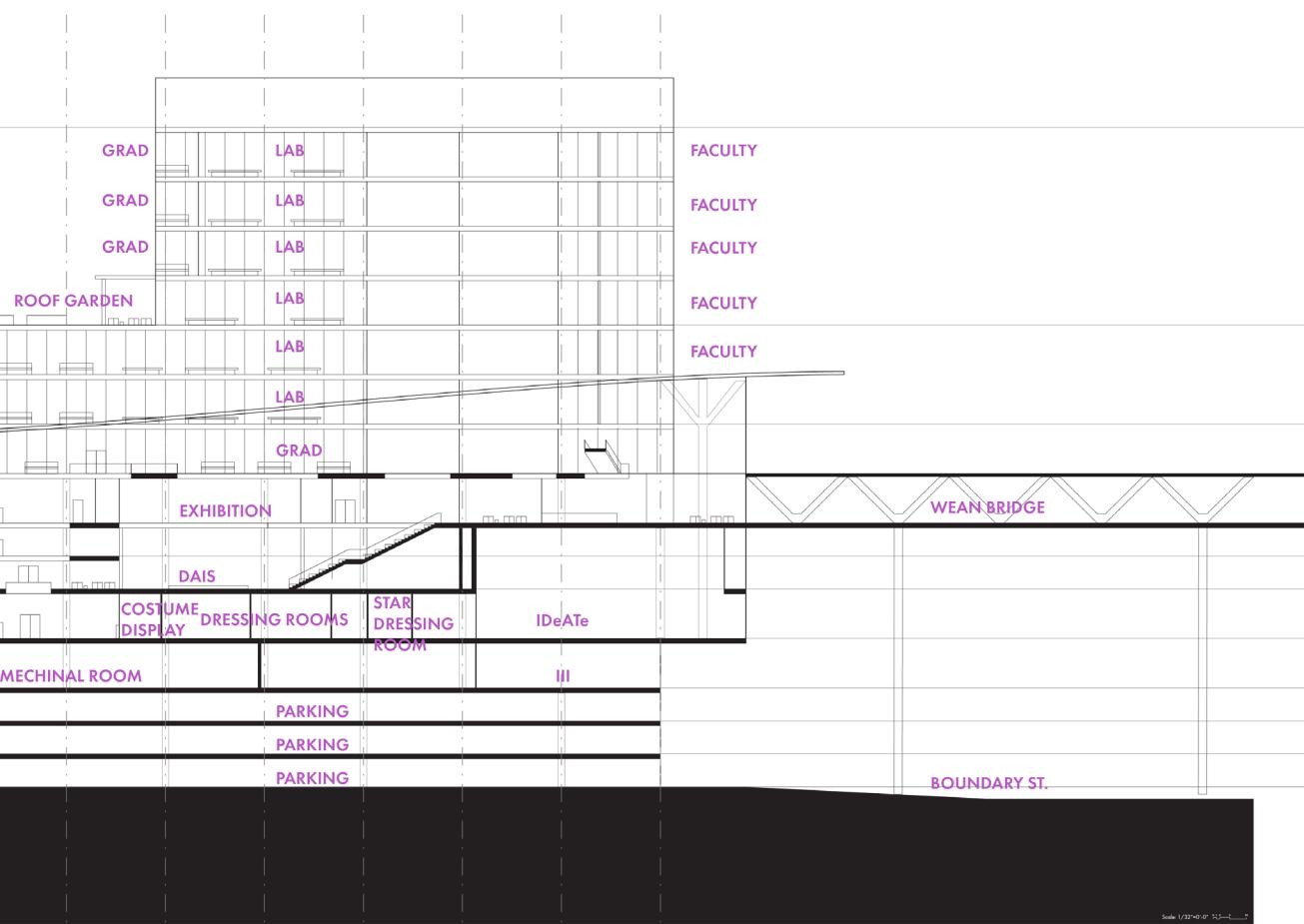
BUILDING | Sections



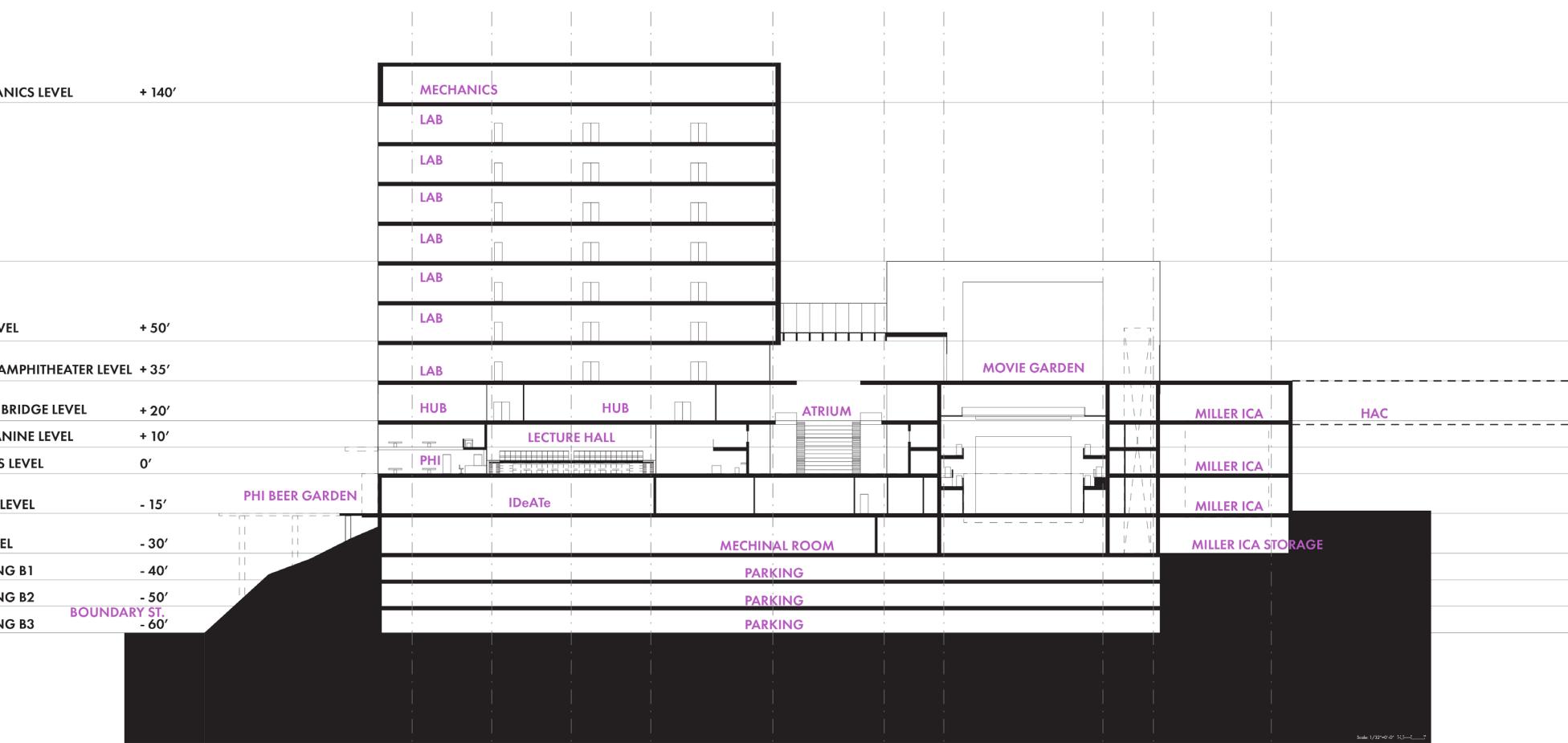
Section 1 - Opera House



Section 2 - Atrium



Section 3 - MCS, Atrium, Opera House



BUILDING | Elevation



RENDERS | Science Sequence



At Forbes and Craig



