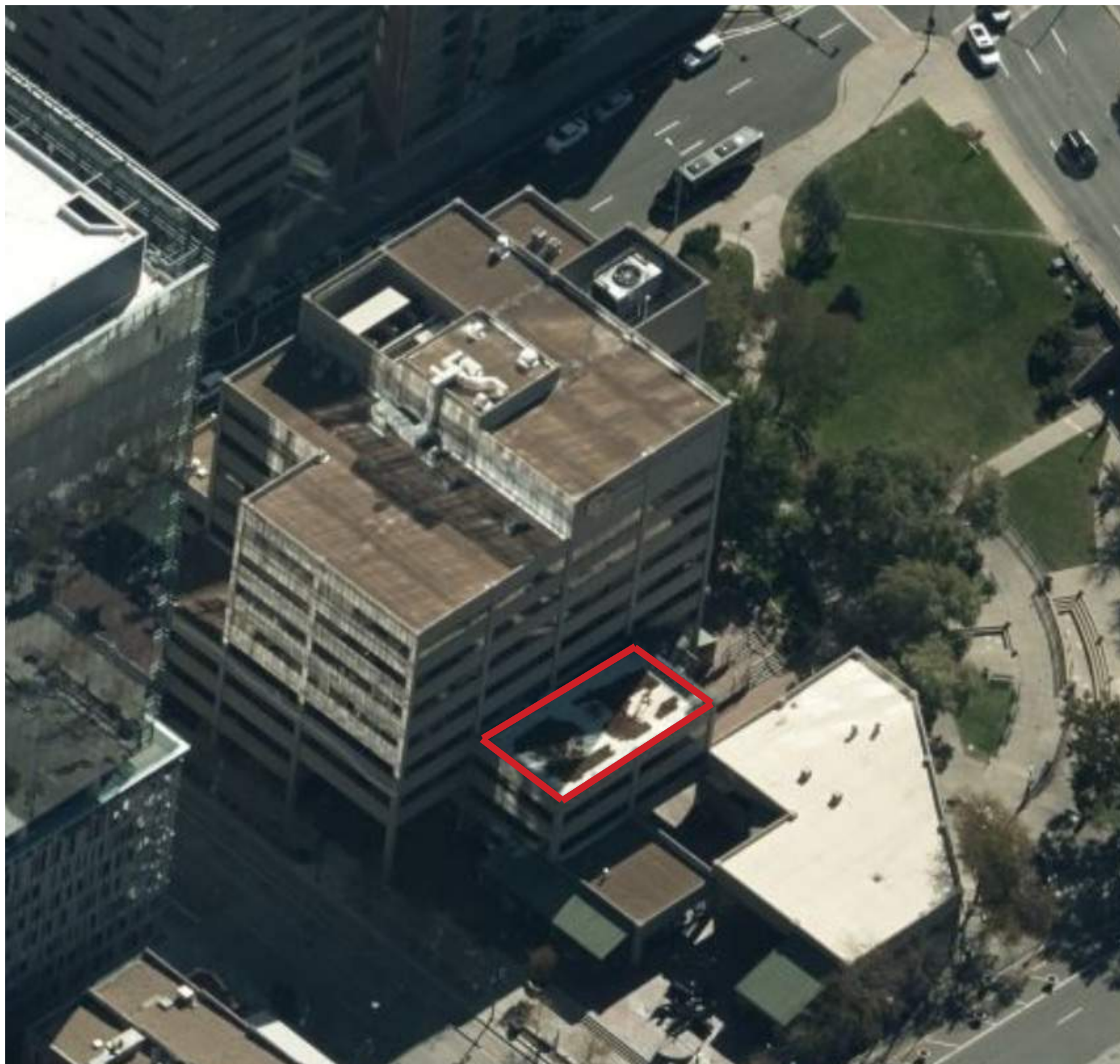




University of Colorado
Denver
Office of Institutional Planning



CU Denver Building - 4th Floor Meeting Spaces
Design Review Board - Concept Design - August 17, 2021

INTRODUCTIONS

Cary Weatherford
Director of Institutional Planning
The University of Colorado Denver

Tania Salgado, FAIA
Tom Wuertz, AIA
Architect, Handprint Architecture

Jered Minter, AIA
Campus Architect, Office of Institutional Planning
The University of Colorado Denver

Tony Mazzeo, PLA
Landscape Architect, HDR

PROJECT OVERVIEW

TEAM:

Architect: Handprint Architecture | HDR Landscape
Office of Institutional Planning: Project Oversight, Design Consult
Projects: Budget, Project Management, Schedule
Advancement: Donor Outreach, Naming, Vision
Other: Operations, CAP, Events, Finance

OVERVIEW:

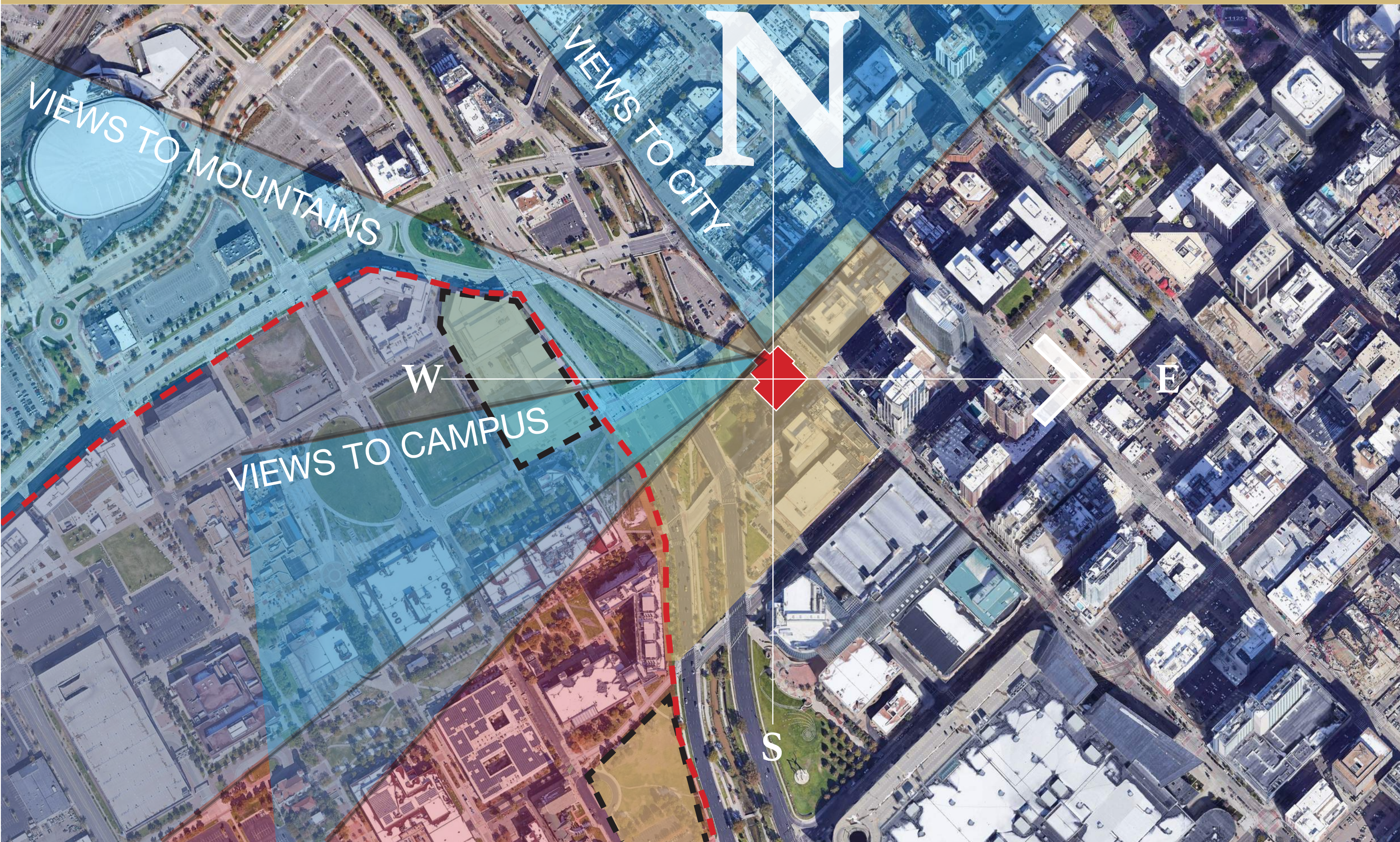
1. Renovation to the CU Denver Building's 4th floor roof deck, adjacent classroom, and support spaces.
2. Space is for faculty, staff, and students, with primary function for formal donor events.
3. Space should be flexible to allow for a variety of uses.
4. Should be open year-round.
5. Space should be high quality.
6. Maintain views of mountains, city, and campus.

BUDGET: TBD - Initial Conceptual Budget Underway

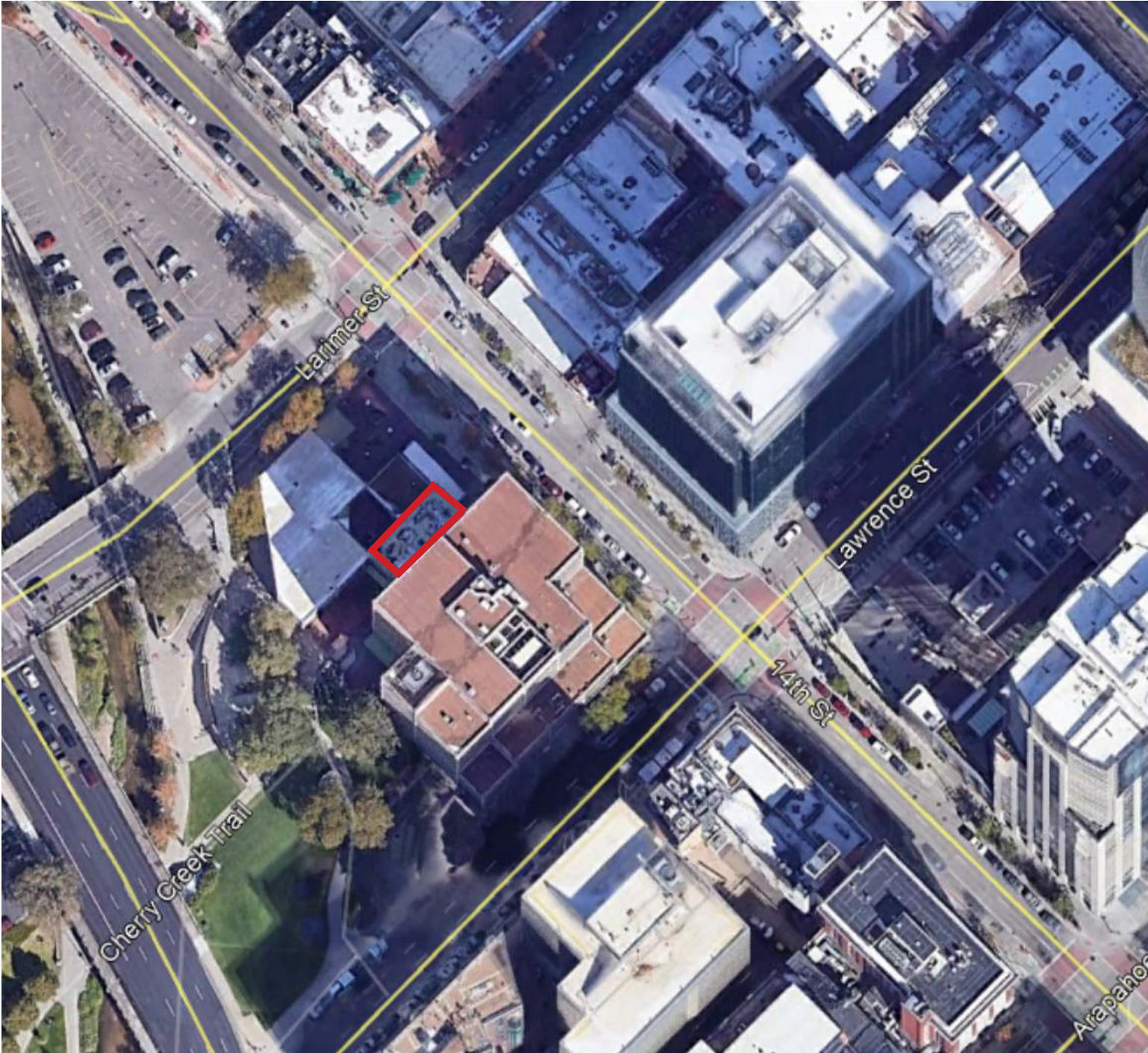
SCHEDULE (PROPOSED):

Pre-Design DRB Presentation: 2/16/21
A/E Selection/Project Kick Off: June 2021
Concept Design DRB Presentation: 8/17/21
Schematic Design DRB Presentation: 10/19/21
Donor Commitment Deadline: 1/1/22
Design Development DRB Presentation: 2/2022
Construction Documents: 4/2022
Bidding/Permitting: 5/2022
Final Acceptance: 9/2022

LOCATION - THRESHOLD TO THE CITY



SITE CONTEXT



EXISTING CONDITIONS



4th Floor Deck

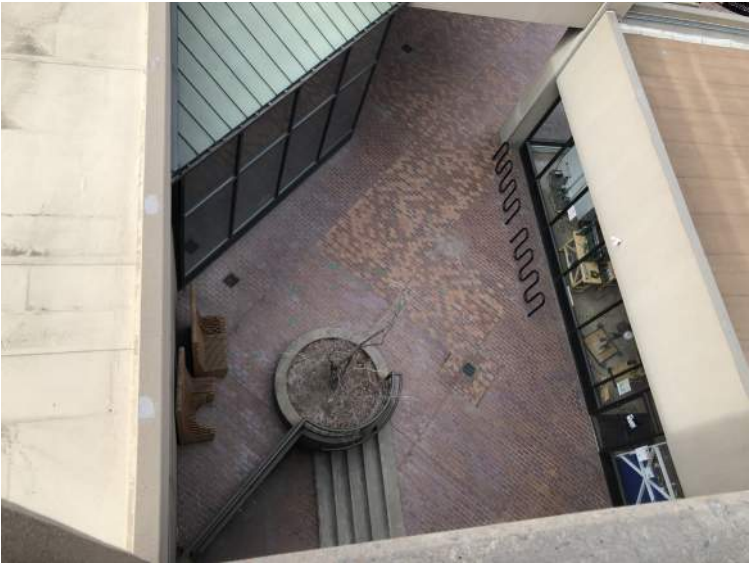


Exterior Stair

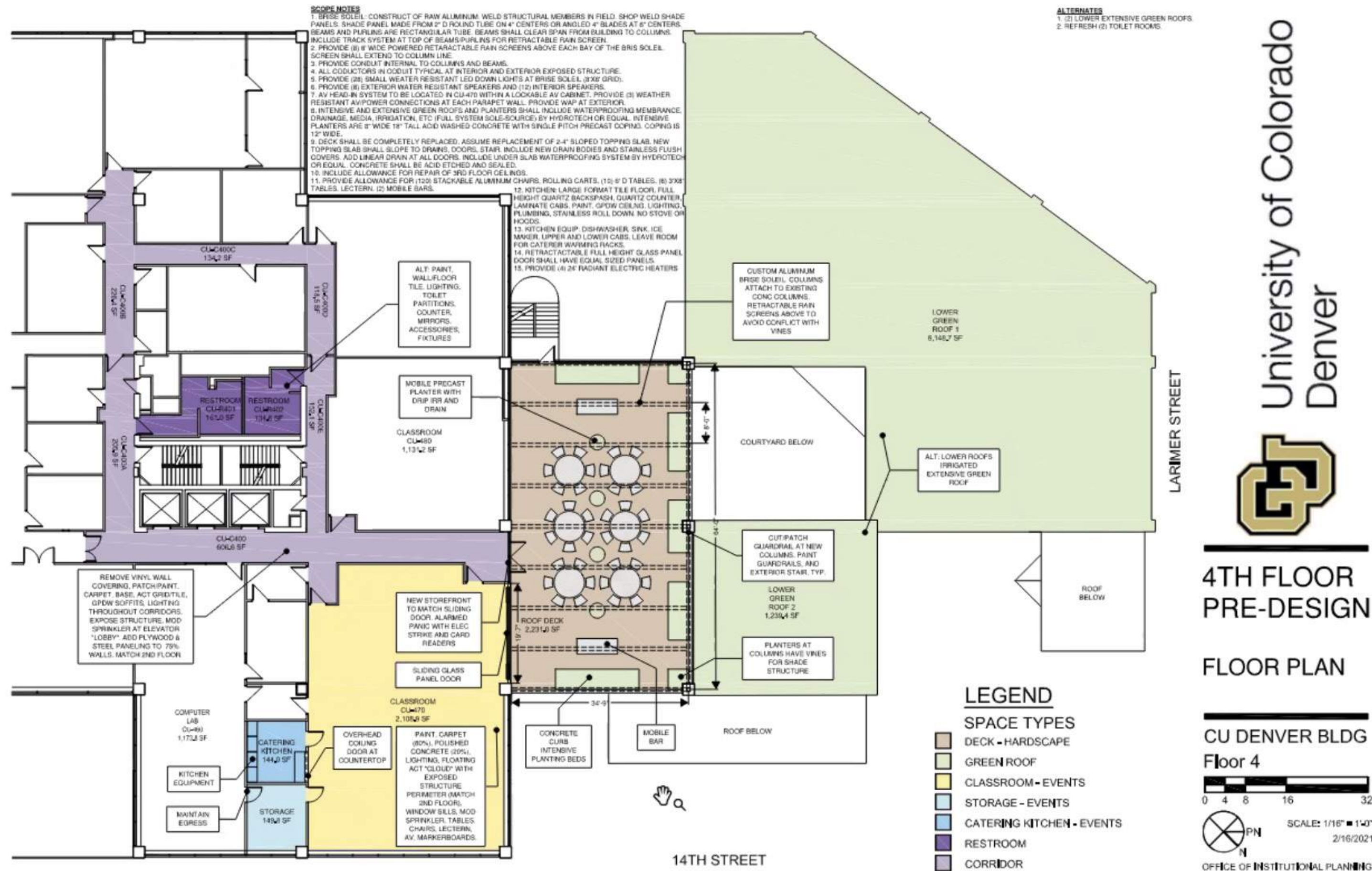


Rooftop Below

EXISTING CONDITIONS



PRE-DESIGN LAYOUT



PRE-DESIGN DRB COMMENT CLARIFICATIONS

Site and Landscape

- Address implications of annual climate and weather conditions
- Provide a “guest experience” for arrival and orientation to the rooftop
- Involve College of Architecture and Planning
- Through additional programming, determine number of people and events
- Consider sound attenuation, and perception of sound nuisances

Architecture

- Include occupancy capacity and points of ingress/egress
- Study need for retractable rain screen
- Space division opportunities through amenities
- Improve accessibility from lobby to final event space
- Consider need for storage
- Consider a phased construction approach for multi-year funding

Sustainability and Energy

- No comments

DRB Action

- Full design review process anticipated.