On Forbes Ave. looking at the main entrance



MCS/building main entrance

RENDERS | Music Sequence



Looking at the plaza from Forbes and Craig at dusk



The Opera House entrance at dusk



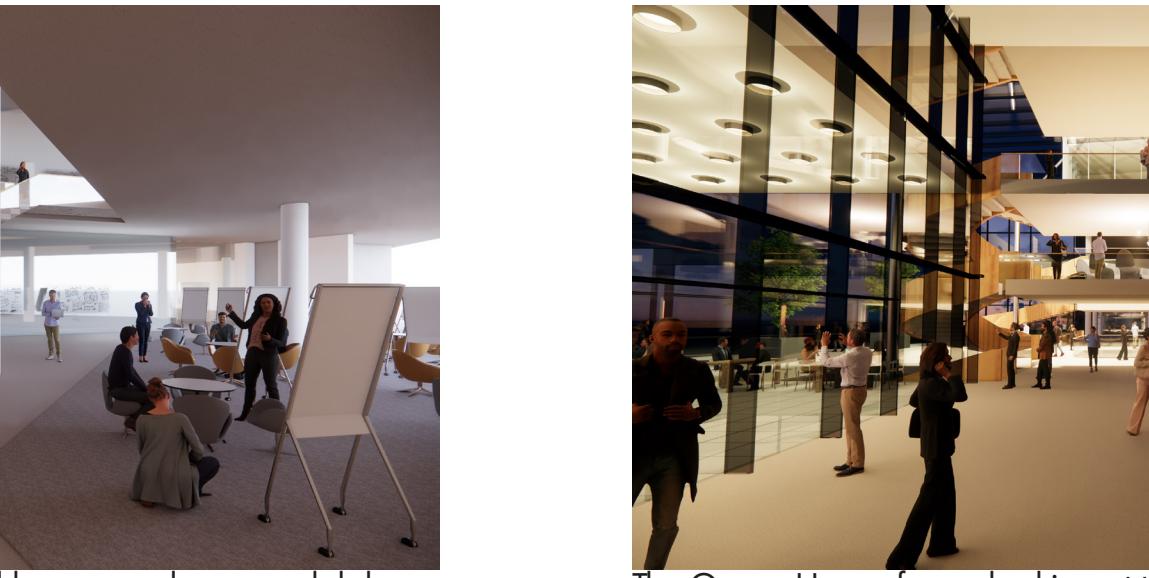
The Opera House entrance lit up at night