OPPORTUNITIES

Create a premier event space

Engage the ground plane, connecting the rooftop to the plaza below

Align with the innovation goal of the strategic plan, by demonstrating creativity and invention in the built environment

Reflect out the unique educational activities of the programs inside the building

Deliver a diverse space that functions equally for formal small group events, larger functions, and student life

Create a magnet for pedestrian curiosity of activities within the CU Denver Building and the roof deck

Connect the roof deck experience to LoDo, the campus, and the mountains

Select materials that enhance flexibility, quality, and aesthetics of the renovated space

Create an integrated signage opportunity for industry business partners

Design informal learning spaces outside the classroom promoting peer-to-peer activities

Create eddies for social connections and impromptu collisions

Bring daylight into the dark corridor

Create a sense of arrival along the path, from entry, to elevator lobby, to rooftop

Continue the architectural character from language developed on the 2nd floor

CHALLENGES

Acquire adequate funding to deliver a complete project

Open the project in the fall 2022

Manage and control costs in a unsettled market

Provide for future phases with seamless project integration

Integrate new systems within an existing 1970s precast panel building

Design loads within existing structural systems

Bring flexibility, including power, to the exterior

Address life safety issues, including exit path, egress stairs, and corridors

Improve building to contribute to the university's asset, including waterproofing and drainage

Design for optimum sun shade at various times of day and year

Maintain views out while providing shade

Create an engaged user experience from the street

Deliver aesthetic continuity

Provide clear wayfinding to destination

SUSTAINABILITY

Reduction of heat island effect with green roof

Reduced energy consumption through enhanced materials

Greater diversity of plant and animal habitats through natural habitat

Increased material life span

Reduced solar heat gain

Enhanced thermal comfort at exterior envelope

Biophilic connection to enhance academic success and health

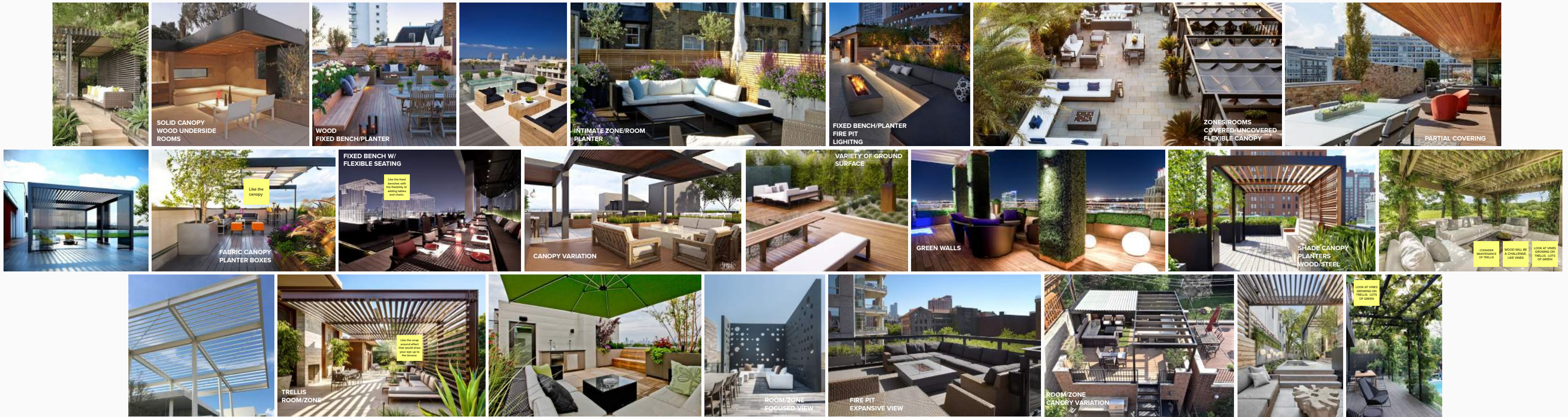
Locally sourced materials

Human centered design to increase connection to outdoors and provide sense of place

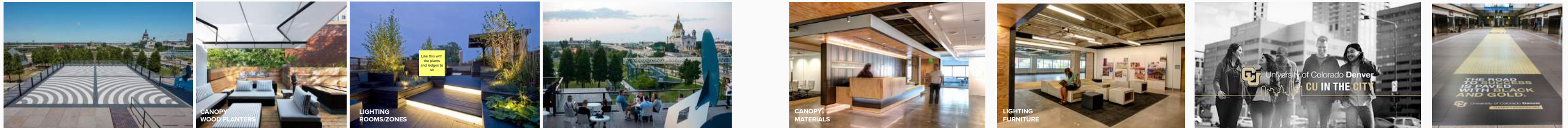
Facilitate the reduction of waste in construction and operations