Stairs going up to Dean's office and Departments' Hub



View corridor atrium with Science and Music Hall of Fame on sides



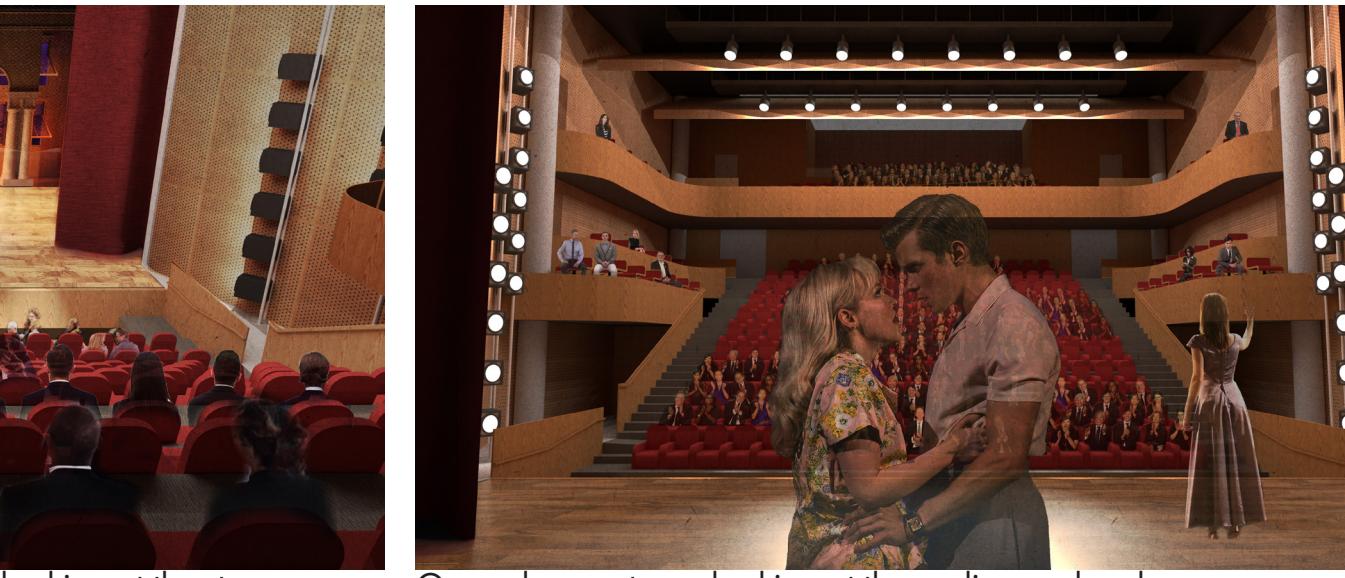
Typical Lab level, looking towards grad lounge and research lab