PRECEDENT STUDY

MODERN + FORWARD THINKING

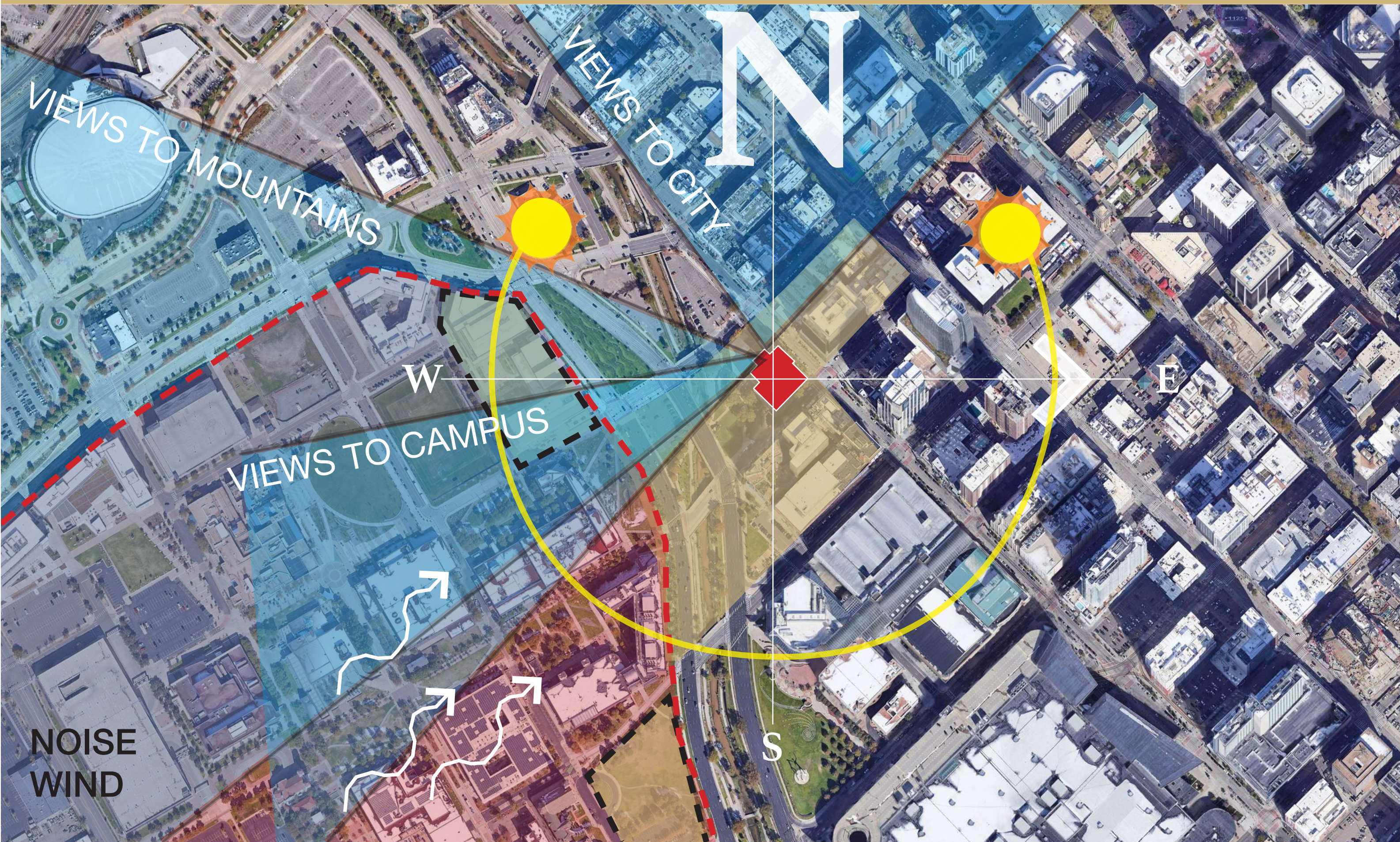


LIVING ROOM



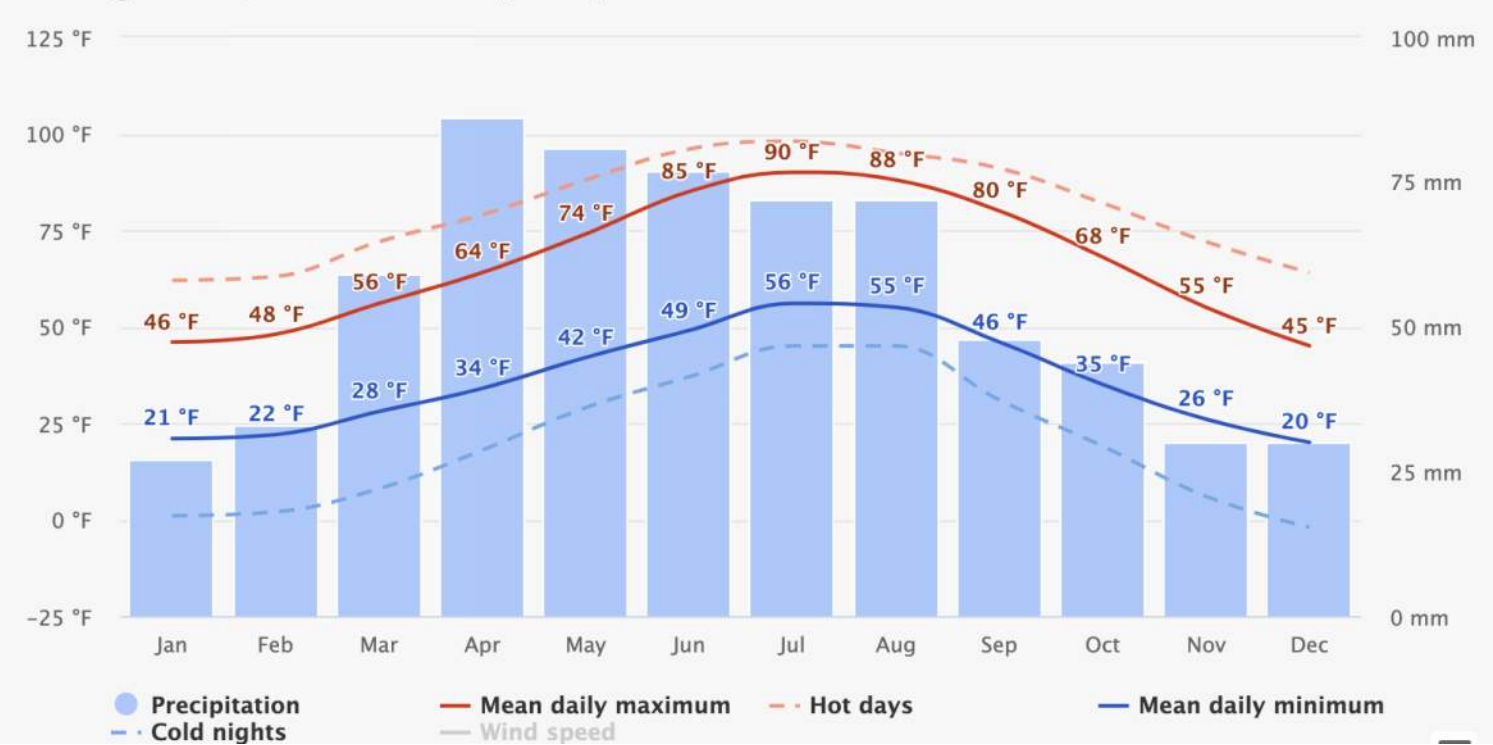
REPRESENT THE BRAND

SITE ANALYSIS

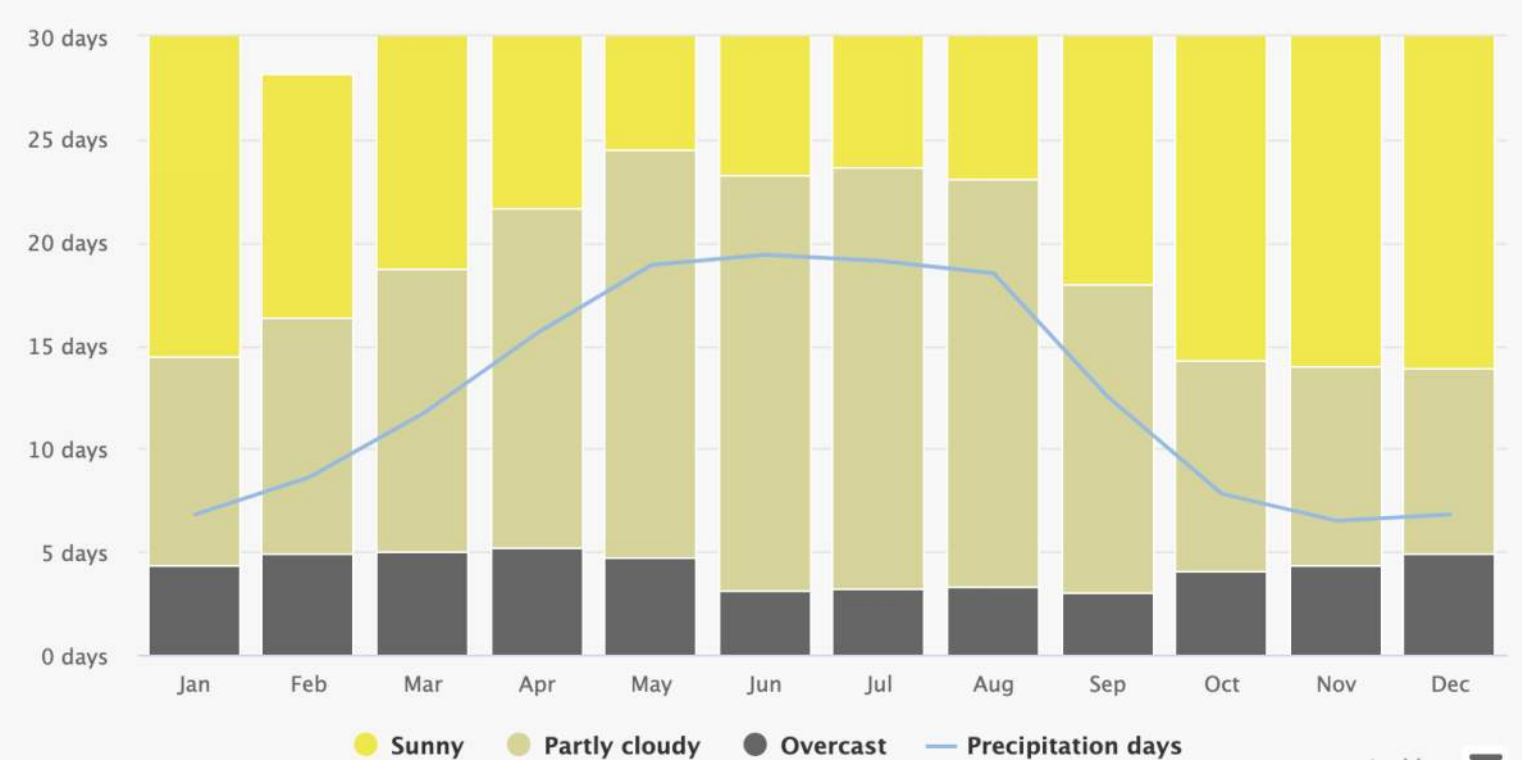


CLIMATE

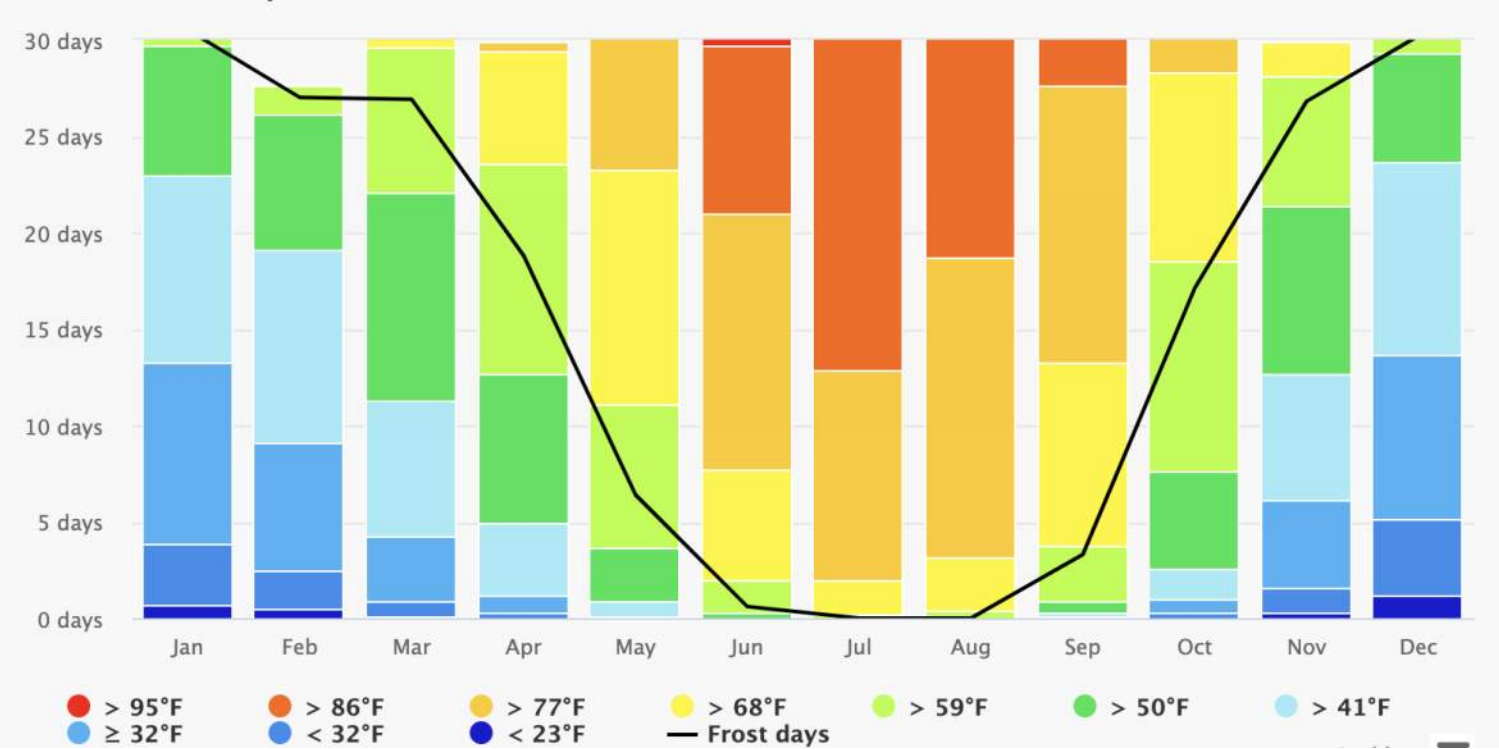
Average temperatures and precipitation



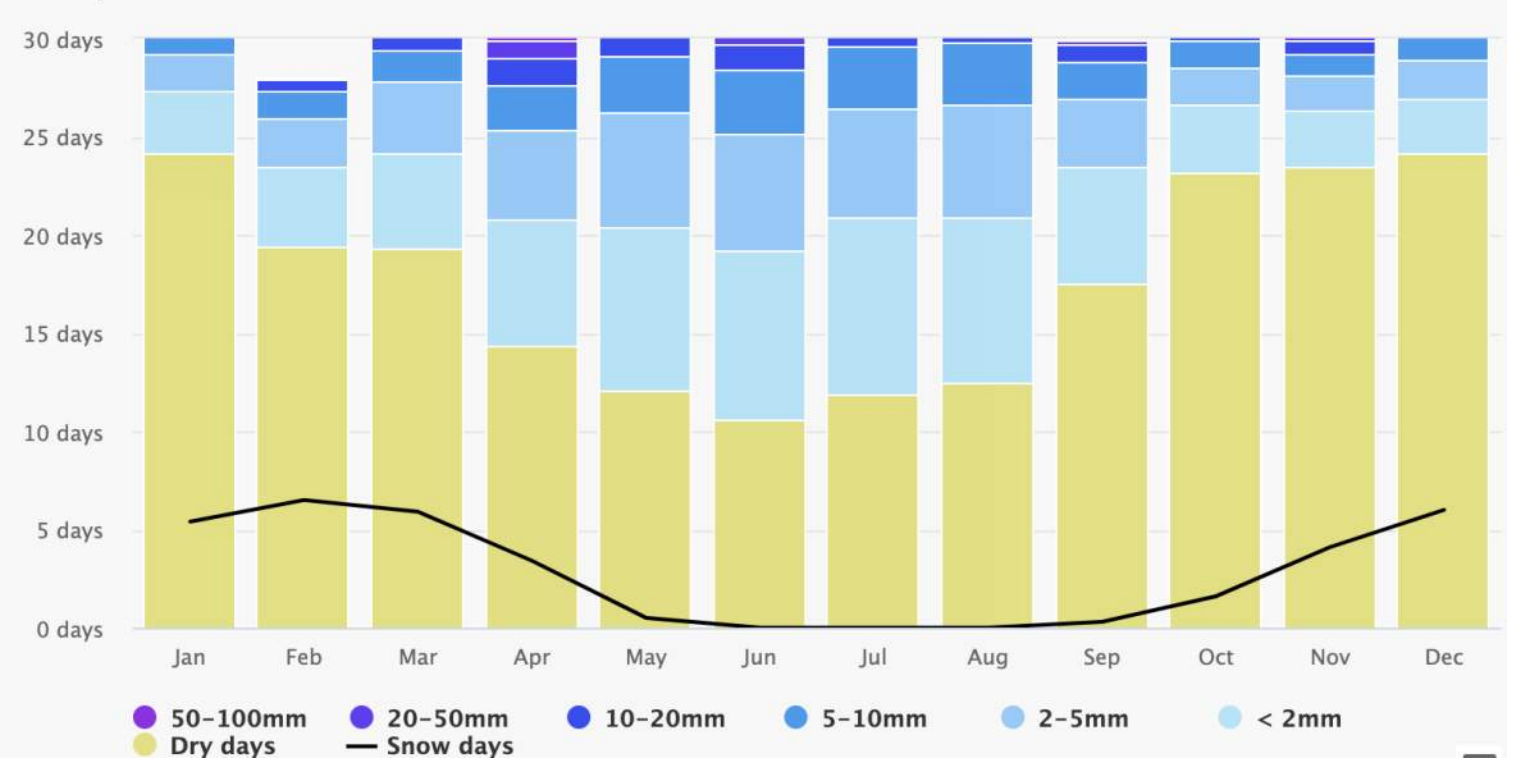
Cloudy, sunny, and precipitation days



Maximum temperatures

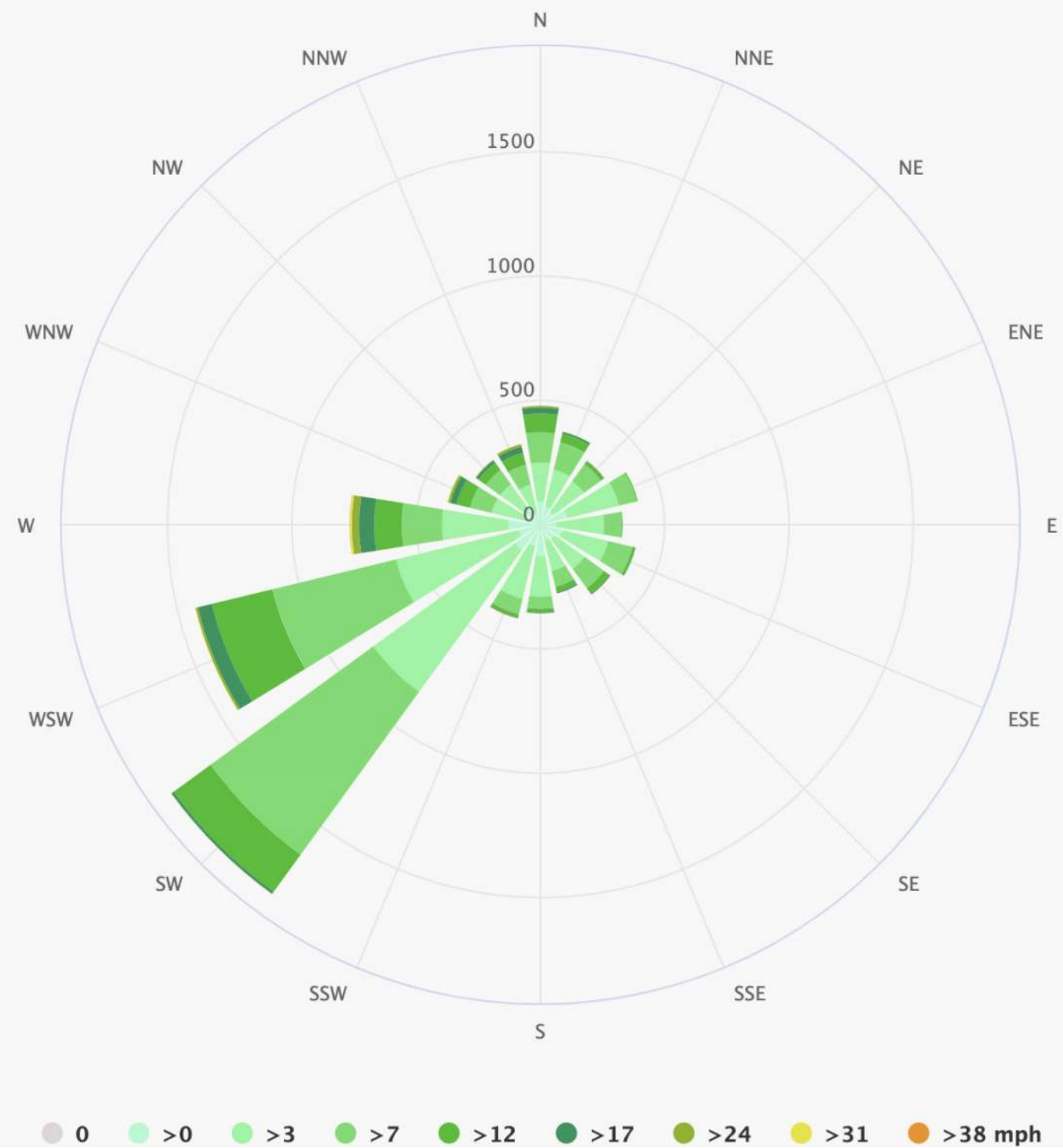


Precipitation amounts

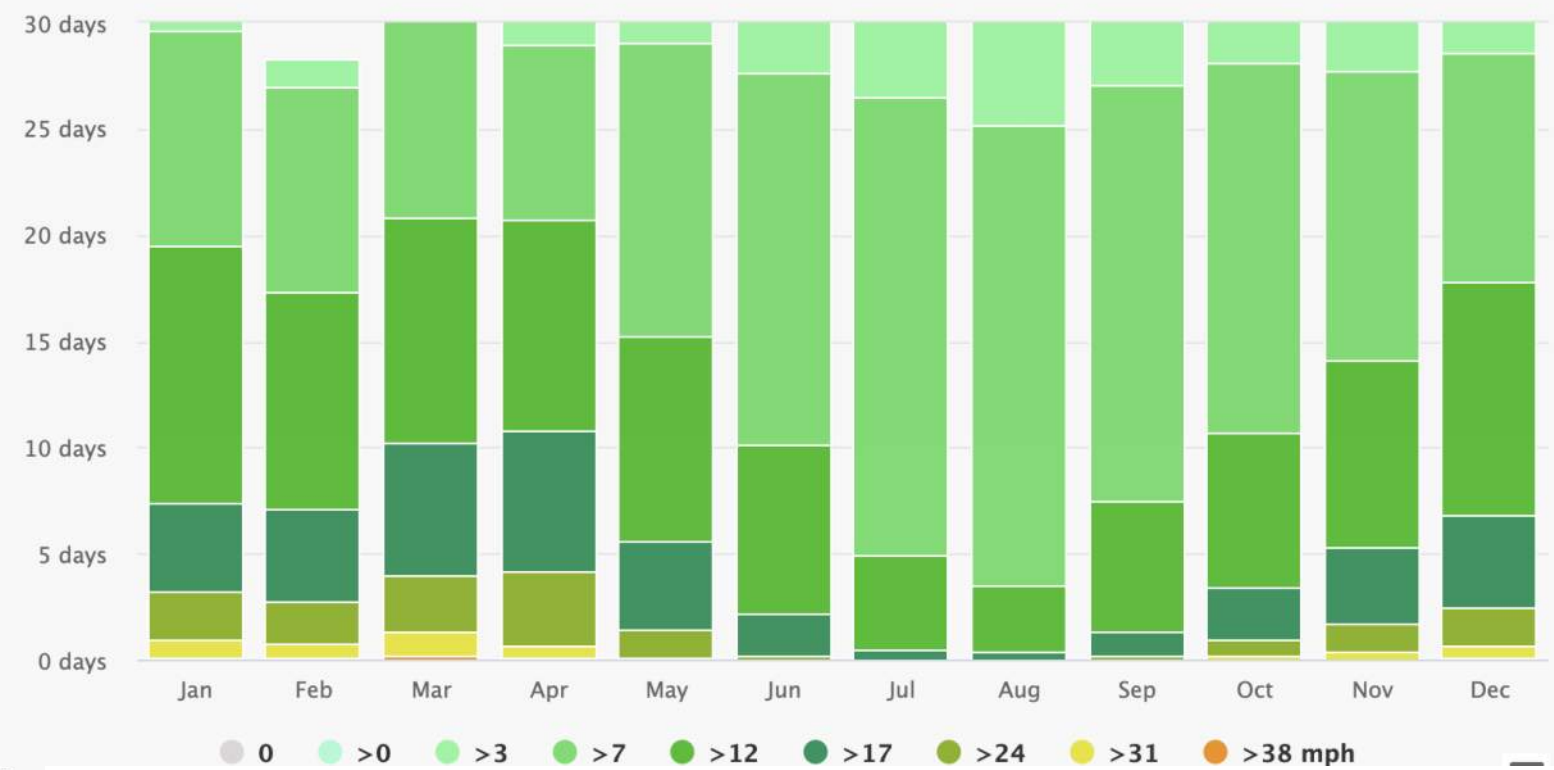


CLIMATE

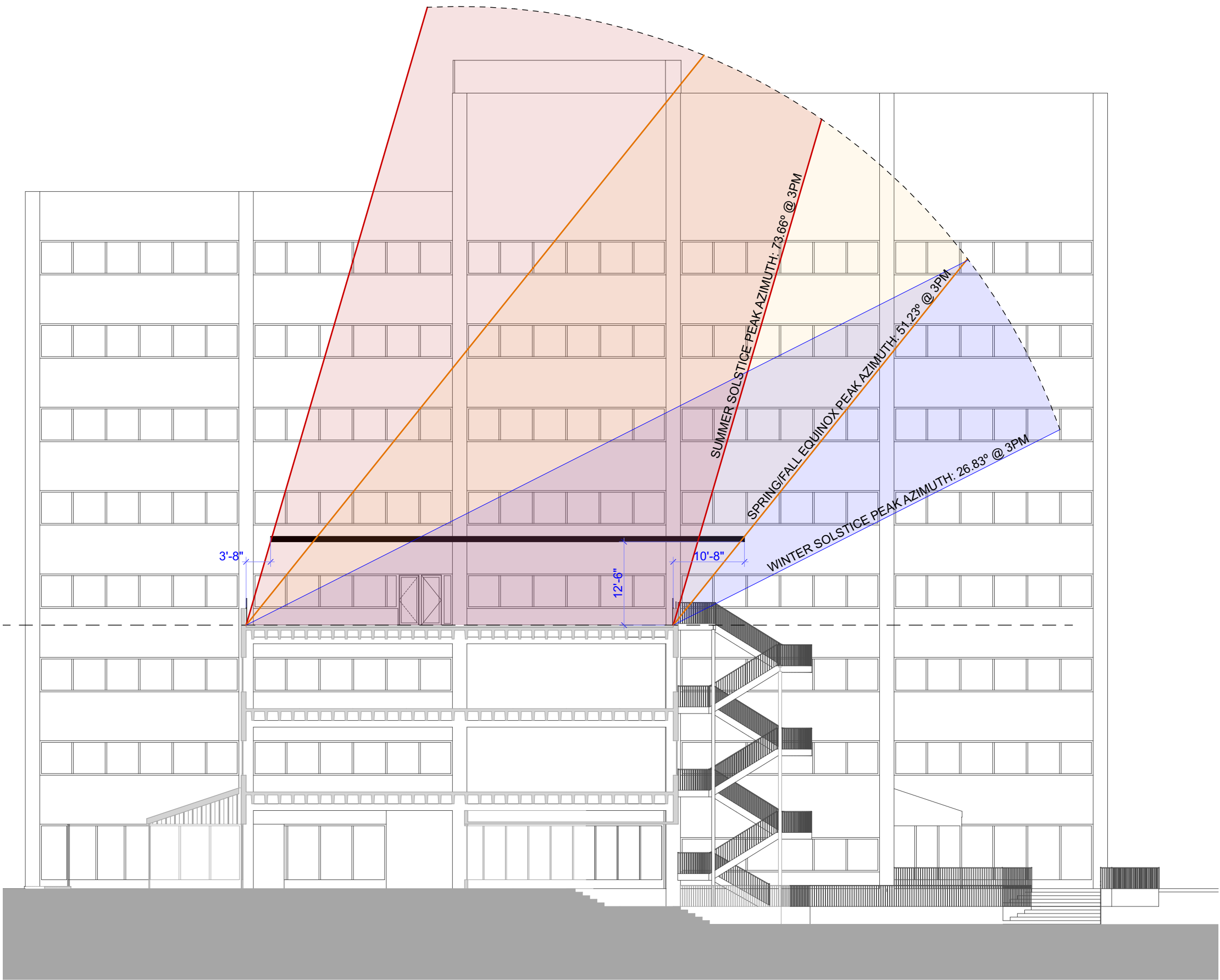
Wind rose



Wind speed



SUN EXPOSURE



20 JUN 2021

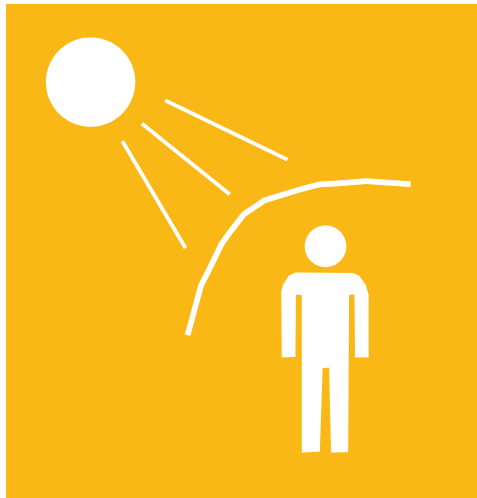


20 MAR 2021



20 DEC 2021

OUTDOOR THERMAL COMFORT | ELEMENTS



1

SUN

shade >75 degrees



2

WIND

standing <13mph



3

HUMIDITY

30-60%



4

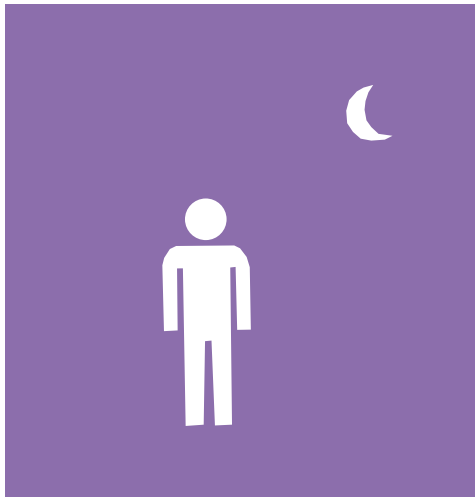
PERCIPITATION



5

TEMPERATURE

68-75 degrees



6

TIME

day + evening

DAY IN THE LIFE

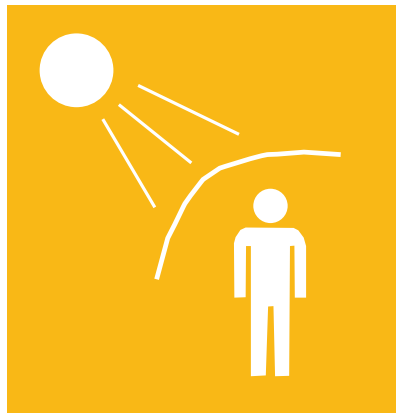
	STREET	ENTRY	LOBBY	ELEVATOR	4TH FLOOR ARRIVAL	CLASSROOM	EVENT SPACE	ROOFTOP	
CHANCELLOR	Scheduled events, not impromptu events. She mirror's the donor's experience of the rooftop, only at scheduled events. Otherwise she will be scheduled activity.								
DONOR OTHER EVENT ATTENDEES	Meet in person at the street. Larger events, staff will greet, show way to elevator. Directional with guidance. Curiosity - view of the terrace	Architecture School. School projects and activities.	Check in for event/activity. Pictures. Flowers - beautification (not donor wall). Temporary based on event. This space needs to come alive. Experience before the elevator. coat check, staging, reception/bar/dessert student work display	Most problematic component. So small!	Looking to wow - temporary signage for branding. Green/flowers. Would love to see activity, art, mural, vibrant, speak to the brand, curiosity. See student work or students working Maker space/lab/fabrication Student life, pictures	Lunch and evening (5:30-8:30) for donor activity. Embrace activity of students. Priority of space? Staging and catering to support the rooftop, unless 100+ ppl		This is the experience. Bad weather is not at this terrace. Large 200+ events in Aug/Oct (2 times/yr). Orientation, people event. Rooftop view of campus and City. Tease of future.	
STUDENT	Curiosity - view of the terrace Inspiration, Pride stands out, eye-catching, sense of wonder continuity of aesthetic (separate project)	continuity of aesthetic (separate project) Draw your eye, beginning of the experience, tip of the iceberg Hint that this is architecture - sense of design. Identification of users - "Design Building"	continuity of aesthetic (separate project) Safety and security Wayfinding, clarity, digital signage/dynamic displays Event signage Sculptural signage/building info improved lighting design. Lower overall levels, with lighting effect/mood. flexible student work display	Durable student messaging/CU standard New flooring from Lobby Operational improvements, button lighting Wall panels?	Wayfinding Follow 2nd Floor standard/aesthetic See student work or students working Maker space/lab/fabrication		Academic Use Lecture style classes visiting lecturers Crit space? Pin-up?	Lunch Decompressing. Photograph	
FACULTY AND STAFF	Curiosity - view of the terrace Inspiration, Pride stands out, eye-catching, sense of wonder	continuity of aesthetic (separate project) Draw your eye, beginning of the experience, tip of the iceberg Hint that this is architecture - sense of design.	Wayfinding continuity of aesthetic (separate project) Safety and security Wayfinding, clarity, digital signage/dynamic displays Event signage Sculptural signage/building info improved lighting design. Lower overall levels, with lighting effect/mood. flexible student work display relocate mailboxes		Wayfinding Follow 2nd Floor standard/aesthetic See student work or students working Maker space/lab/fabrication		Academic Use Lecture style classes visiting lecturers Crit space? Pin-up?	Ad Hoc class use - spur of the moment. 15-20 students w/ teacher. Lunch Demonstration space	
FACILITIES AND OPERATIONS	Regular maintenance	Special clean before events	Special clean before events	Special clean before events	Special clean before events	Special clean before events		Special clean before events	Special clean before events. Maintain plants.
EVENT HOST	Curiosity - view of the terrace Access, staging of guests Delivery through loading dock wayfinding		pre-function areas flexibility Manage elevator traffic - reception, check-in, bar, dessert, coat check	Flexibility of the aesthetic - branding opportunities, i.e. signage Catering deliveries (lock-off elevator?)	Looking to wow - temporary signage for branding. Green/flowers. Would love to see activity, art, mural, vibrant, speak to the brand, curiosity. See student work or students working Maker space/lab/fabrication Student life, pictures	Flexibility of furniture storage of academic furniture and delivery of event furniture Technology - sound, AV, presentations, etc.		This is the experience. Rooftop view of campus and City. flexibility of the furniture storage Technology (AV, Sound) and electricity, lighting Heating, cover, wind protection, year-round use	

PROGRAM DETAIL

CU DENVER EVENT/ROOFTOP ACTIVITY

		Space Requirement			SCHEDULE			FURNITURE				FOOD				AMENITIES				STORAGE				
		Classroom	Rooftop	Other	How often	Time of day	Time of Year	Number of people	Activity type	Standing/sitting	Furniture rented or owned	Buffet		Served	Catered	Bar	Music	Podium/microphone	Monitor/screen	Other	Chairs	Tables	Equipment	Other
CHANCELLOR EVENTS (PRIORITY OF USE)		Yes	Yes	All spaces, lobby, classroom downstairs	2/year	Evening	Sep/Oct or Apr/ May	150-200	Sit down, served foods / stand up gala social hour	Indoor/outdoor seating (doesn't have to be same location)	Rent tables/ chairs		No	Yes	Yes	Yes- one bar per 50 ppl (possibly fixed for other flexible uses on rooftop) 6-8' length (front/ back) supplied by caterer w/ ice, alcohol display, glasses/bottle display back	Live music (student groups)	Yes, beneficial to be incorporated into the room	Bring in monitors, screens, projectors, etc. indoors	No stage/riser, PA system including for outdoor		Sit down rounds of 8, 10 cocktail tables in lobby (to store)		Coat racks (2-50 hangers)
	Big - Gala, rare occurrence (not the donor dinner) new event (Back up event space planned) - NOT FIRST CHOICE (prefer Jake Jabs Center for 250-300 indoors) Place to look out at campus in the City and look towards to future, with visibility from Larimer Sq.																							
	Medium - reception with white notes/ presentation (not formal, remarks), casual remarks at a specific time, people come and go	No	Yes	No lobby activity	4-6/yr	Lunch/evening, to the extent possible (not temp extremes)	Sep/Oct or Apr/ May	50-100	Sitting, standing, casual	Bench seating, cocktail tables, small grouping of chairs	Some rental, cocktail tables in storage		Heavy apps	No	Yes	Two bars- 2nd bar can be pop-up, inside can be bar area	Small sound system for streaming music	Yes, prefer not rental - plug and play	No	No		Cocktail tables (broken down to base, post, top)		No linen storage, no table settings
	Small - scheduled and planned	No, but can relocate indoors if needed	Yes		10-12/yr	Lunch and dinner		<50	Sitting	View, bench seating, maybe some cocktail tables indoors	Owned, partially rented (particularly chairs)		No	Yes, sit down, passed apps	Yes, space to accommodate, sink, plating (8-10 staff)	Cocktails in same space as tables	Small sound system for streaming music	Yes, prefer not rental - plug and play	No	No	Nicer chair (better than facilities)	sit down 8 at round table		
COLLEGE OF ARCHITECTURE AND PLANNING																								
	Class																							
	Critique																							
	Lecture																							
	Social/casual																							
	Computer Lab																							
OUTSIDE USE (10%) - Fee?																								
CU Denver Events (low fee, high use)						Breakfast (school of public affairs, luncheons, meetings			sitting, lecture, standing		Rented furniture												Storage for existing classroom storage/ equipment	
	Other CU Departments																							
	Leadership Team Meeting	Yes	Yes																					
	Faculty Retreat																							
Revenue Generating Event (on-campus sponsor presence policy)						Breakfast (school of public affairs, luncheons, meetings			sitting, lecture, standing		Rented furniture													
	Energy/Government Groups																							
	CCD/Metro																							
	Denver Architectural Foundation																							
	Weddings?																							
	M-Th earmarked for classrooms - Friday/ Saturday best for events																							
	Teatro currently uses Terrace Room (\$300 all day, turn key)																							