The Opera House foyer, looking at the east entrance

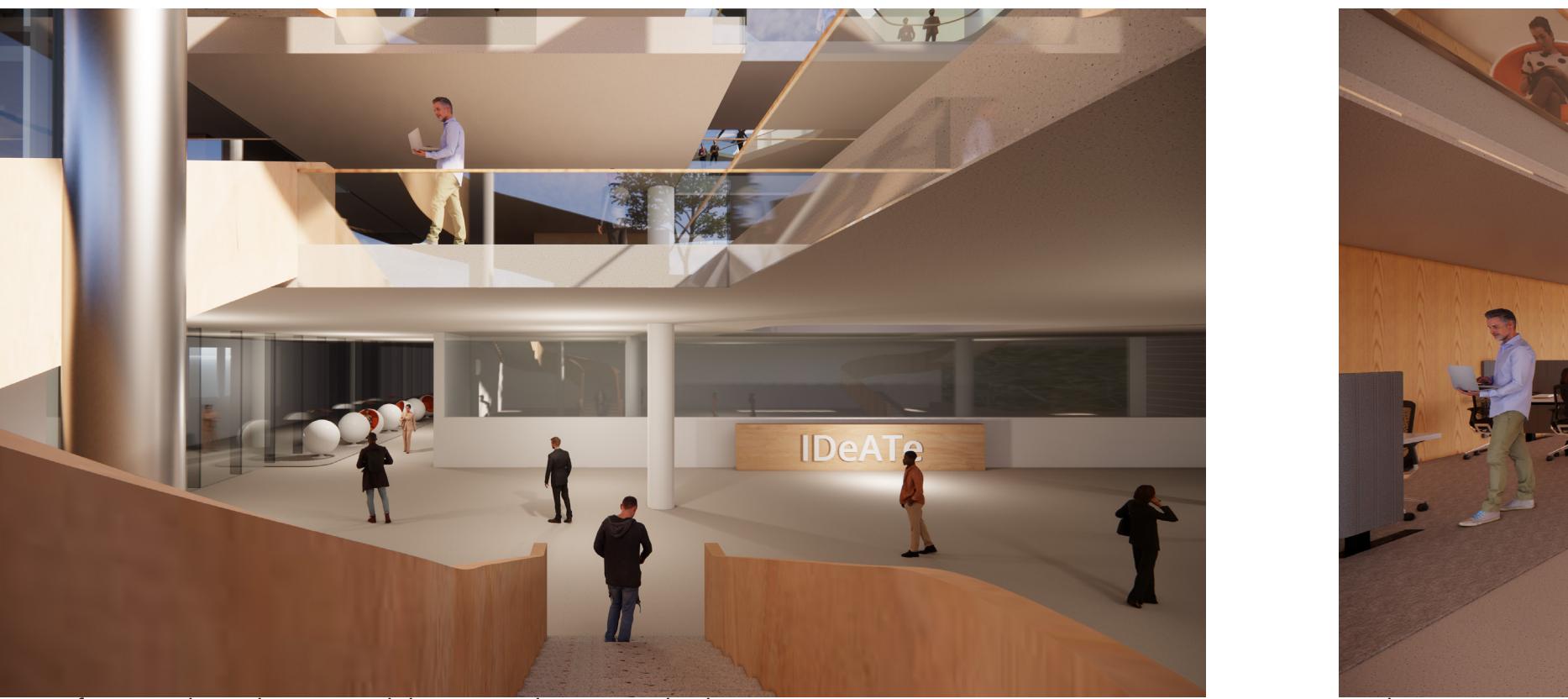


View from the back of audience chamber, looking at the stage

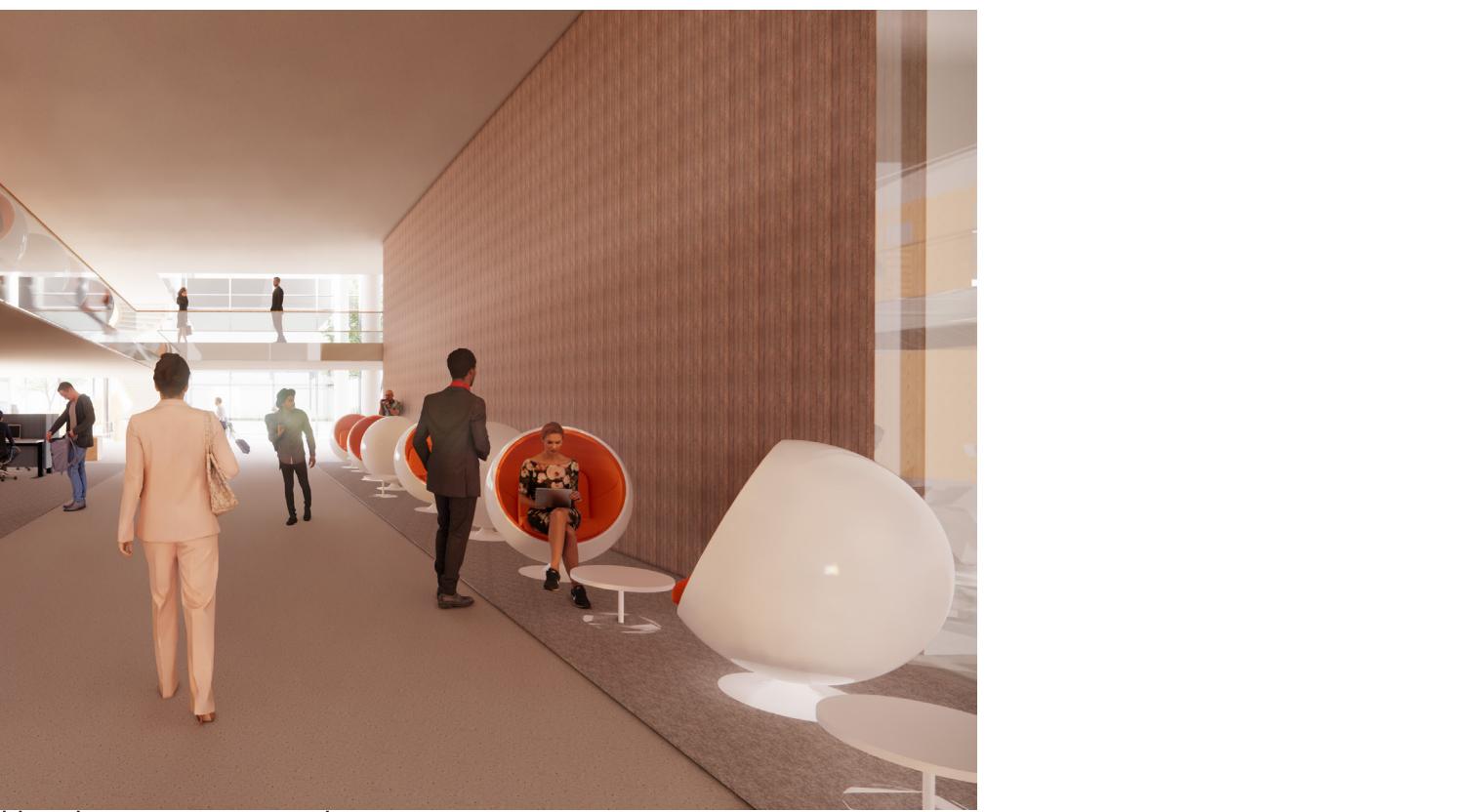


Opera house stage, looking at the audience chamber

RENDERINGS | IDeATE, Commons, Miller ICA, Panther Hollow Inn



IDeATE forum with workspace, exhibitions and costume display



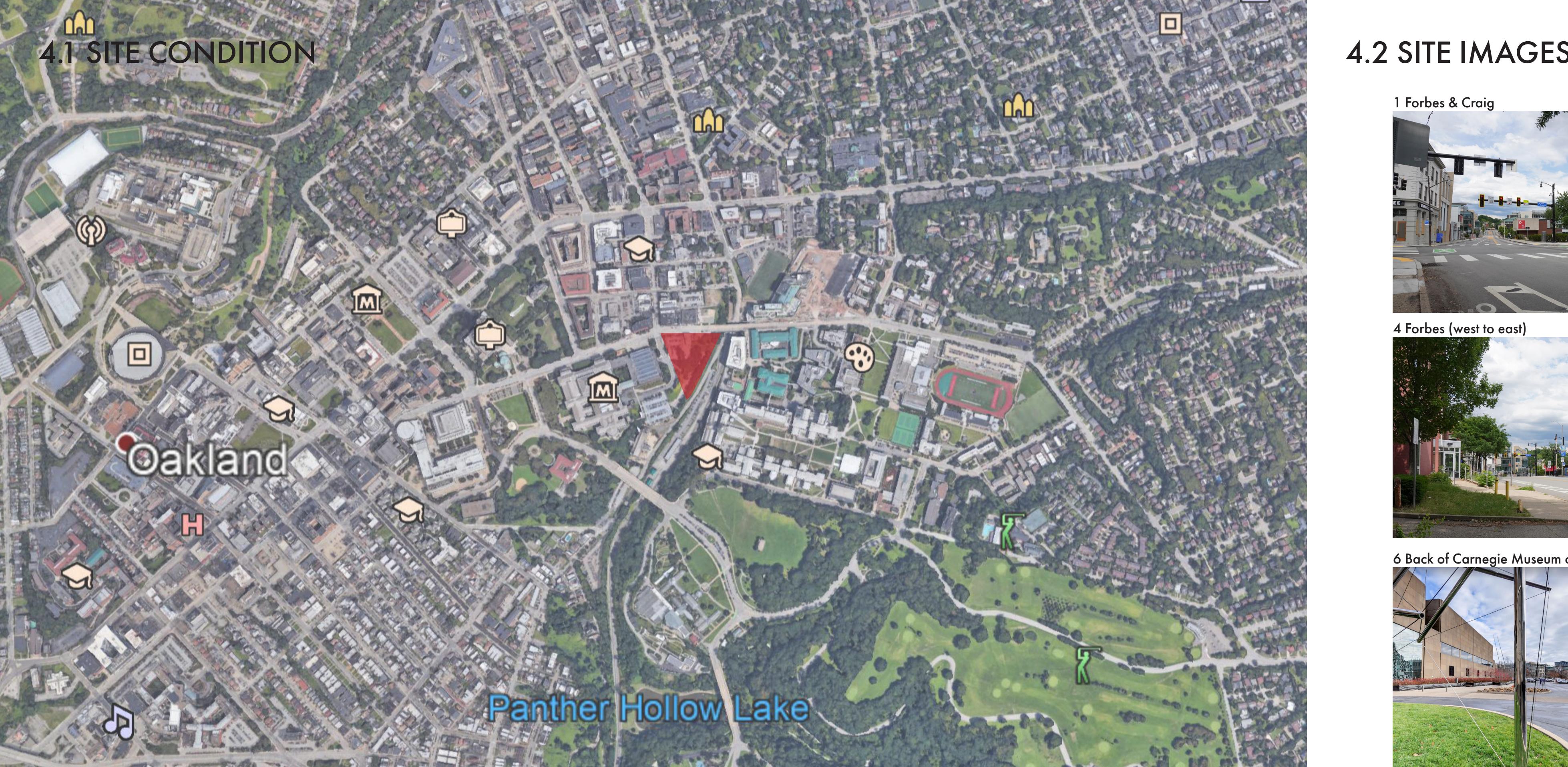
Student commons on the ground level next to MCS auditorium



Miller ICA entrance, looking at the cafe, stairs, and art



Panther Hollow Inn entrance on the east with the view of beer garden and Wean Bridge