OUTDOOR THERMAL COMFORT | STRATEGIES



①
SUN



②
WIND



③
HUMIDITY



④
PERCIPITATION



⑤
TEMPERATURE



⑥
TIME

MAY

solar exposure
2:20p to 8:15p

sunny 6.5d
cloudy 19.5d

25.3d <13mph
1.3d >24mph

50% avg

2.32 inches

12.1 dry days

43.8F low avg

70.5F high avg

noon
6p

SEP

solar exposure
3:000p to 7:00p

sunny 12d
cloudy 15d

28.8d <13mph
0.2d >24mph

50% avg

1.14 inches

17.1 dry days

47.3F low avg

77.4F high avg

noon
6p

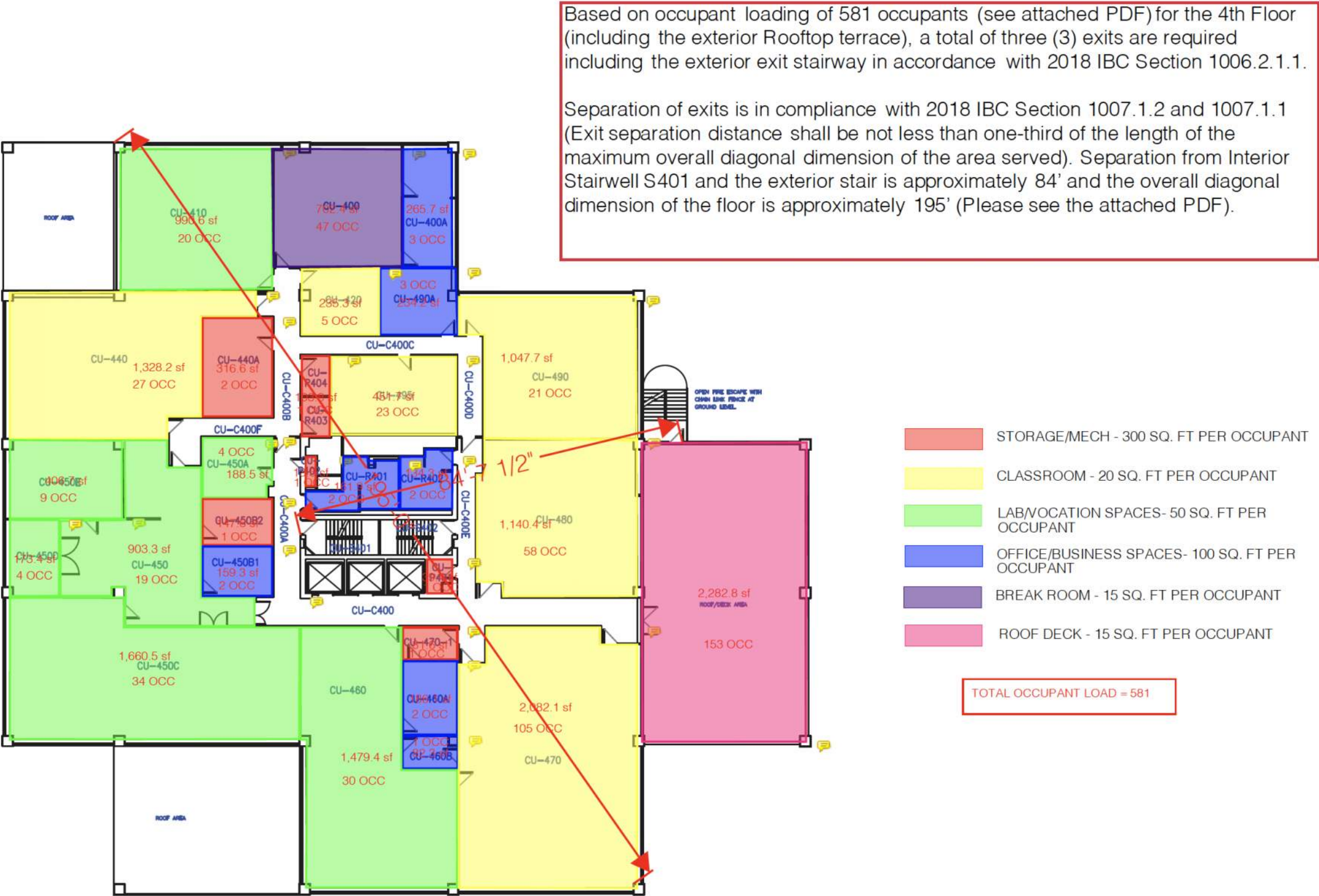
SITE CONSTRAINTS

Original Design

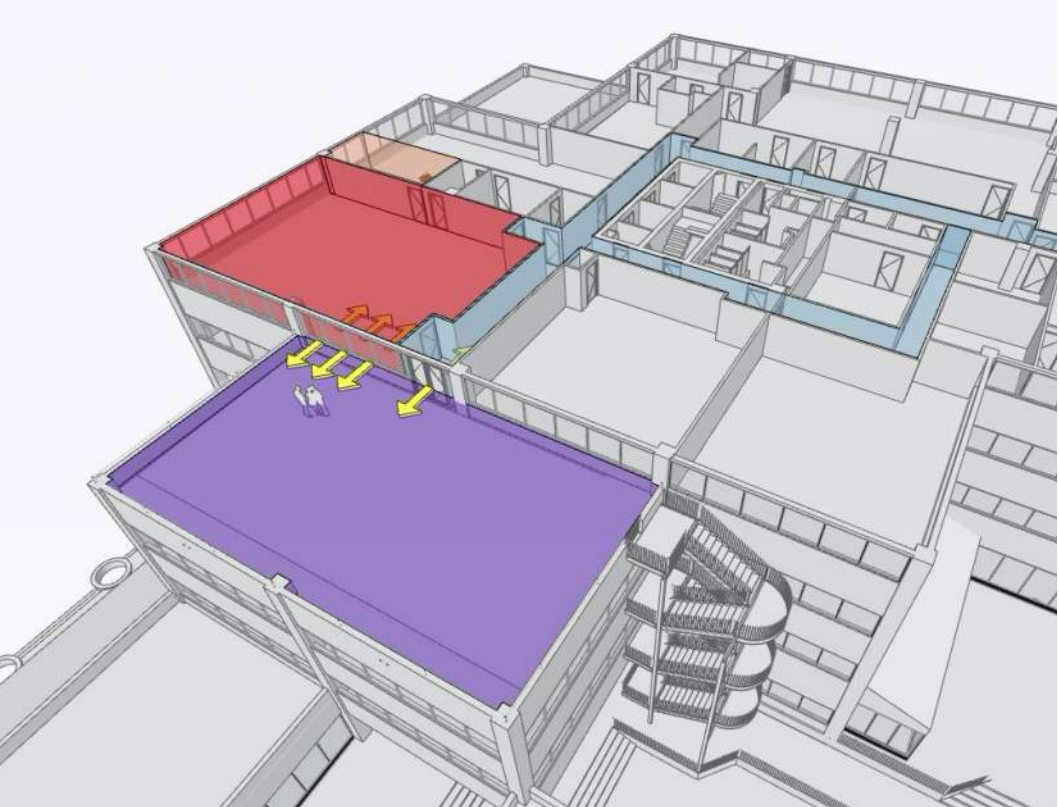
- Building Code UBC 1973
- Construction Type I
- Concrete structure
- Office Building

Preliminary Findings

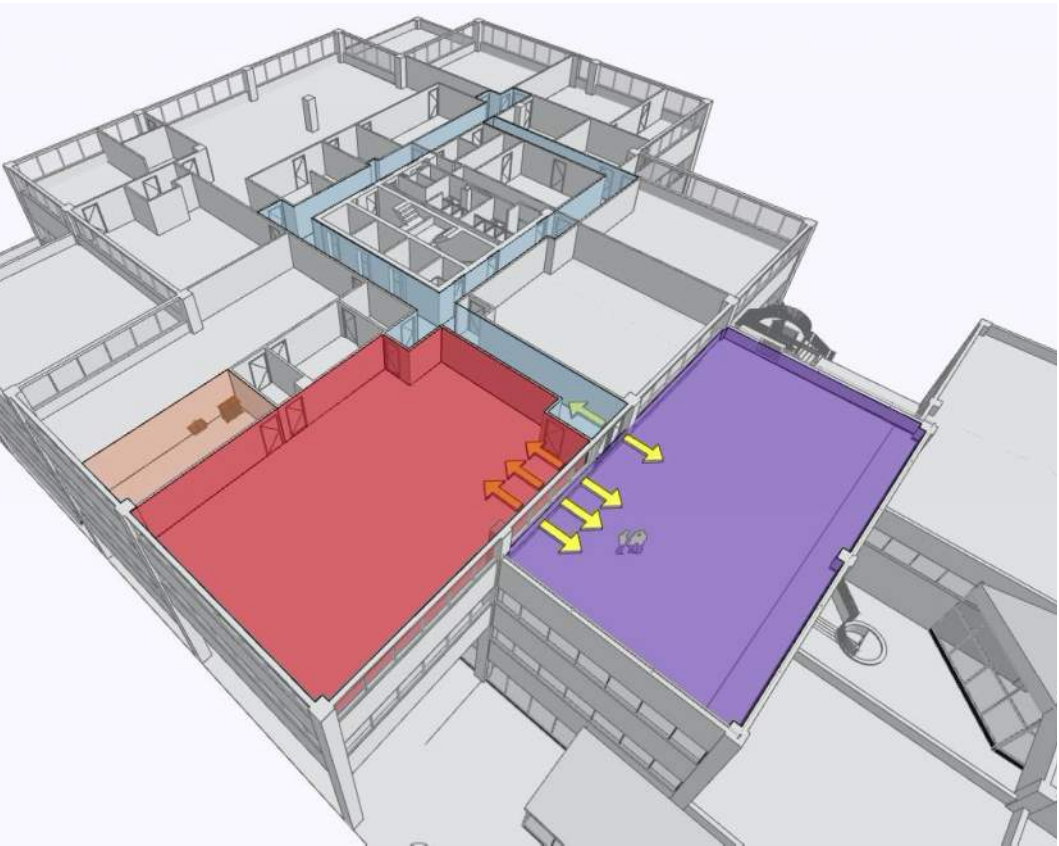
- Building is sprinklered
- Existing corridor not rated
- Occupant load >500
- Three exits required
- Exit separation adequate
- Exterior stair guardrail required



LAYOUT STUDIES



2 View 1 - Option 1
SCALE: 1:106.67



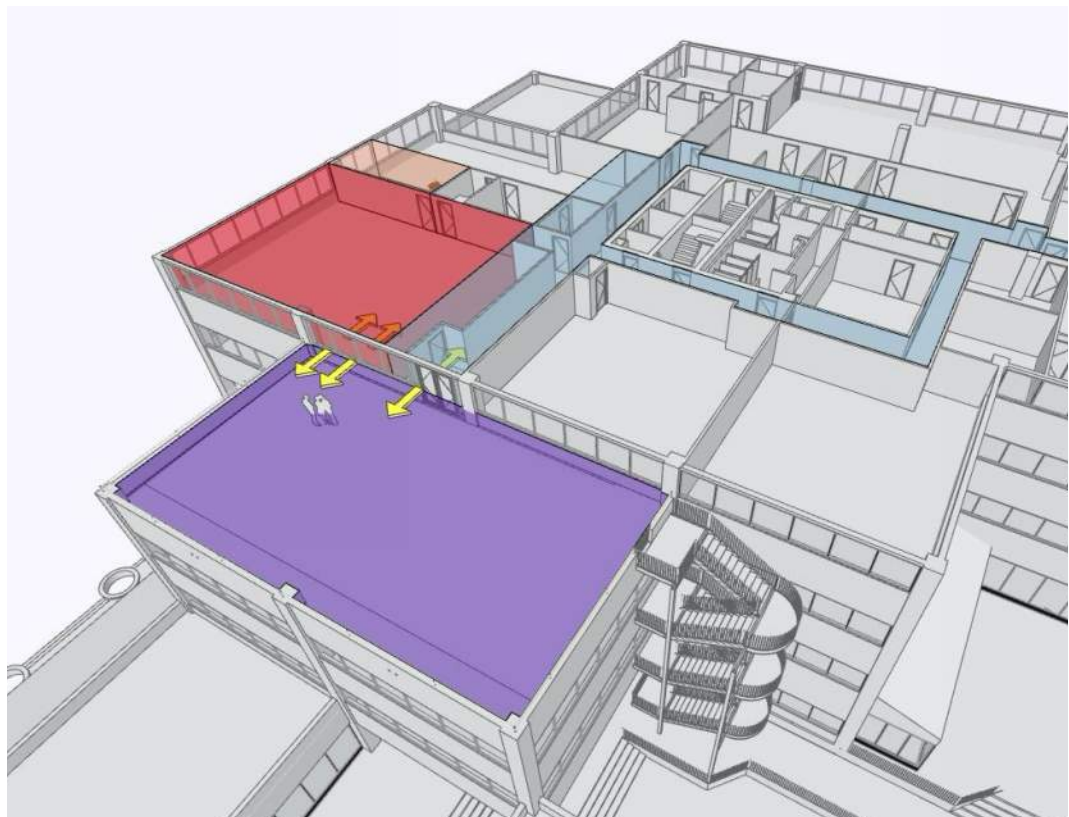
3 View 2 - Option 1
SCALE: 1:106.67

1 4th FLOOR OPTION 1
SCALE: 1/8" = 1'-0"

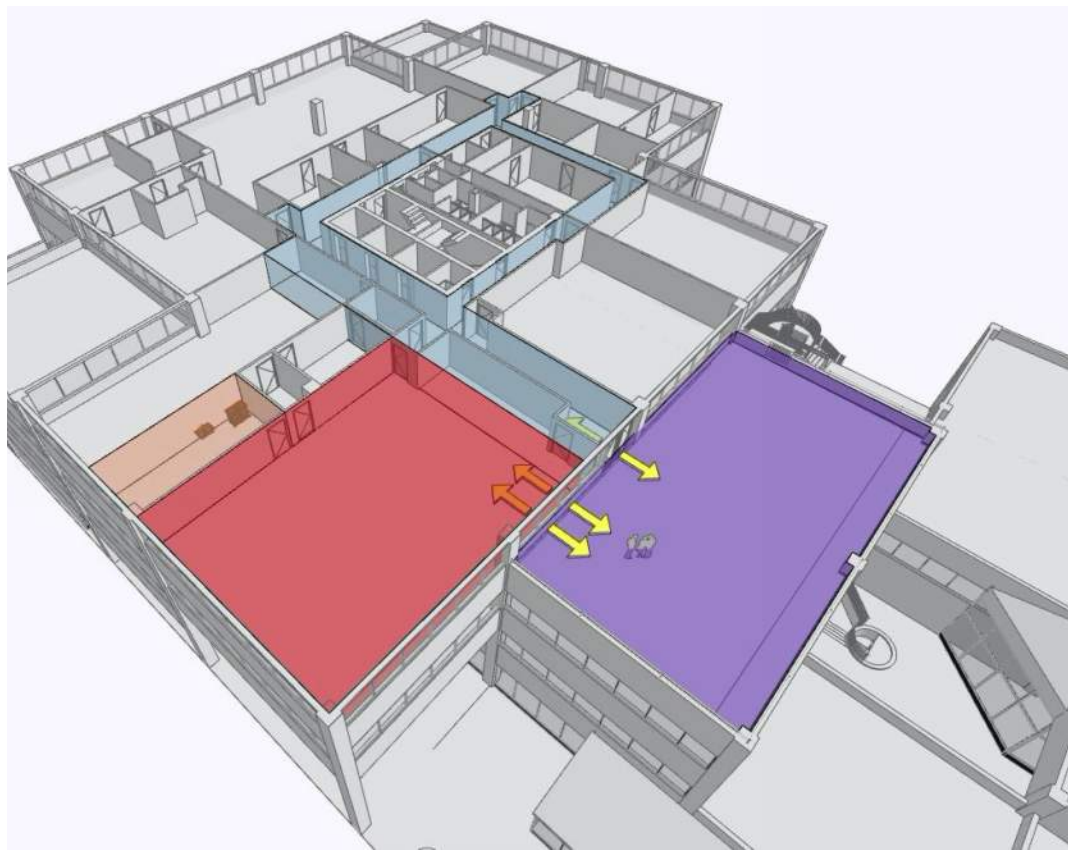
LAYOUT STUDIES



1 4th FLOOR OPTION 2
SCALE: 1/8" = 1'-0"