4.2 SITE IMAGES

1 Forbes & Craig



2 Forbes



SITE PLAN



4 Forbes (west to east)

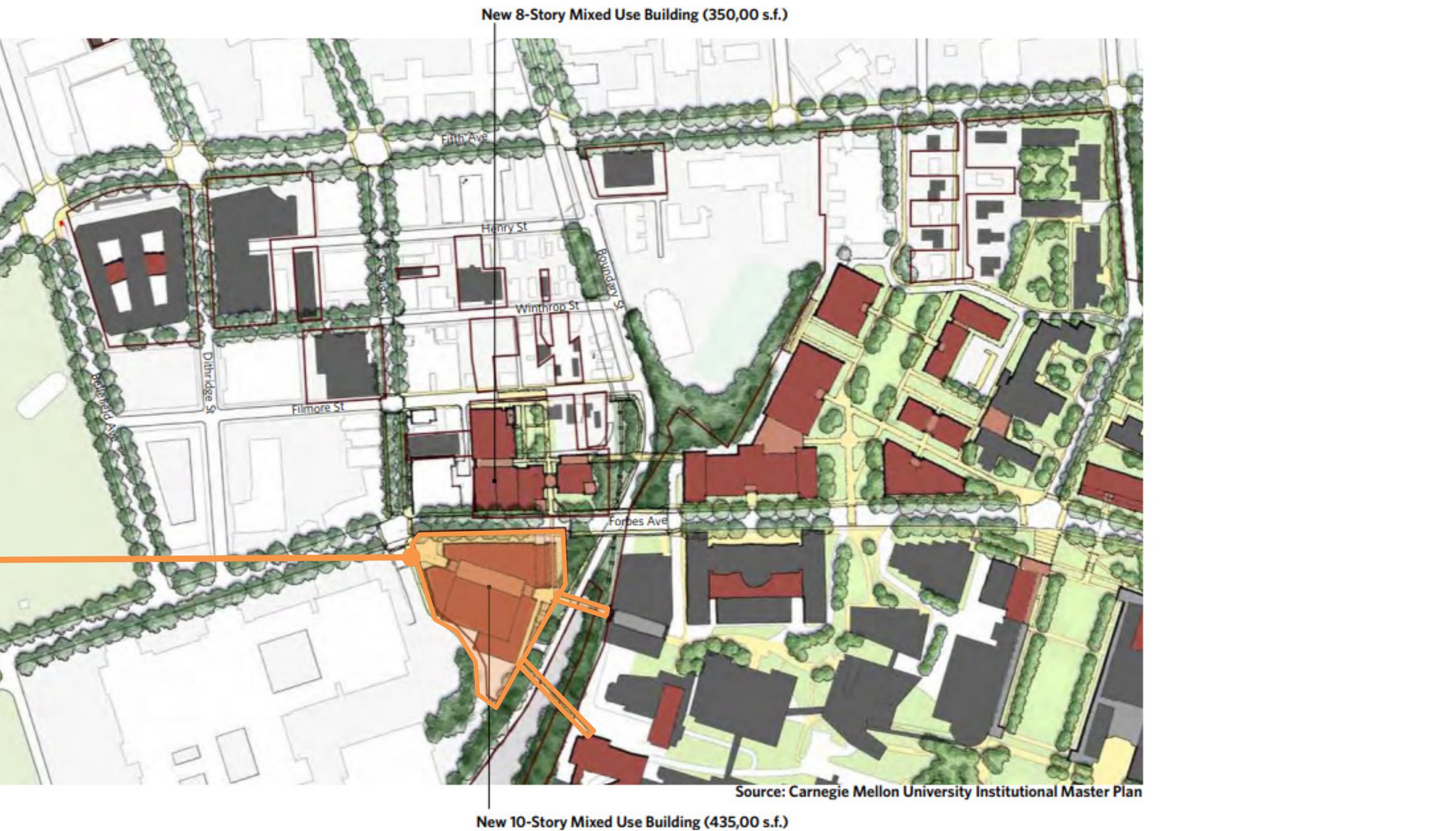
5 Scott Hall

6 Back of Carnegie Museum of Art

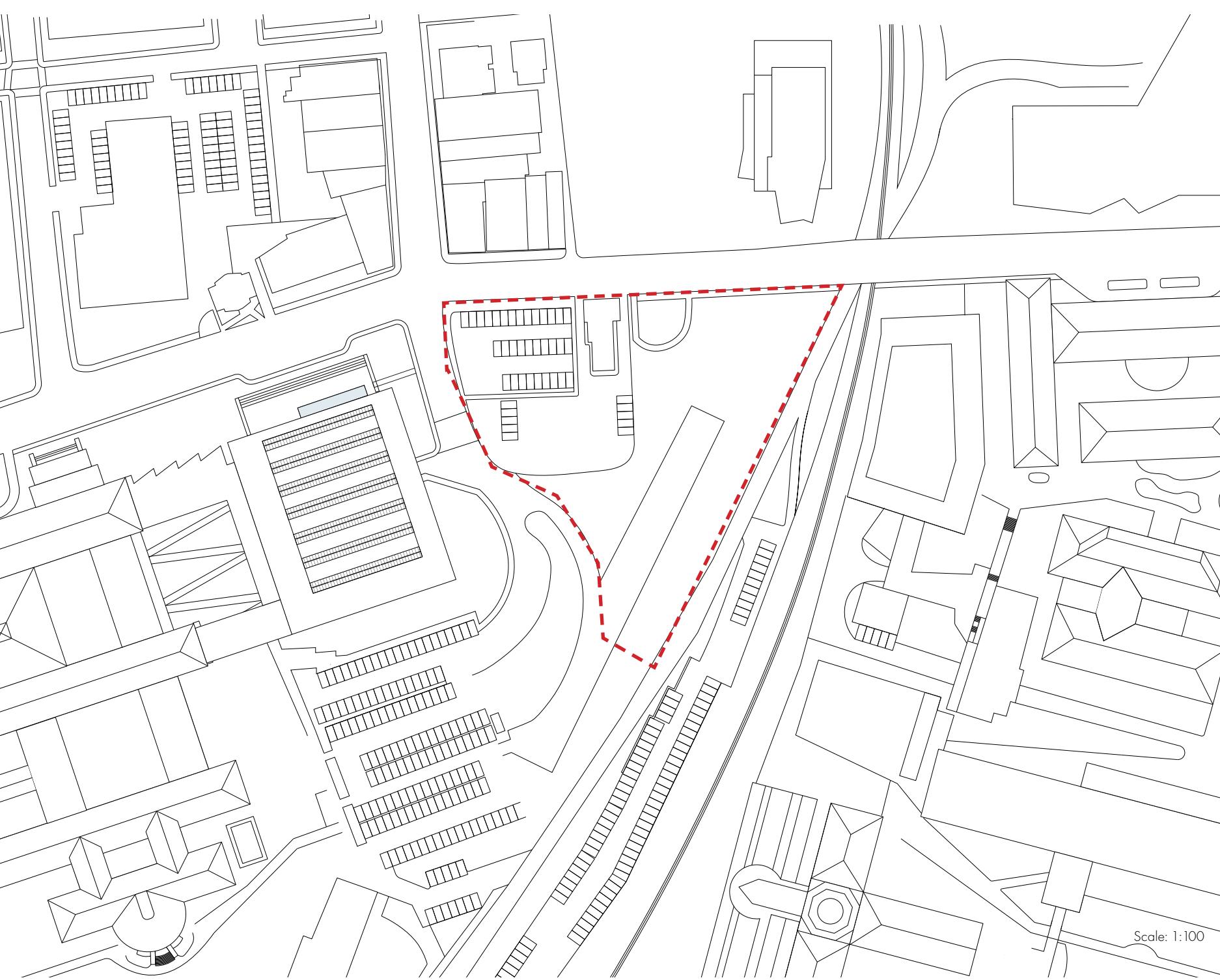
7 Schenley Bridge

8 Roberts Engineering Hall

4.3 CAMPUS MASTER PLAN



4.4 OAKLAND PLAN



4.5 SITE ELEVATIONS | Forbes Ave

The Cathedral of Learning is a building that serves as the centerpiece of the University of Pittsburgh main campus in the Oakland neighborhood. Standing at 535 feet, the 42-story Late Gothic Revival Cathedral is the tallest educational building in the Western hemisphere and the second-tallest university building in the world. A rich Gothic style full of stained glass, wrought iron, and limestone cladding comes from an early nineteenth-century spirit of forward thinking and imagination. It was completed in 1931 after ten years of construction.

CATHEDRAL OF LEARNING

Architect: Charles Klauder



UPitts, Downtown

The Board of Education's Administration Building in Oakland locates at the Schenley Farms Historic District consisting mainly of a planned residential development of the early 20th Century. Noted for its late 19th And 20th Century Revivals architecture, the historic district is an example of community planning and development following the City Beautiful movement.

PITTSBURGH PUBLIC SCHOOL'S BOARD OF EDUCATION BUILDING

Architect: Thomas Hannah



Saint Nicholas Greek Orthodox Cathedral was designed and built in 1904. It is the first Congregational Church built the structure and used it until 1921 and it has been a Greek Orthodox Church since 1923. Currently, it is part of the Greek Orthodox Archdiocese of America, and seat of the Greek Orthodox Metropolis of Pittsburgh. This Classical Revival style church building was added to the List of Pittsburgh History and Landmarks Foundation Historic Landmarks in 1982.

SAINt NICHOLAS GREEK ORTHODOX CATHEDRAL

Architect: Thomas Hannah



Founded in 1946, the Lutheran Campus Ministry in Greater Pittsburgh has served students, faculty and staff at Pitt, Carnegie Mellon, Chatham and Carlow universities. Housed in the Lutheran University Center in the heart of Oakland, the campus ministry provides opportunities for fellowship, service, worship and education. All of these opportunities seek to deepen relationships with God and neighbor.

LUTHERAN UNIVERSITY CENTER

Architect: Thomas Hannah



Owned and established by the University of Pittsburgh in 1998, Forbes-Craig Apartments is part of the school's honors program that provides opportunities for fellowship, service, worship and education. All of these opportunities seek to deepen relationships with God and neighbor.

FORBES-CRAIG APARTMENTS

Architect: Thomas Hannah



Center for Technology Transfer and Enterprise Creation (CTTEC) is responsible for facilitating and accelerating the movement of research and technology out of the university and into the marketplace. Our collaborative and problem-solving approach working with researchers to validate, challenge and extend their work fits well within the overall goals of commercialization. The building is expected to be demolished in the future.

CENTER FOR TECHNOLOGY TRANSFER AND ENTERPRISE CREATION

Architect: Thomas Hannah



Reflecting the theme of the contribution, the Tata Consultancy Services focus on the new era of collaboration between industry leaders and academia across the globe. A communications cascade was created to get the word out, ultimately utilizing almost all campus-wide communications platforms, including the cmu.edu homepage, social media channels and publications, as well as national media outlets.