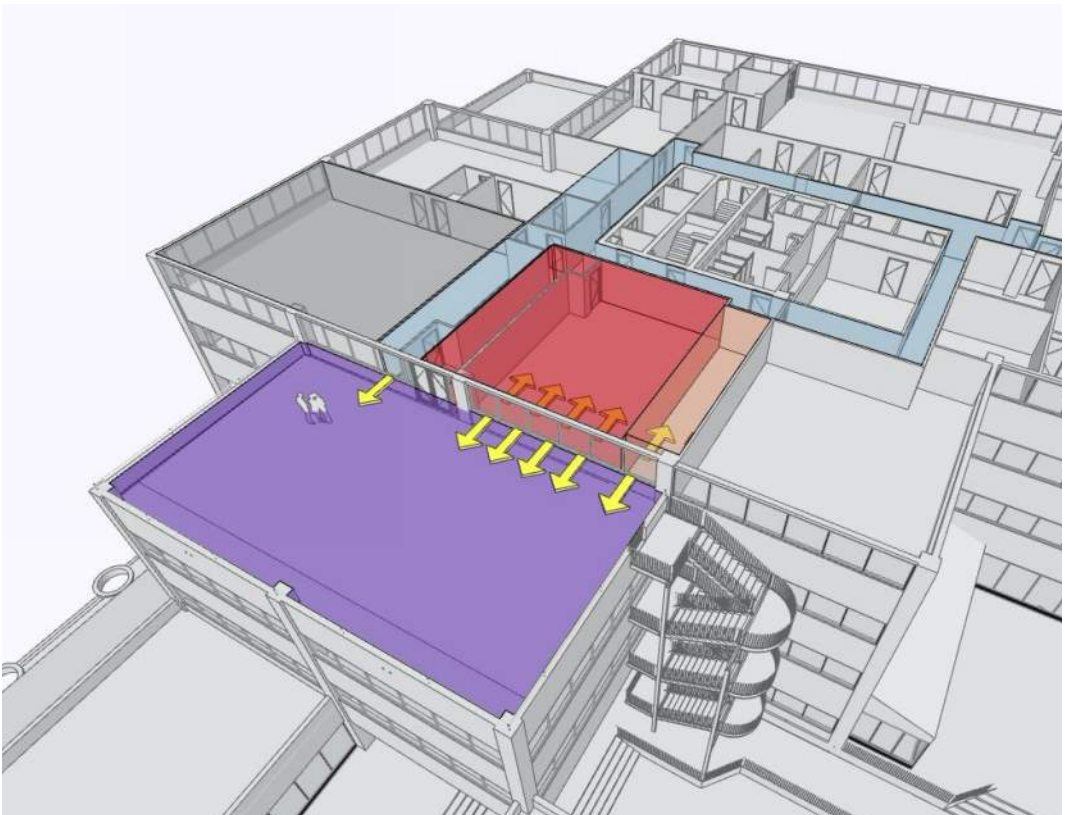


2 View 1 - Option 2
SCALE: 1:106.67

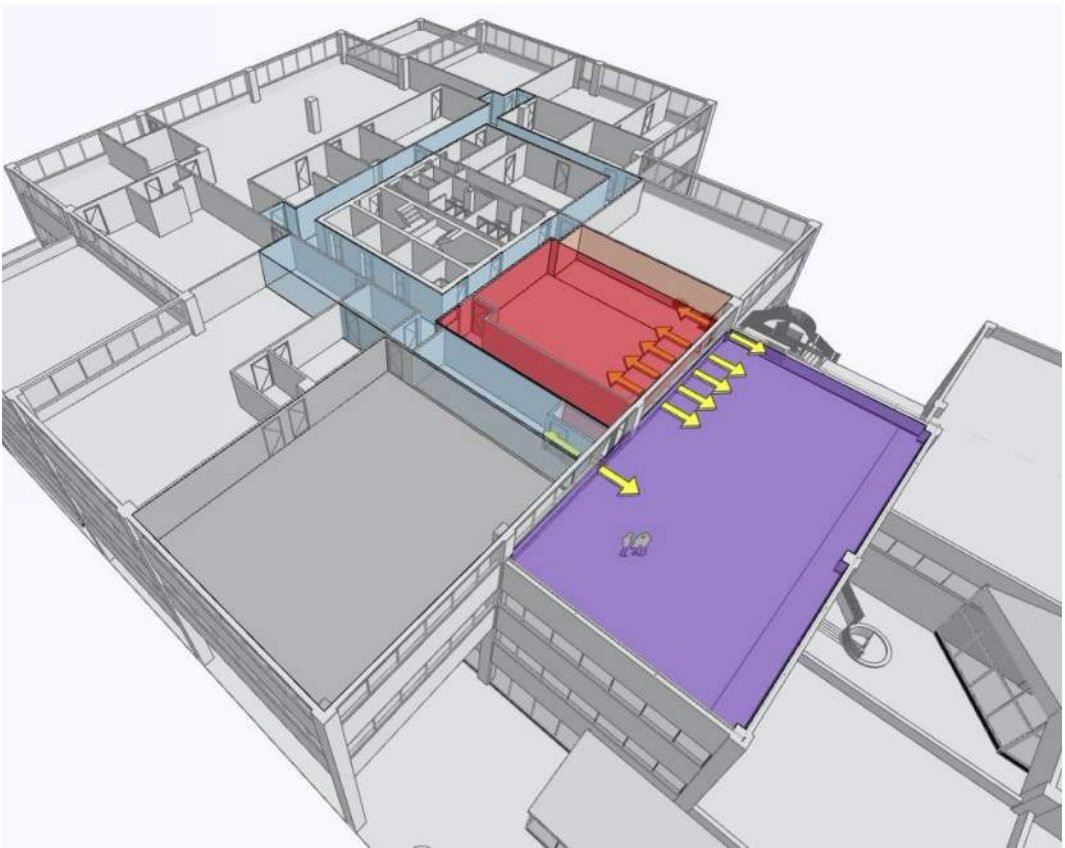


3 View 2 - Option 2
SCALE: 1:106.67

LAYOUT STUDIES

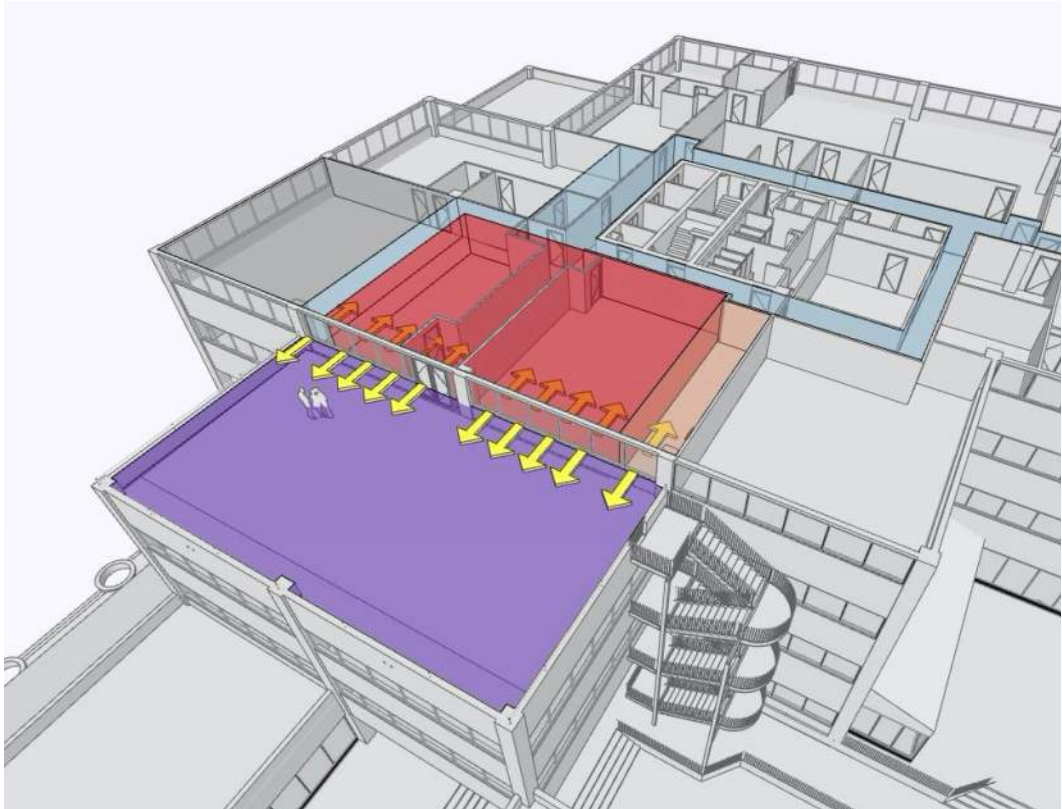


2 View 1 - Option 3
SCALE: 1:106.67

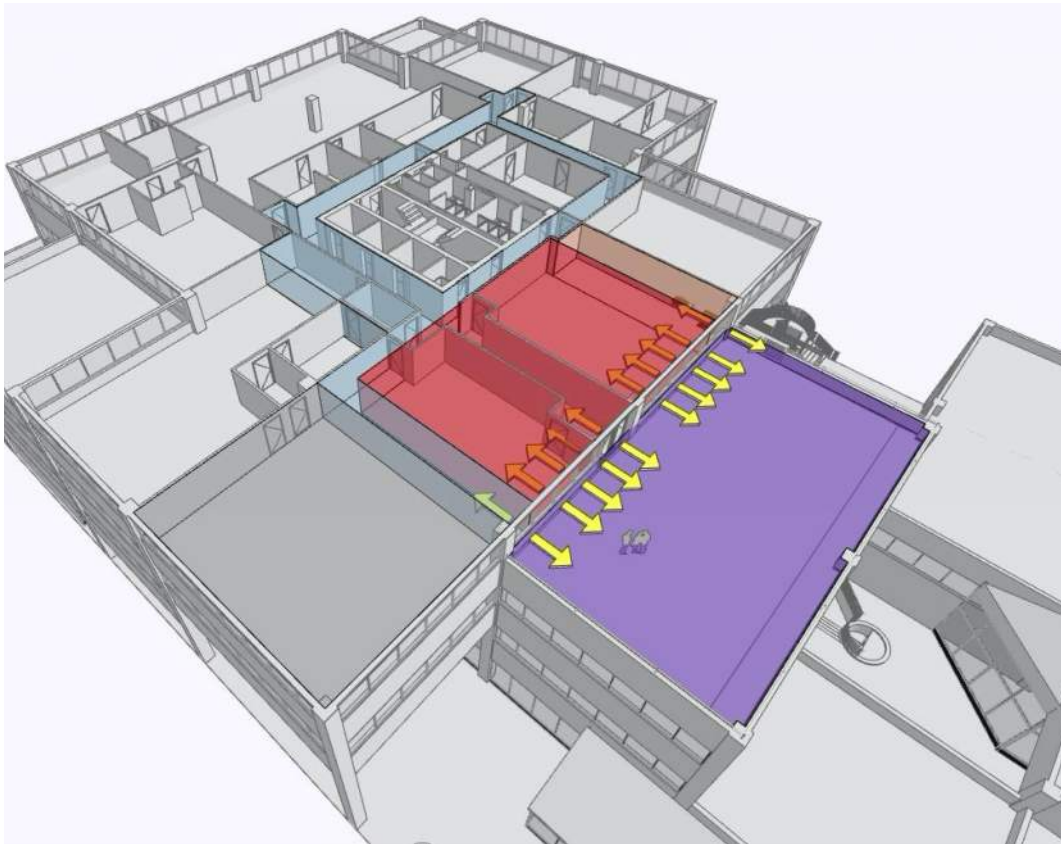


3 View 2 - Option 3
SCALE: 1:106.67

LAYOUT STUDIES



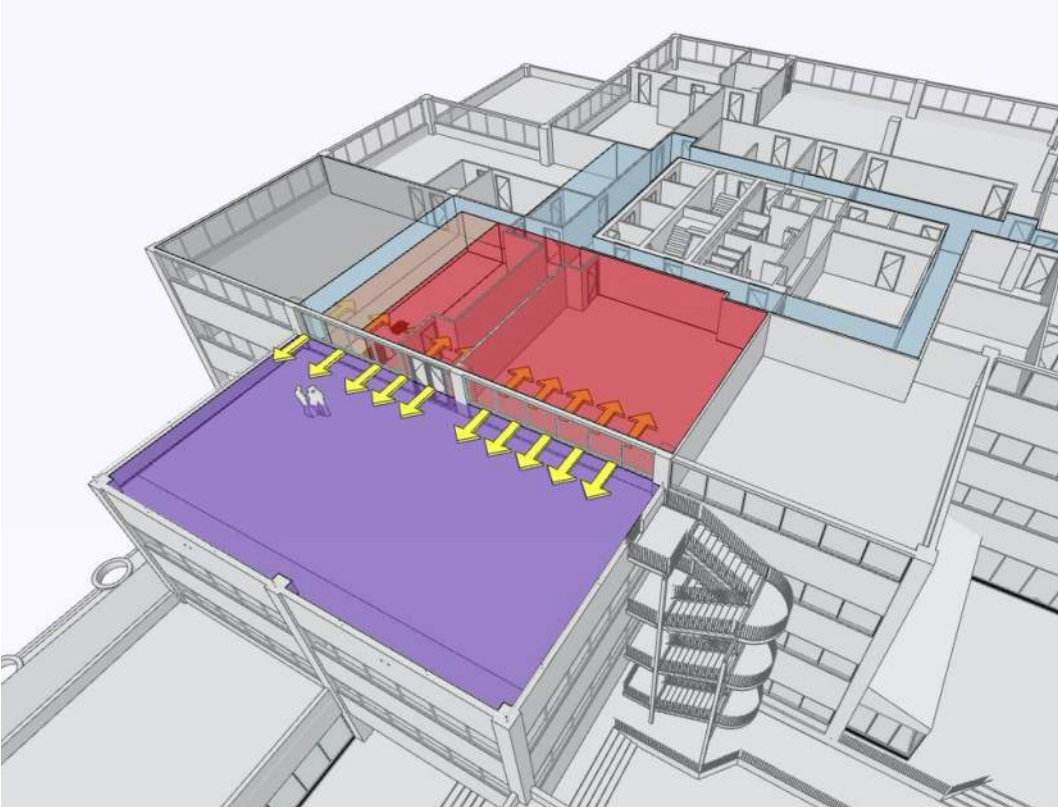
2 View 1 - Option 5
SCALE: 1:106.67



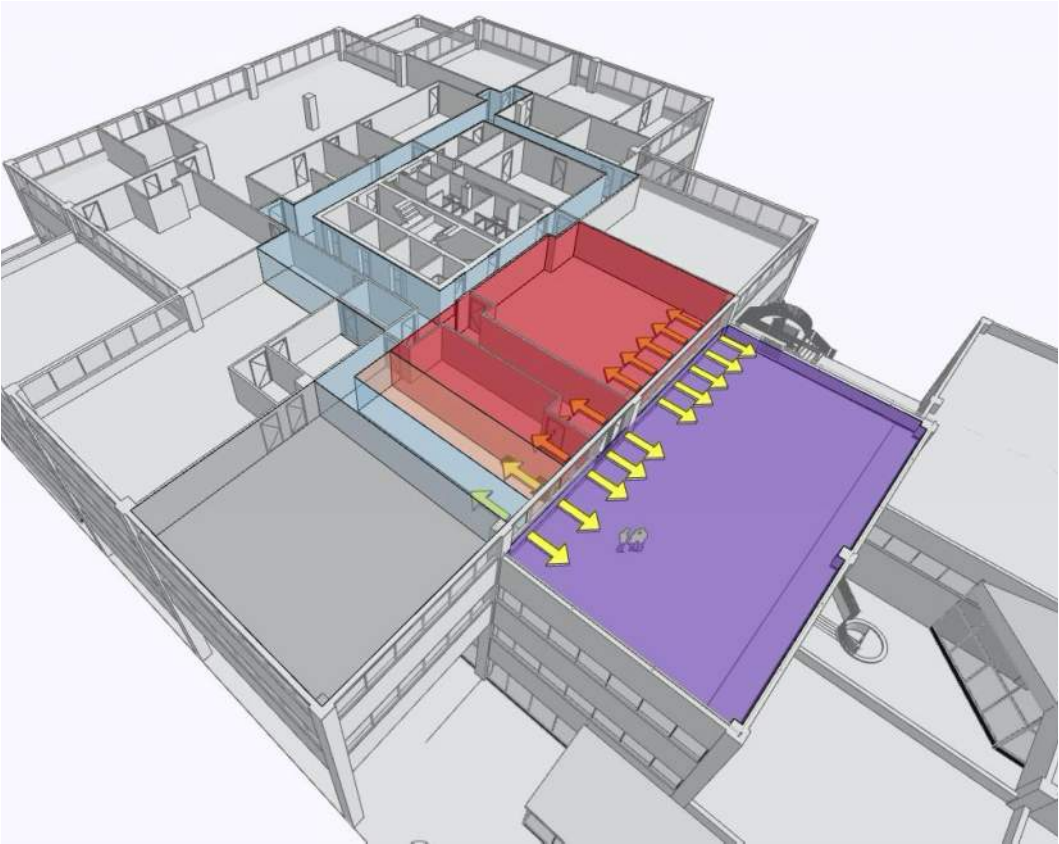
3 View 2 - Option 5
SCALE: 1:106.67

1 4th FLOOR OPTION 5
SCALE: 1/8" = 1'-0"

LAYOUT STUDIES



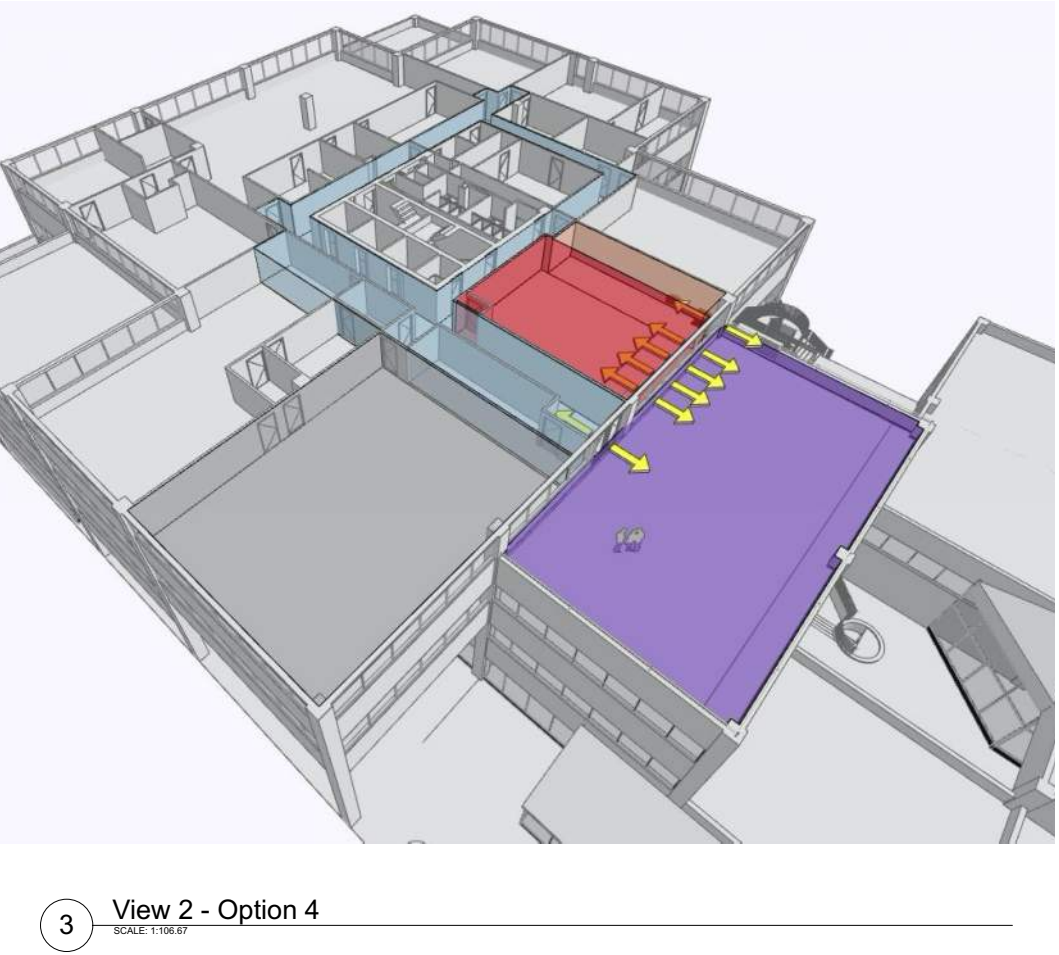
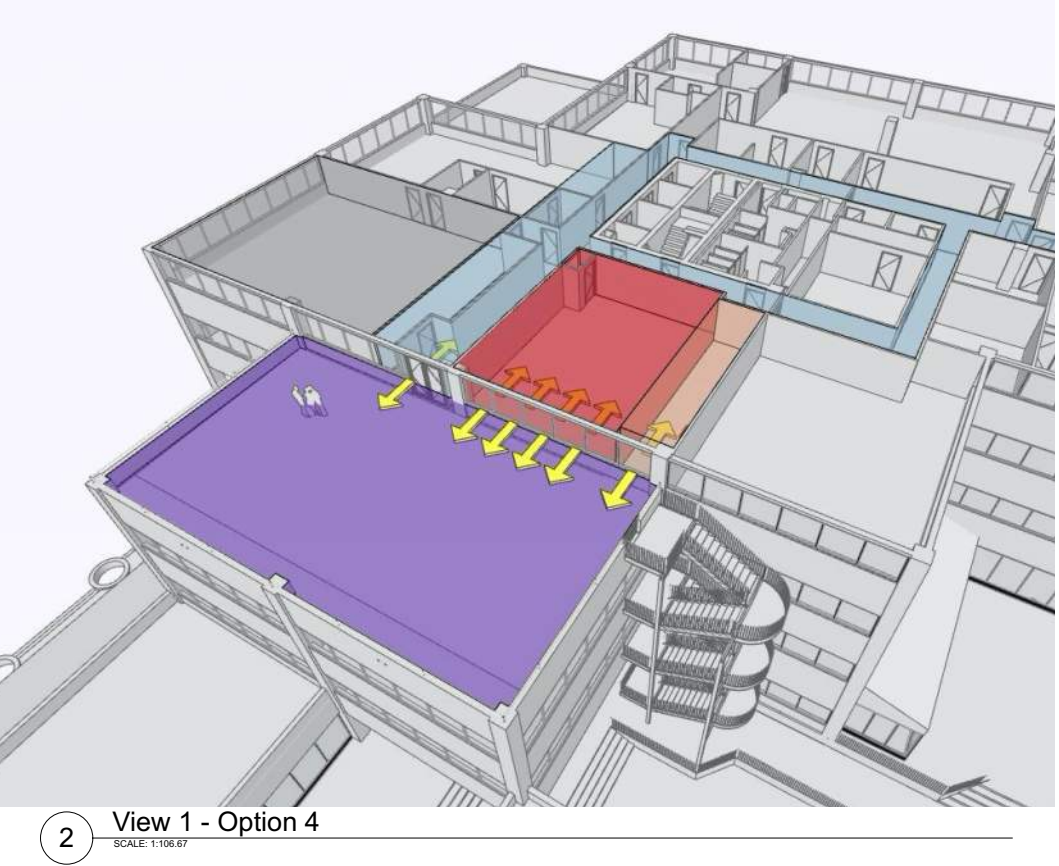
2 View 1 - Option 5A
SCALE: 1:106.67



3 View 2 - Option 5A
SCALE: 1:106.67

1 4th FLOOR OPTION 5A
SCALE: 1/8" = 1'-0"

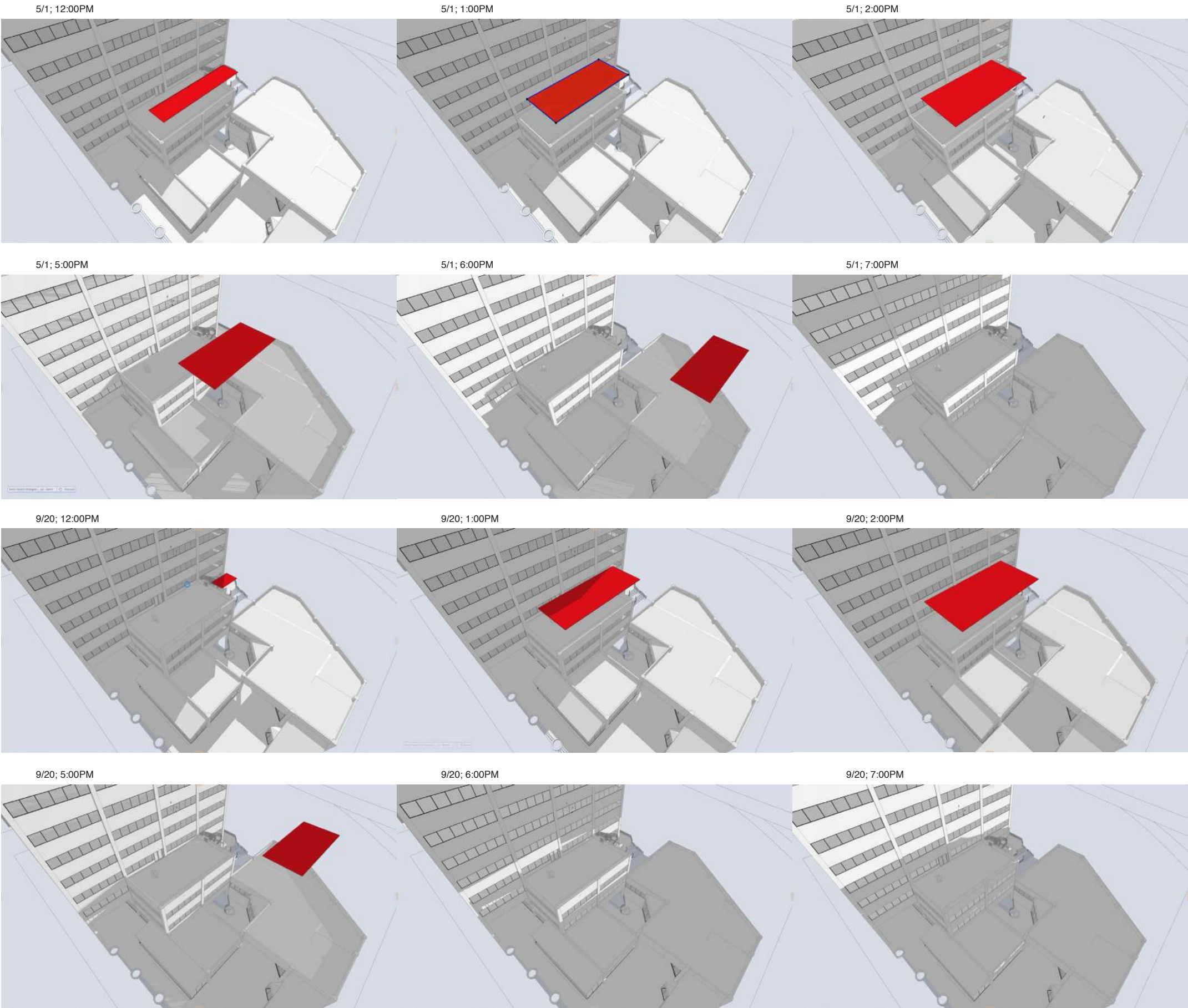
PREFERRED LAYOUT



PROGRAM OVERVIEW

4TH FLR LOBBY / PREFUNCTION	1,023 sf	#ppl
CORRIDOR	873 sf	
CLASSROOM (470)	1,876 sf	90 ppl lecture
FINISHES		
AV / IT		
CLASSROOM / EVENT SPACE (480)	907 sf	49 lecture / 60 seated event
FINISHES		
AV / IT		
OPERABLE PARTITION		
CATERING KITCHEN	245 sf	
ROOFTOP	2,250 sf	150 ppl / 100 seated event
FINISHES		
LANDSCAPE		
SHADE STRUCTURE		
FURNISHINGS		
ELEVATOR CAB UPGRADES (3)	132 sf	
RESTROOM UPGRADES	395 sf	

SHADING STUDIES

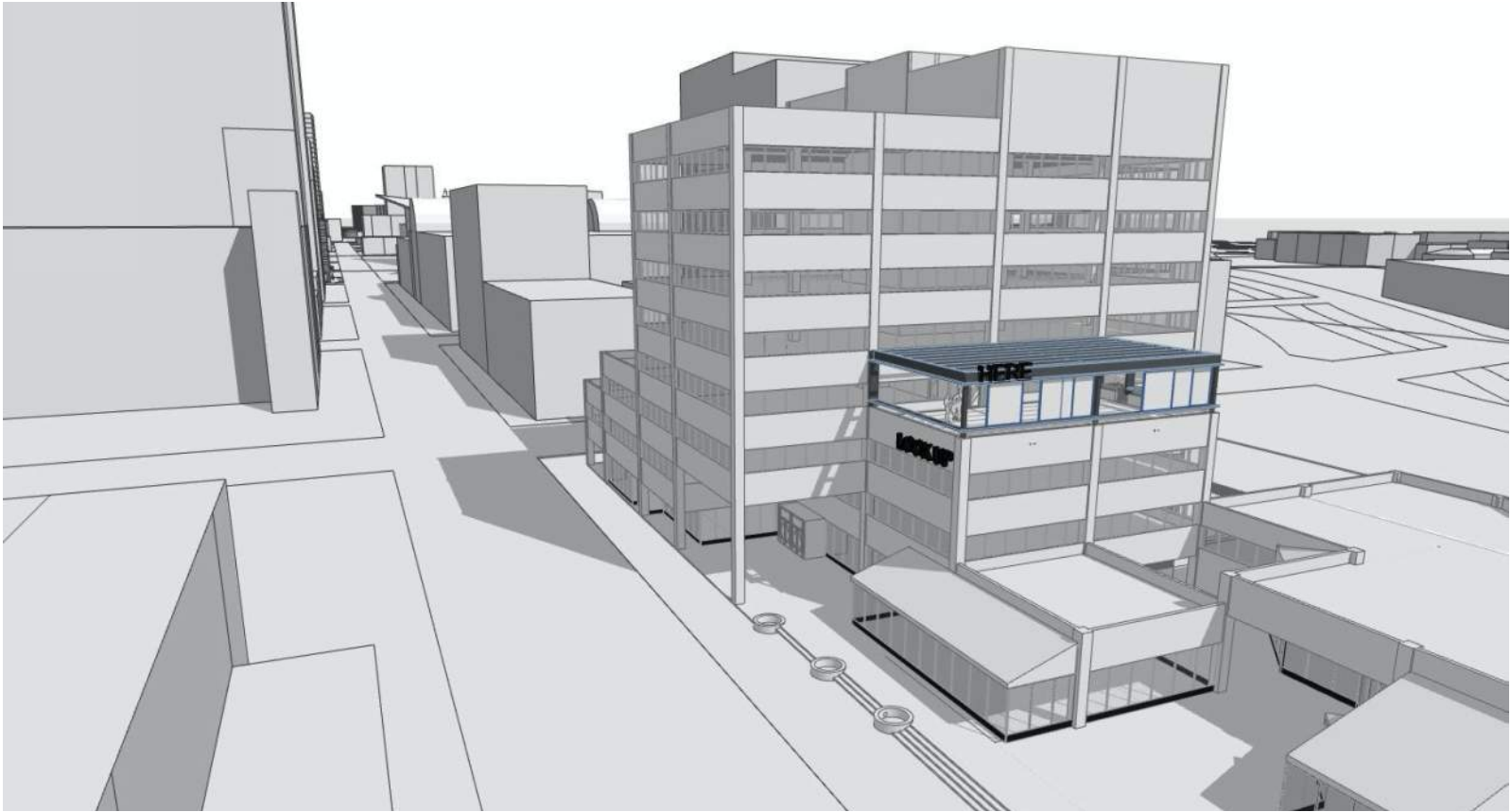


Peak Events
May: Lunch/Dinner
Sep: Lunch/Dinner

Red plane represents the minimal size and optimal location required for effective shading of entire rooftop deck.