TATA CONSULTANCY SERVICES HALL

Architect: Thomas Hannah



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TEPPER QUAD

Architect: Thomas Hannah



CMU, Shadyside



CARNEGIE MUSEUM OF NATURAL HISTORY

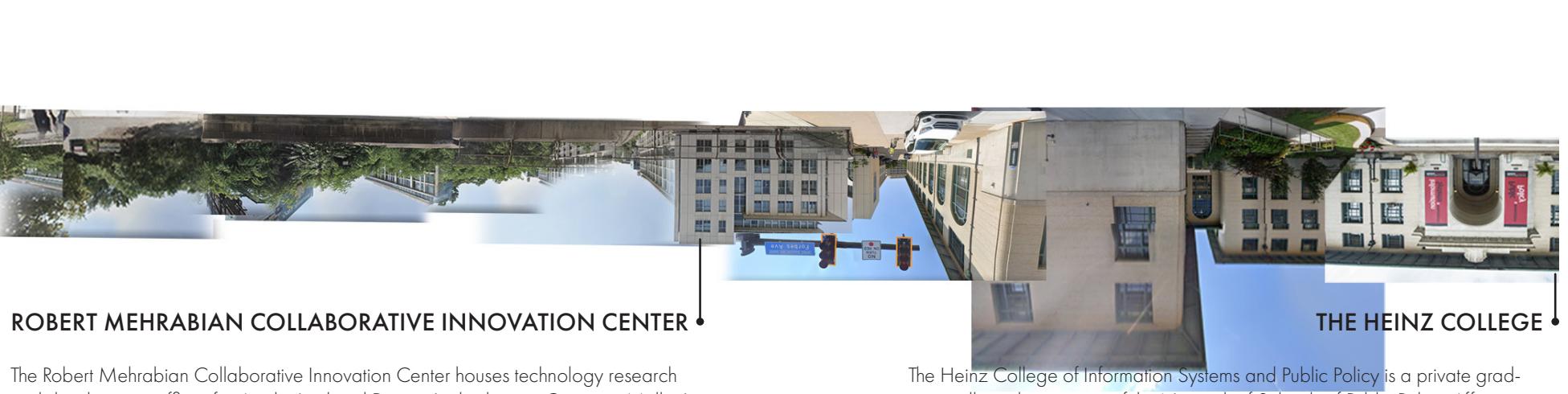
Carnegie Museum of Natural History(CMNH), one of the four Carnegie Museums of Pittsburgh, is among the top natural history museums in the country. It is founded by Andrew Carnegie as well in 1896. The museum consists of 115,000 square feet organized into 20 galleries as well as research, library, and office space. Other major exhibits include Hillman Hall of Minerals and Gems, Alcoa Foundation Hall of American Indians etc. established by the museum in 1956 to serve as a field station for long-term studies of natural populations. The departments in the museum work collaboratively under strategic centers created to re-frame how the museum leverages its research, exhibitions, and public programming to meet the challenges and issues of today.



CARNEGIE MUSEUM OF ART

Architect: Edward Larrabee Barnes

The Carnegie Museum of Art(CMoA) was founded in 1895 by industrialist Andrew Carnegie, one of the four Carnegie Museums of Pittsburgh.The museum collects contemporary art, including film and video works. It was the first museum in the United States with a primary focus on contemporary art. The museum received a major expansion in 1907 with the addition of the Hall of Architecture, Hall of Sculpture, and Bruce Galleries, with funds again provided by Carnegie. Under the directorship of Leon Arkus, the Sarah Mellon Scaife Gallery (125,000 square feet) was built as an addition to the existing Carnegie Institute. Designed by architect Edward Larrabee Barnes, it first opened in 1974 and more than doubled the museum's exhibition space, plus added a children's studio, theater, offices, cafe, and bookstore.



HILLEL JEWISH UNIVERSITY CENTER OF PITTSBURGH

Architect: Edward Larrabee Barnes

As the focal point for Jewish campus life for more than 2,200 Jewish undergraduate students in Pittsburgh, Hillel Jewish University Center (Hillel JUC) sponsors a wide variety of opportunities to engage in Jewish campus life that acknowledge that Jewish students have a diversity of identities and interests. Hillel JUC helps students find a balance in being distinctively Jewish and universally human by encouraging them to pursue tzedek (social justice), Jewish learning, and to support Israel and global Jewish peoplehood.

ROBERT MEHRABIAN COLLABORATIVE INNOVATION CENTER

Architect: Thomas Hannah

The Robert Mehrabian Collaborative Innovation Center houses technology research and development offices for Apple, Intel and Disney. It also houses Carnegie Mellon's CREATE Lab — a robotics lab sponsored by Microsoft — and space for Carnegie Mellon CyLab, the university's Information Networking Institute and the CERT® Coordination Center, Carnegie Mellon's internationally known cybersecurity team. It is a four-story building said to be one of the most energy efficient, cost-effective, healthy, flexible and adaptable work environments in existence. Stephan R. Lee, head of CMU School of Architecture provided sustainable design consulting services in the design process as well.

The Heinz College of Information Systems and Public Policy is a private graduate college that consists of the Network of Schools of Public Policy, Affairs, and Administration-accredited School of Public Policy & Management—and information schools—the School of Information Systems & Management. It is named for the late United States Senator H. John Heinz III from Pennsylvania. The Heinz College is also a member of the Institute for Information Infrastructure Protection and a founding member of the MetroLab Network, a national smart city initiative and New America's Public Interest Technology University Network.