Shading is most effective west and vertically rather than directly overhead.

SHADING STUDIES | TRELLIS

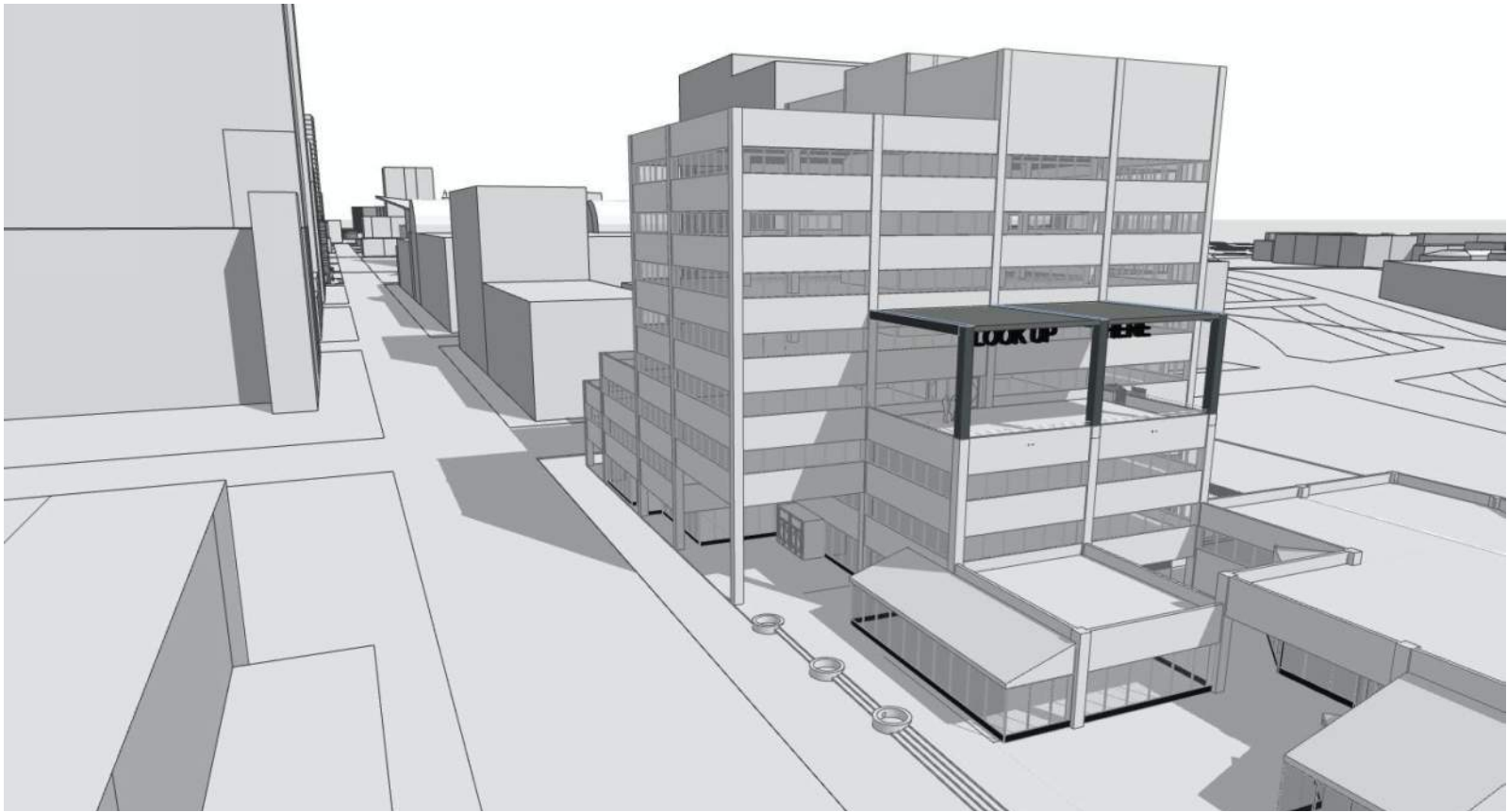


AERIAL CANOPY OPTION A



PERSPECTIVE: CANOPY OPTION A

SHADING STUDIES | HIGH ROOF

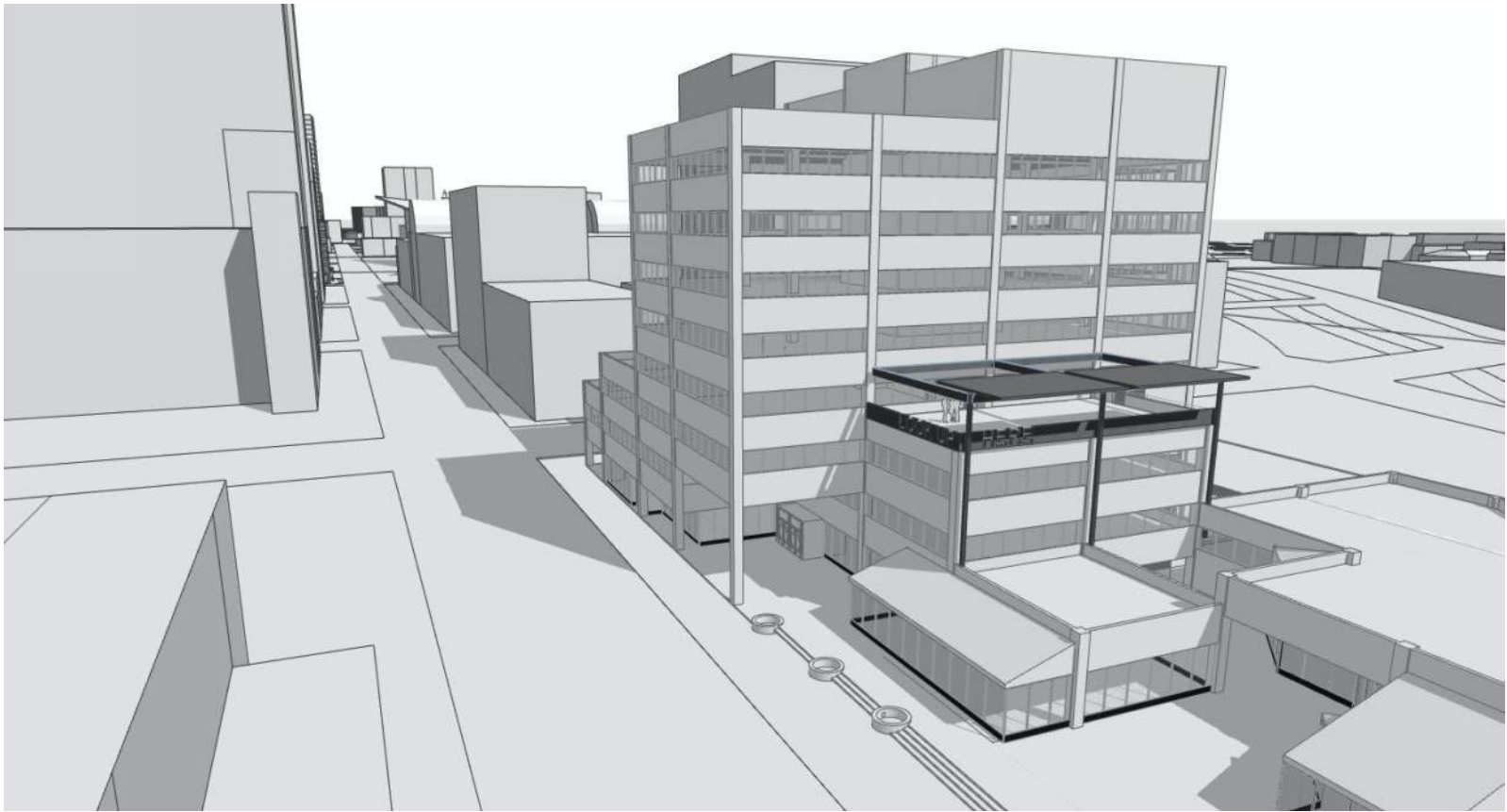


AERIAL CANOPY OPTION B



PERSPECTIVE: CANOPY OPTION B

SHADING STUDIES | FRAME

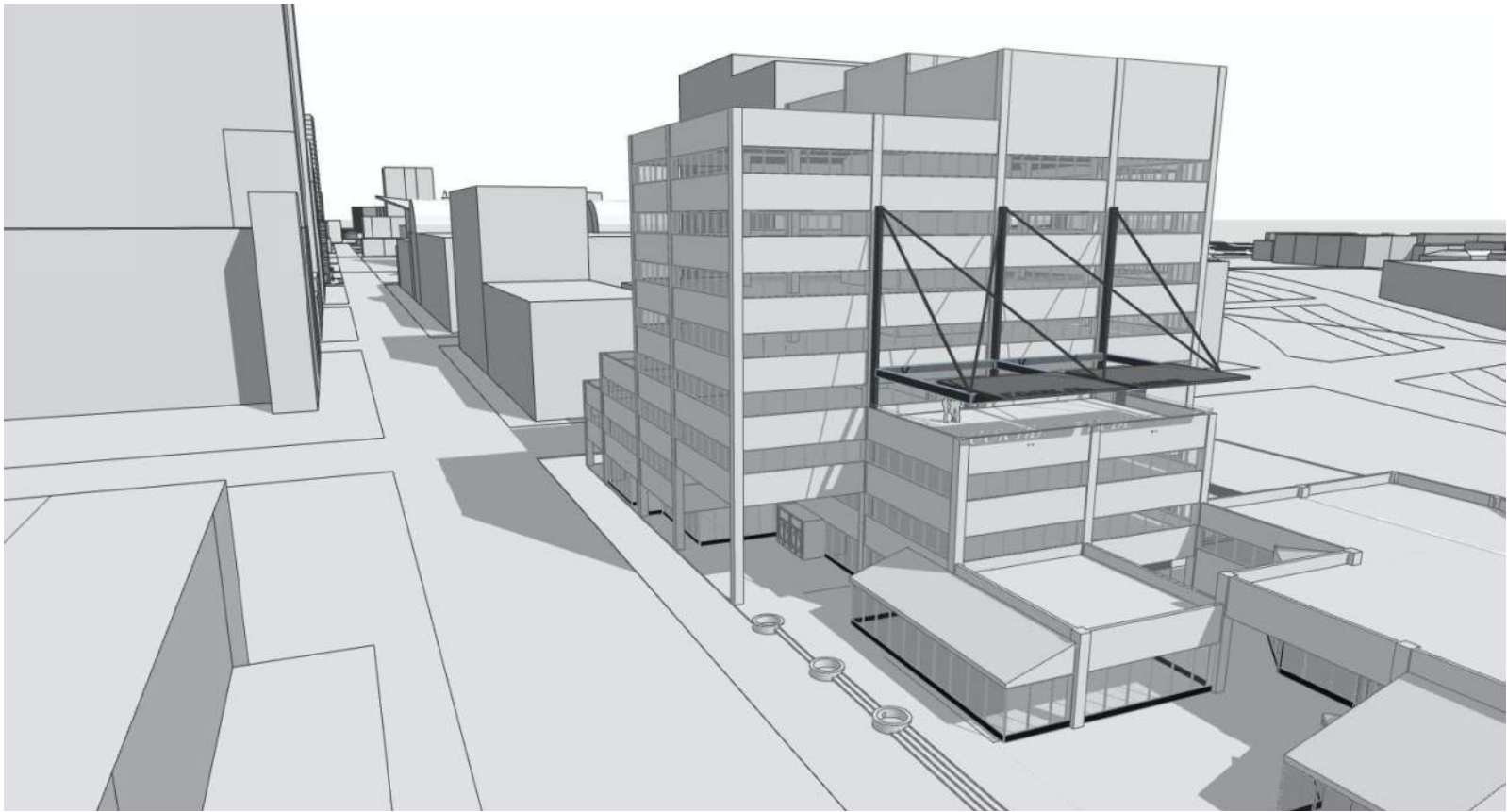


AERIAL CANOPY OPTION C



PERSPECTIVE: CANOPY OPTION C

SHADING STUDIES | SAIL

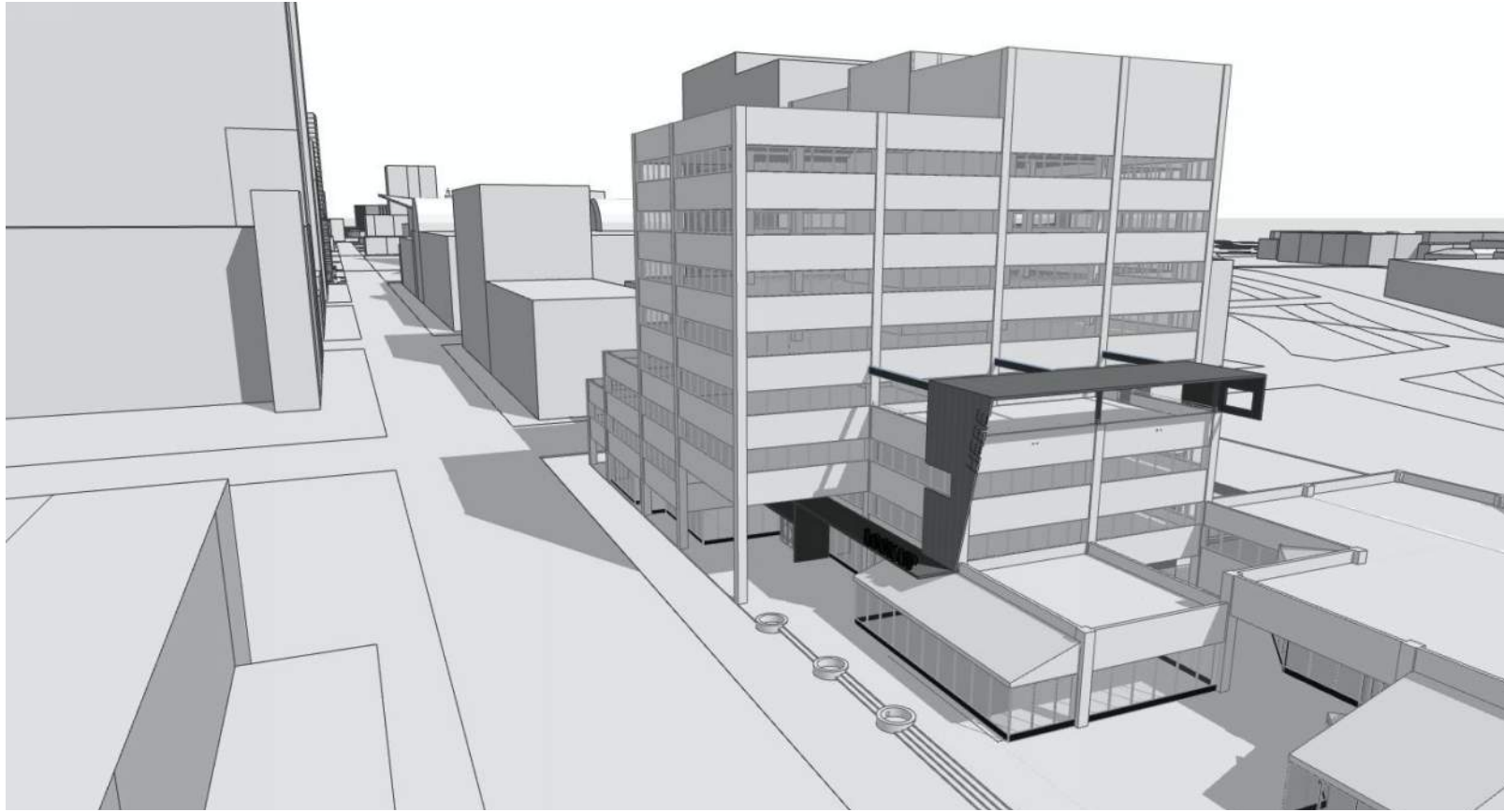


AERIAL CANOPY OPTION D



PERSPECTIVE: CANOPY OPTION D

PREFERRED SHADING | WRAP

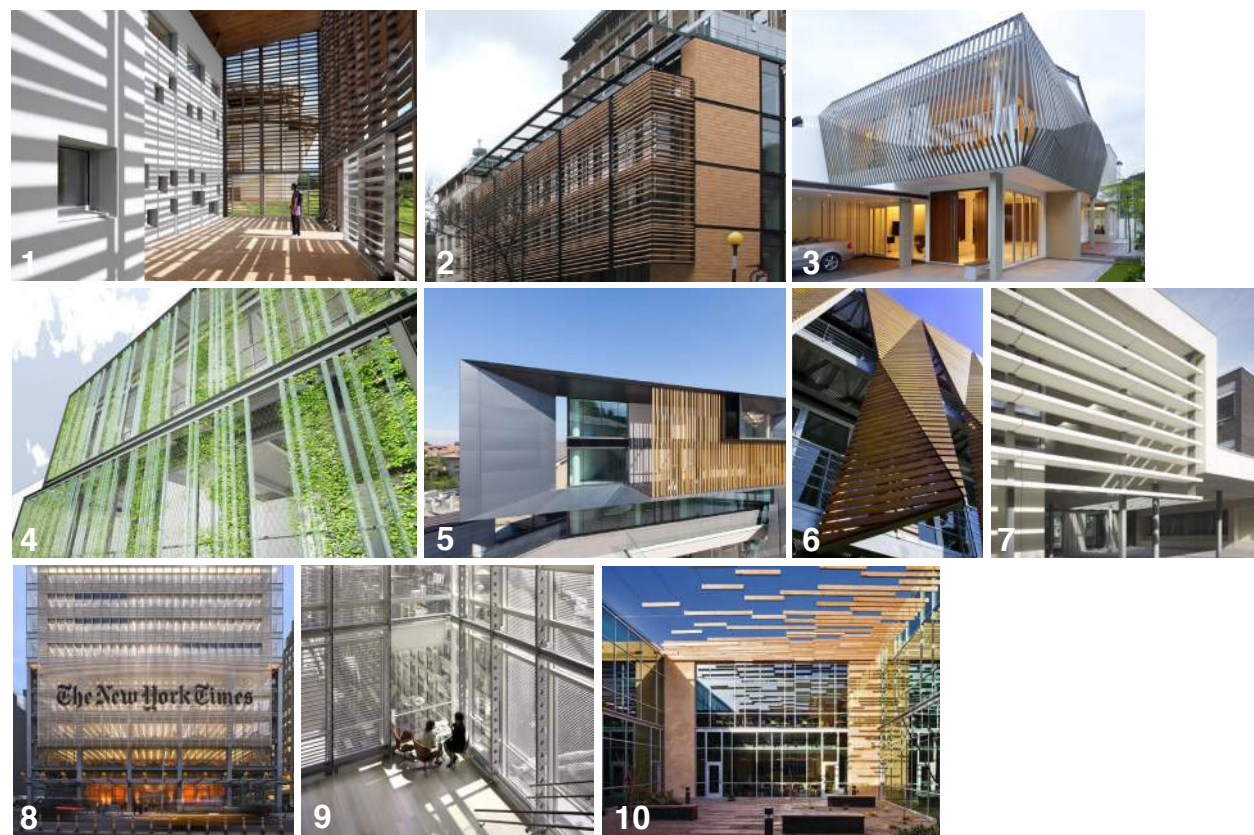
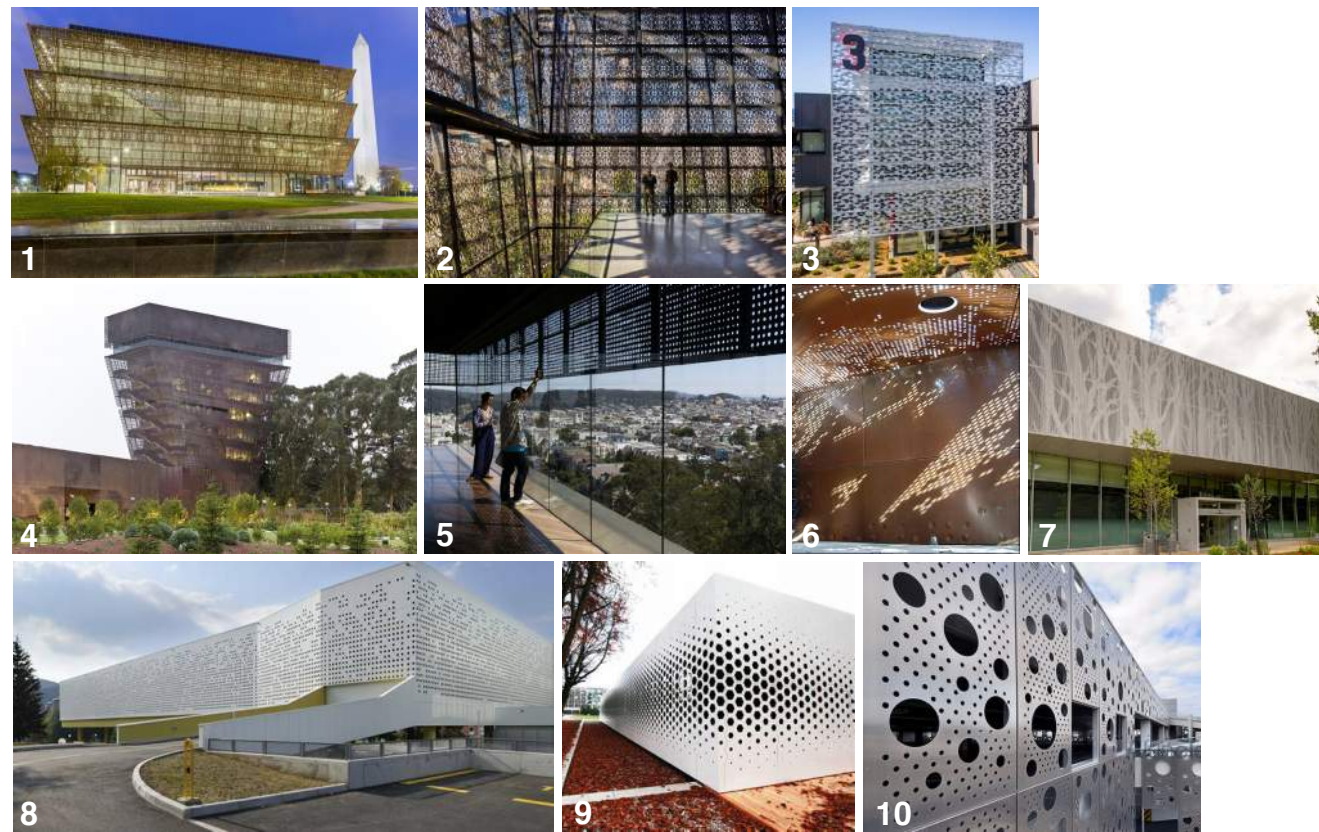


AERIAL CANOPY OPTION E



PERSPECTIVE: CANOPY OPTION E

SHADING MATERIAL STUDY

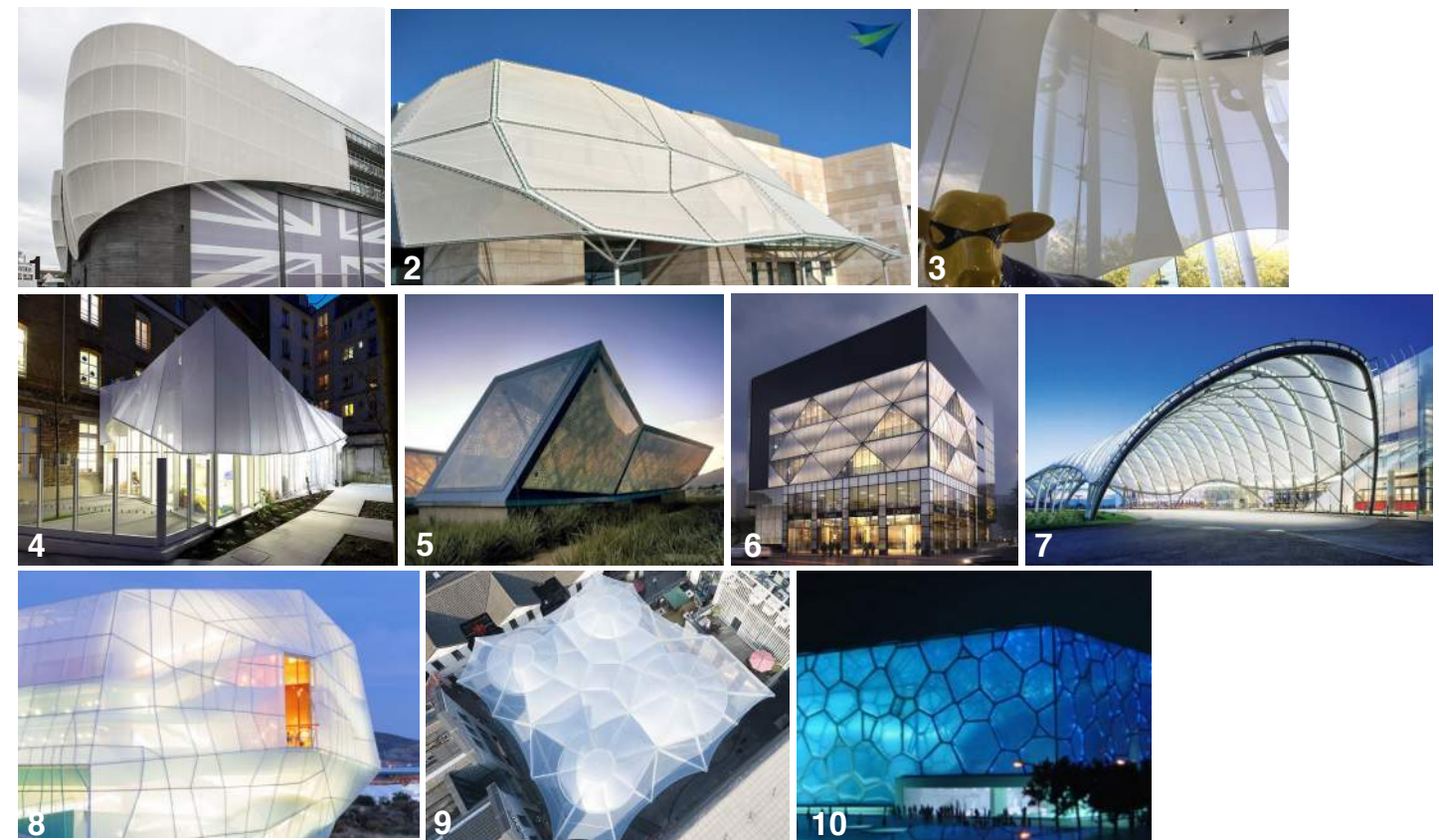


PERFORATED METAL PANELS



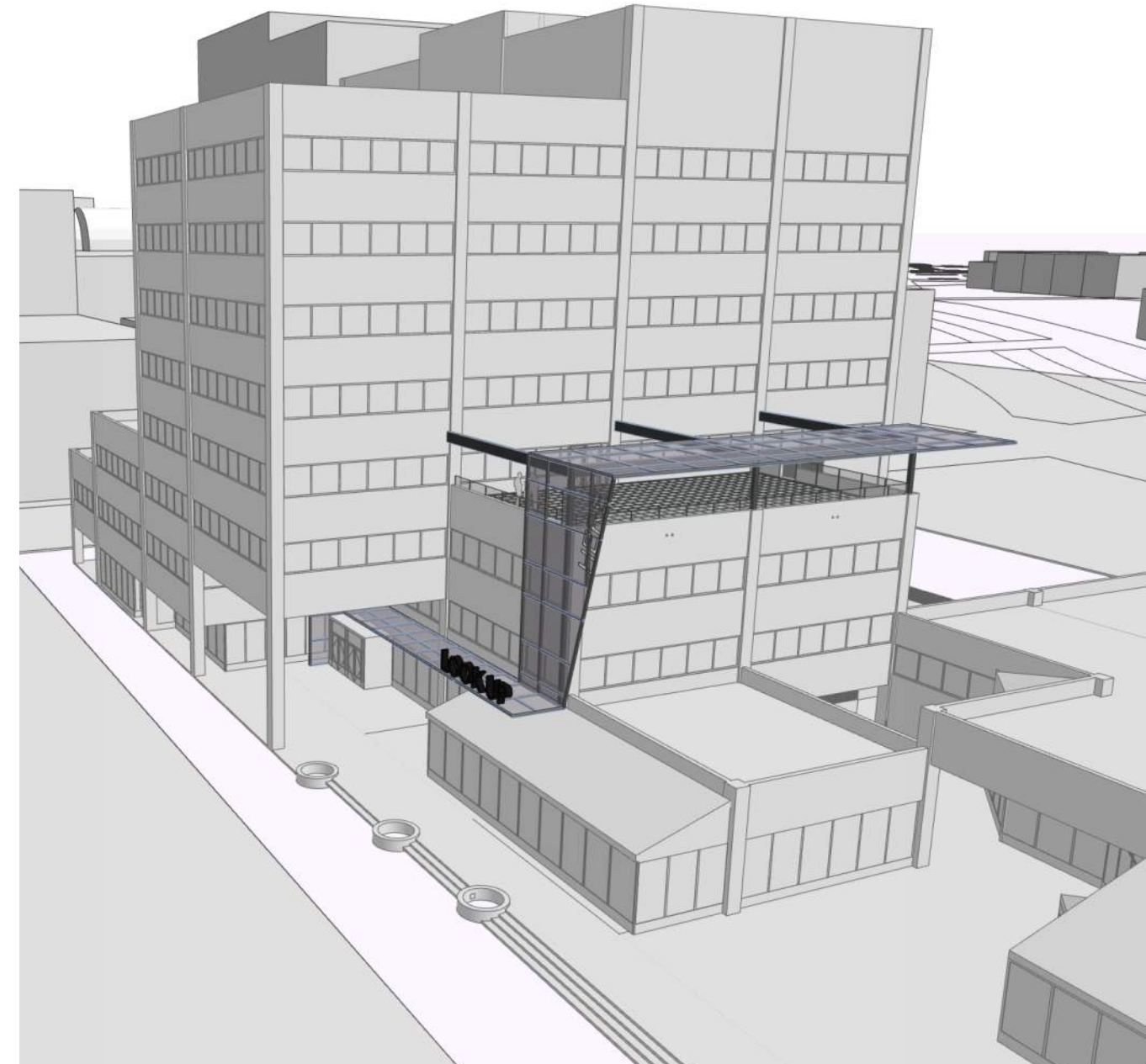
METAL FABRIC

BRISE SOLEIL

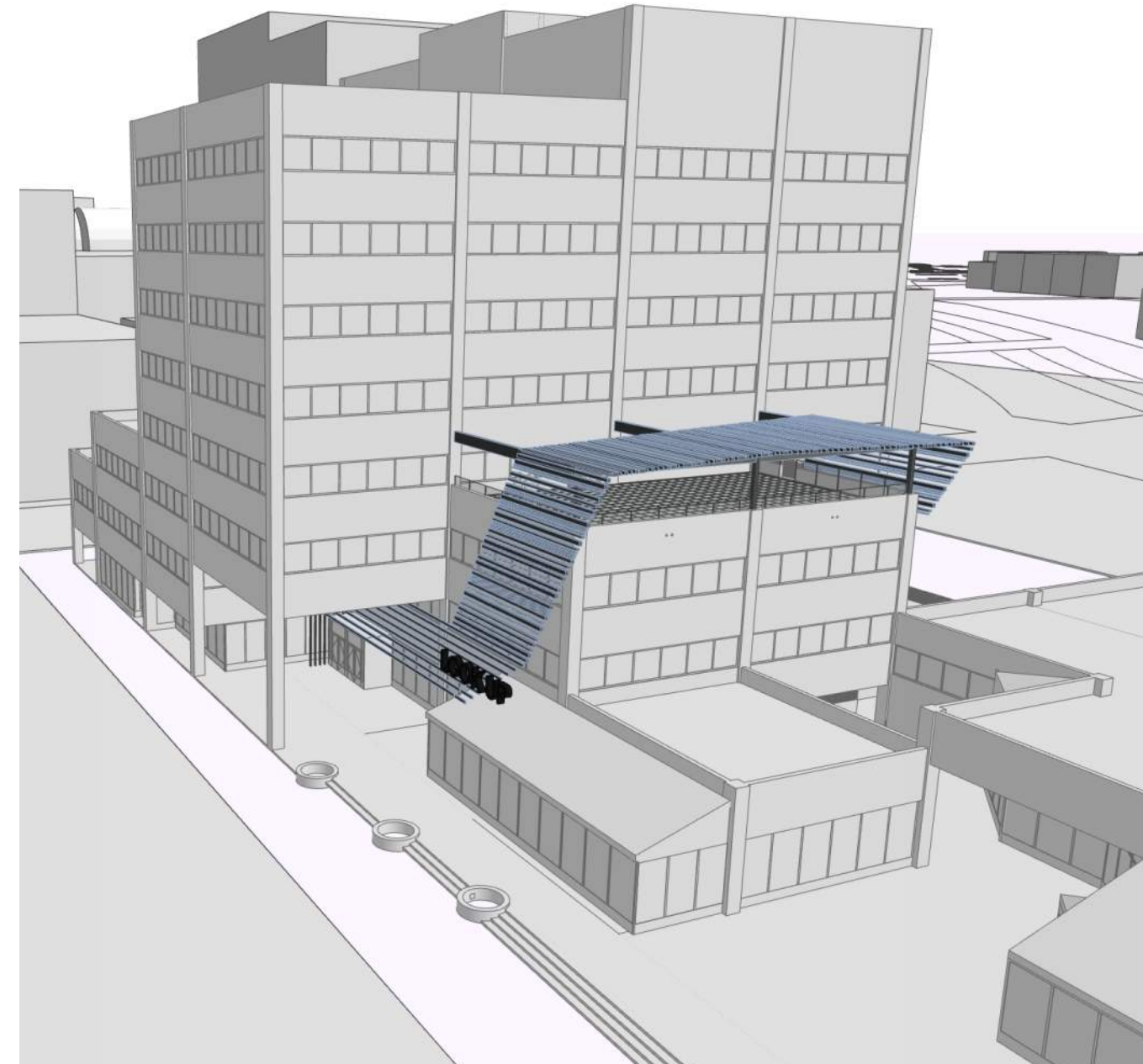


ETFE

SHADING MATERIAL STUDIES | PERFORATED PANEL



SHADING MATERIAL STUDIES | BRISE SOLEIL

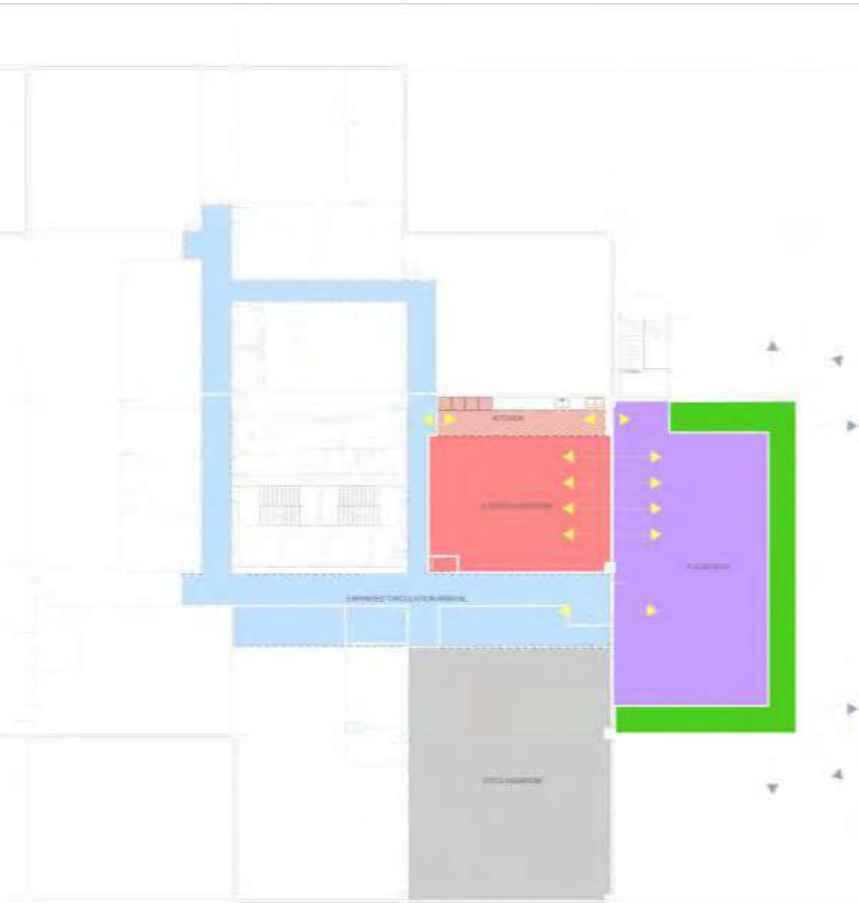


PREFERRED SHADING MATERIAL | FABRIC / MESH

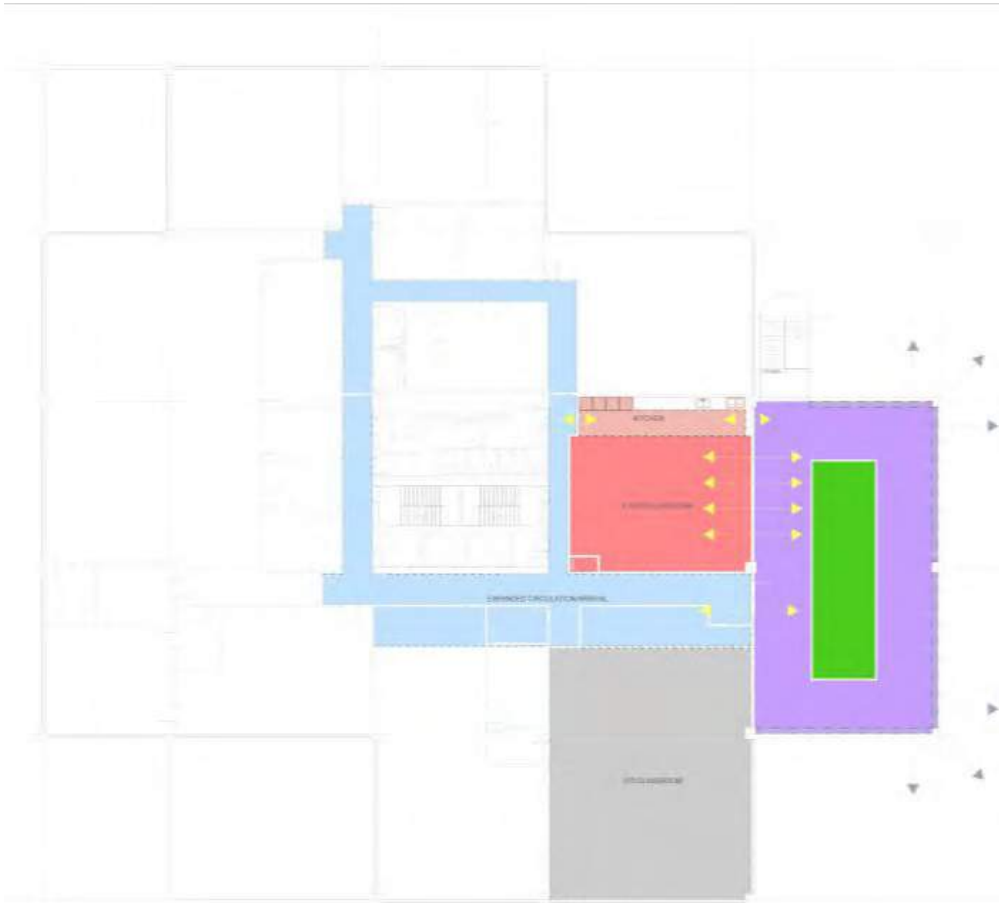


ROOFTOP LANDSCAPE

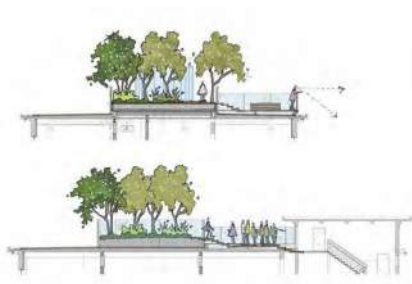
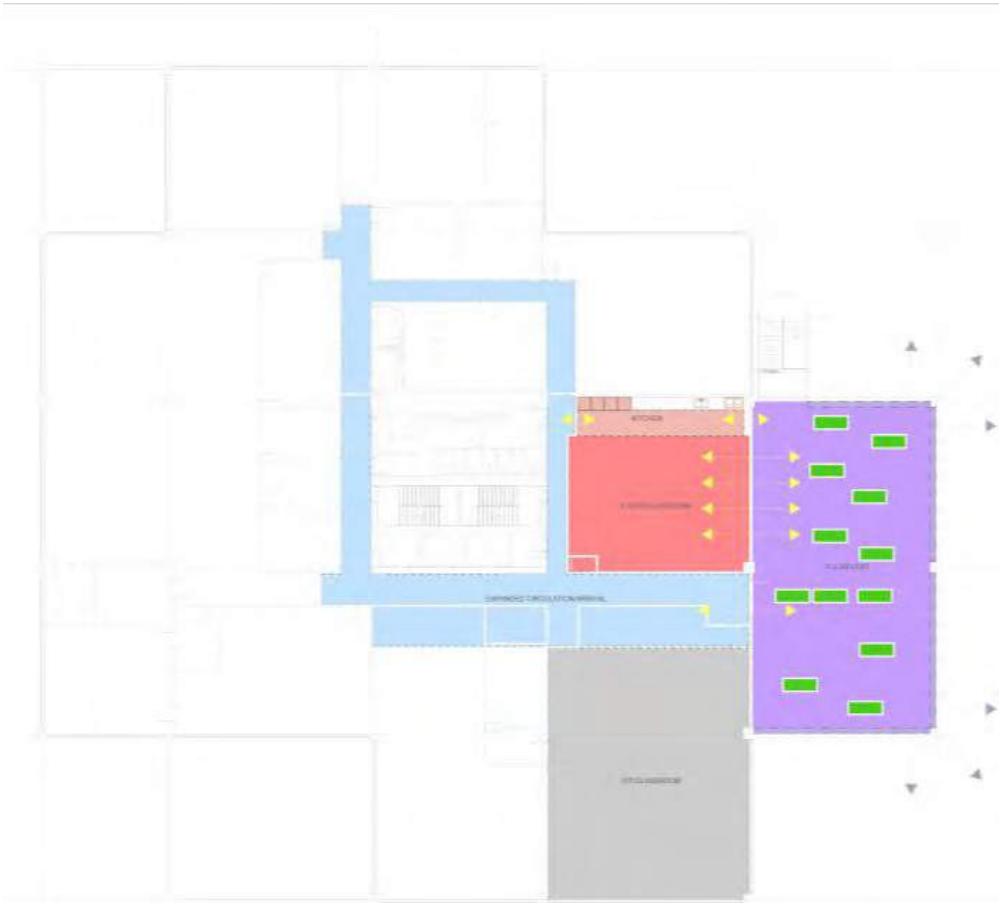
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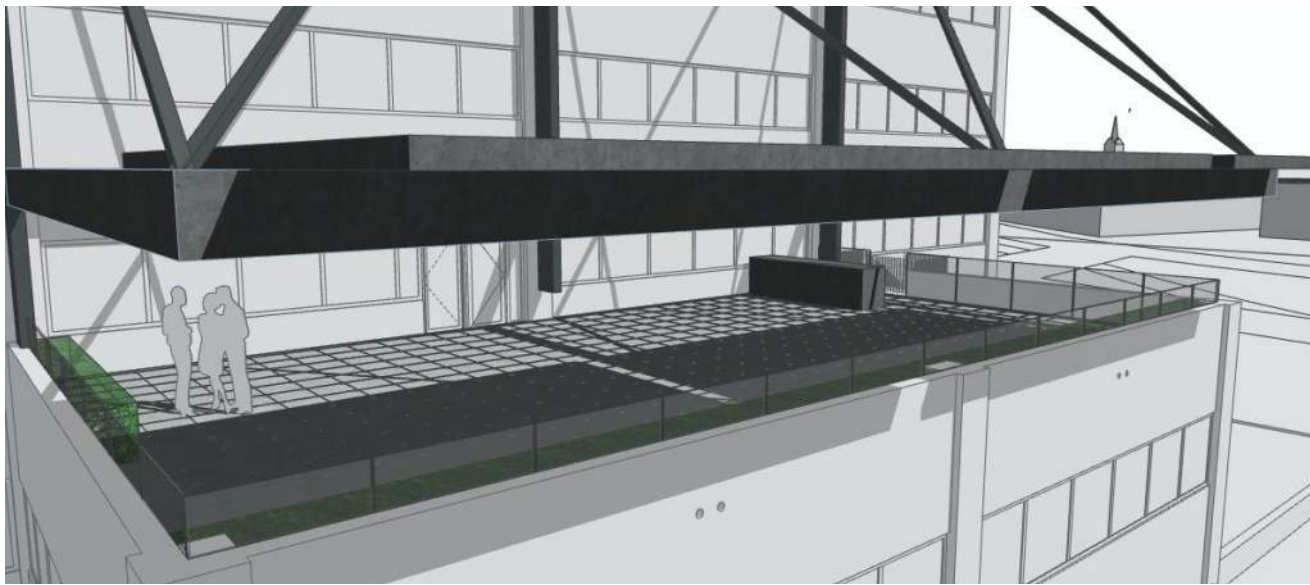
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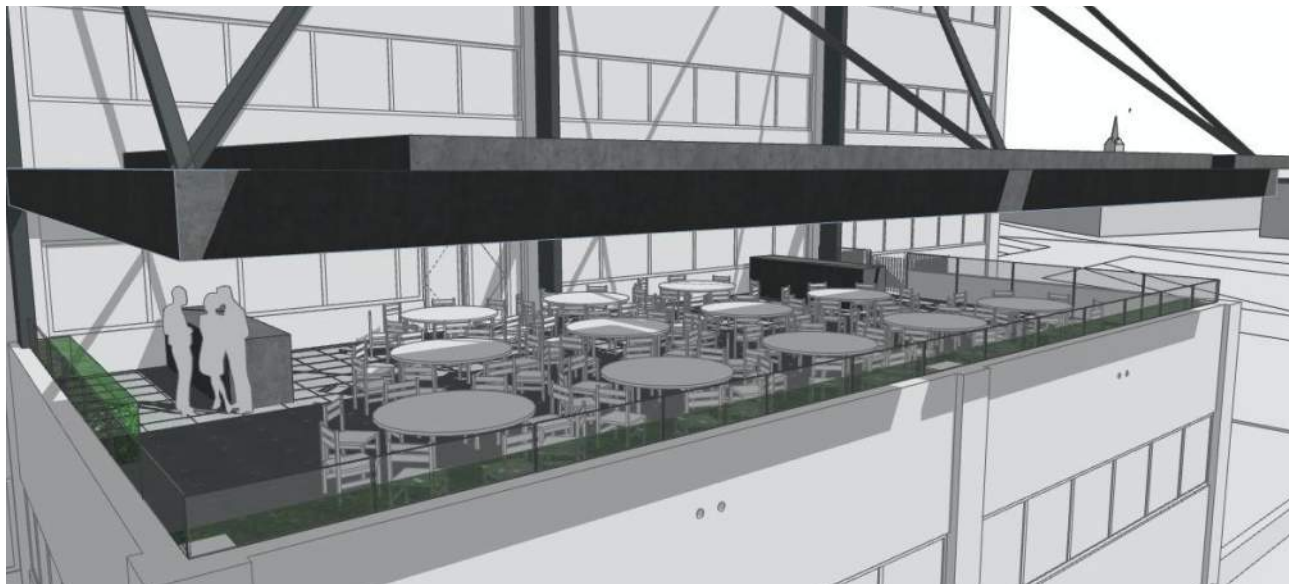
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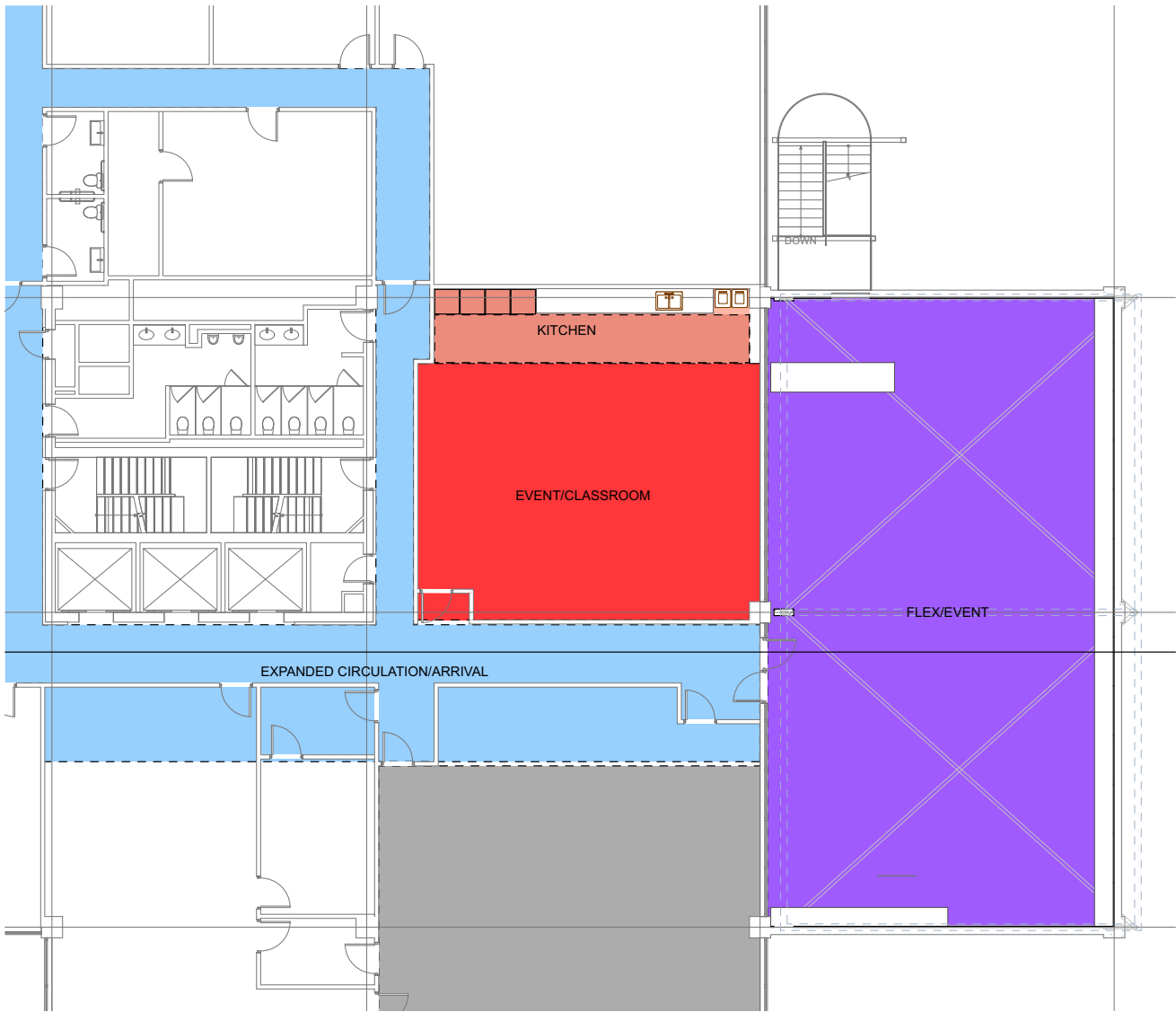
TEST FIT | PERIMETER



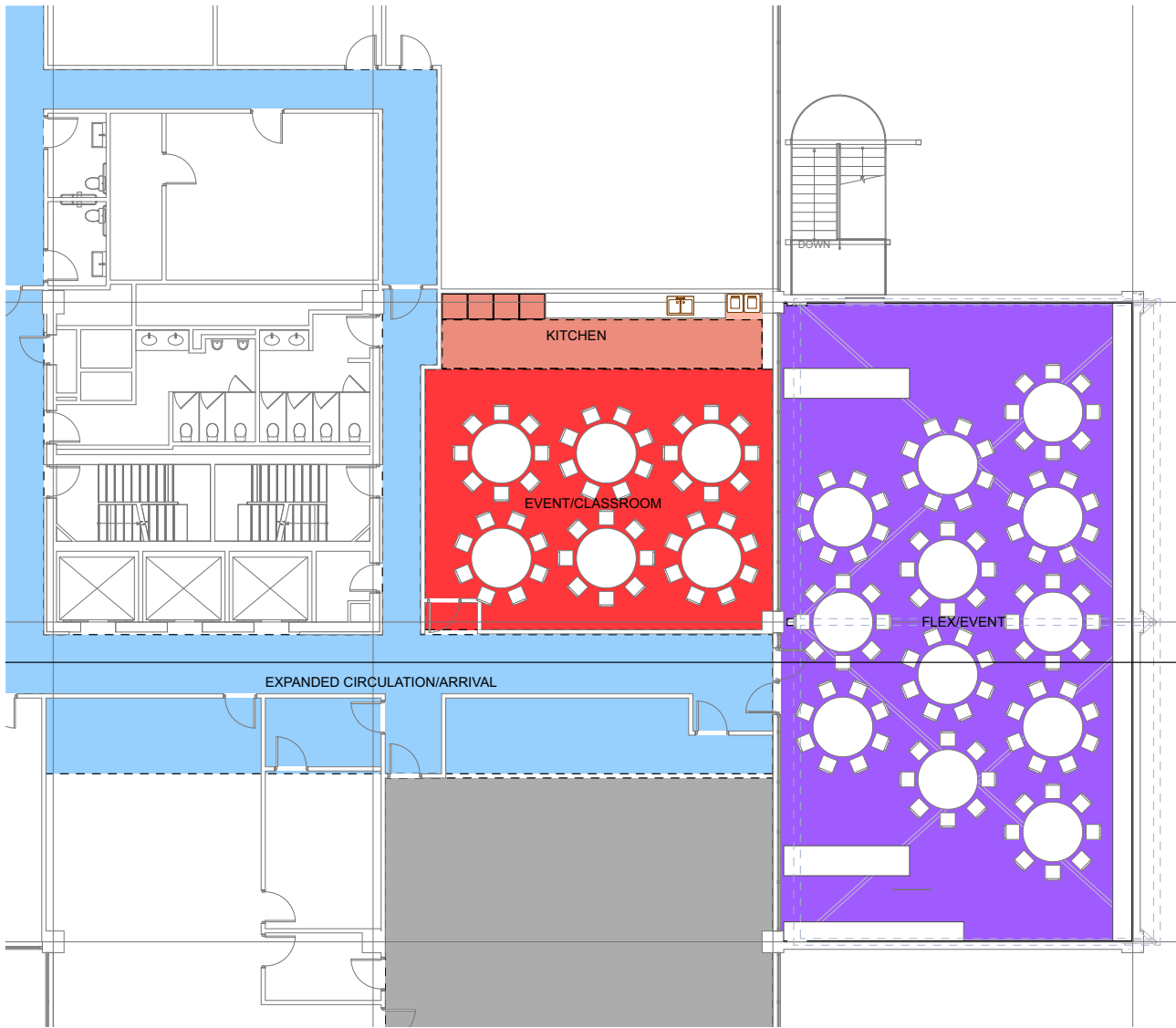
2 AERIAL ORG- OPEN (EVERY DAY)
SCALE: 1:106.67



4 AERIAL ORG- OPEN (EVENT)
SCALE: 1:106.67

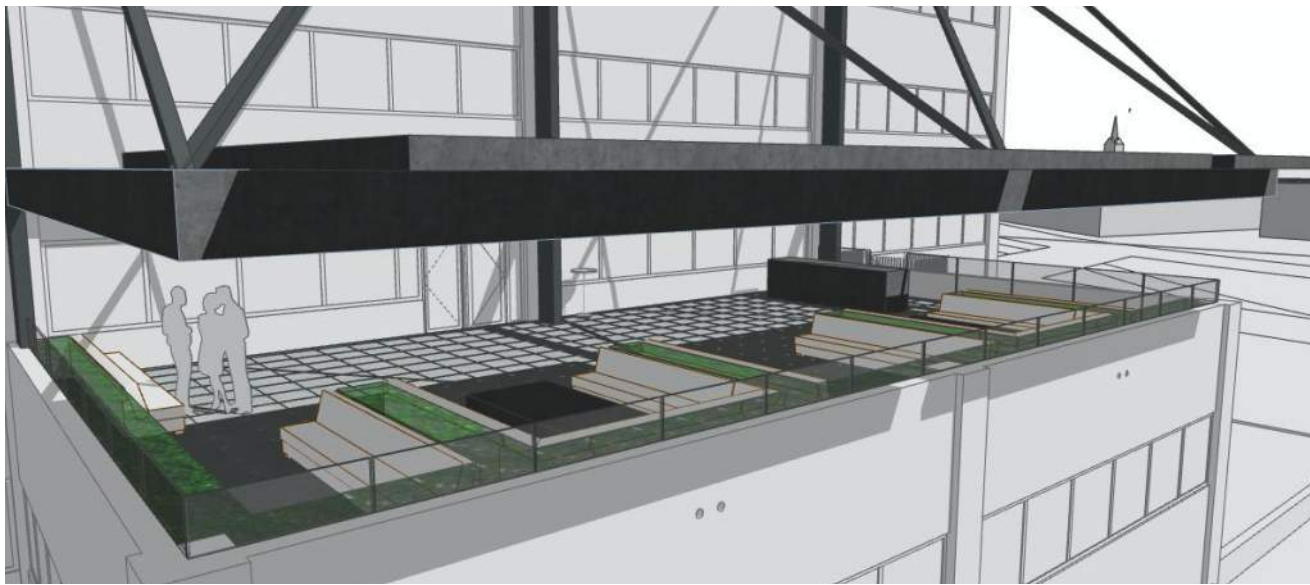


1 4th FLOOR OPEN
SCALE: 1/8" = 1'-0"

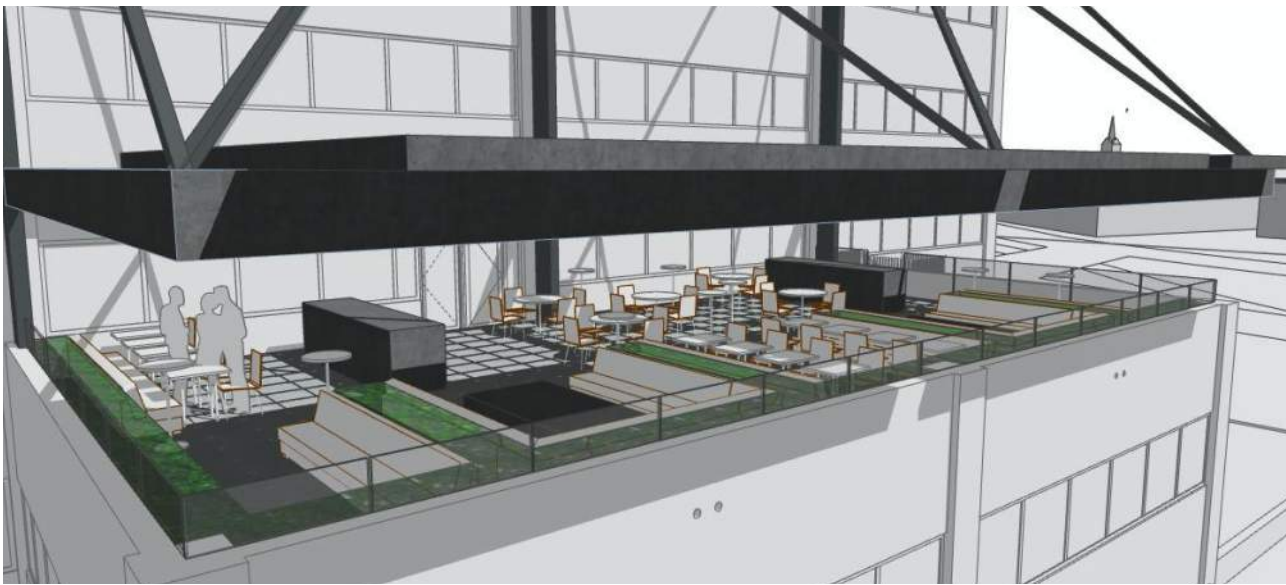


3 4th FLOOR OPEN (EVENT)
SCALE: 1/8" = 1'-0"

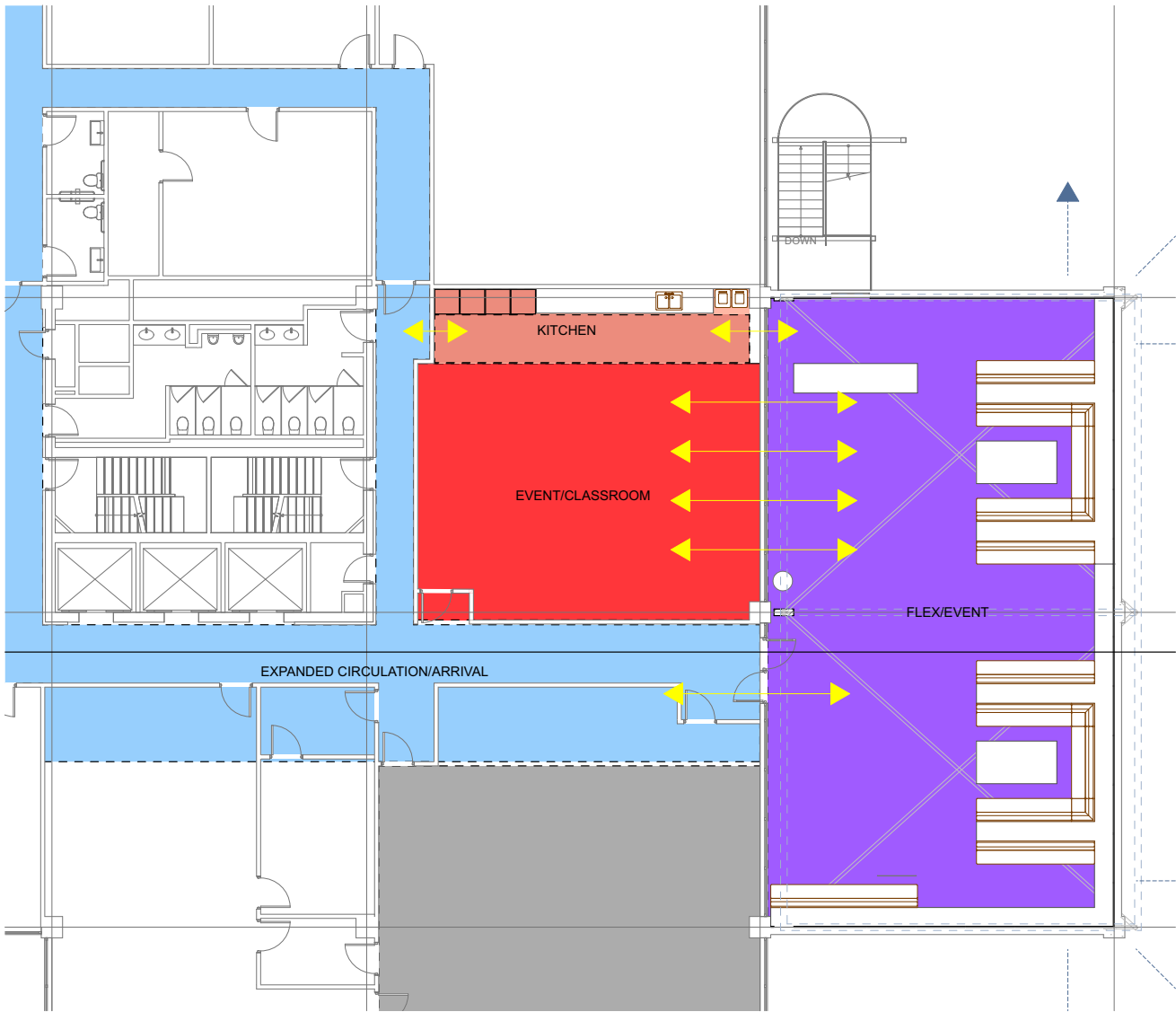
TEST FIT | PERIMETER HYBRID



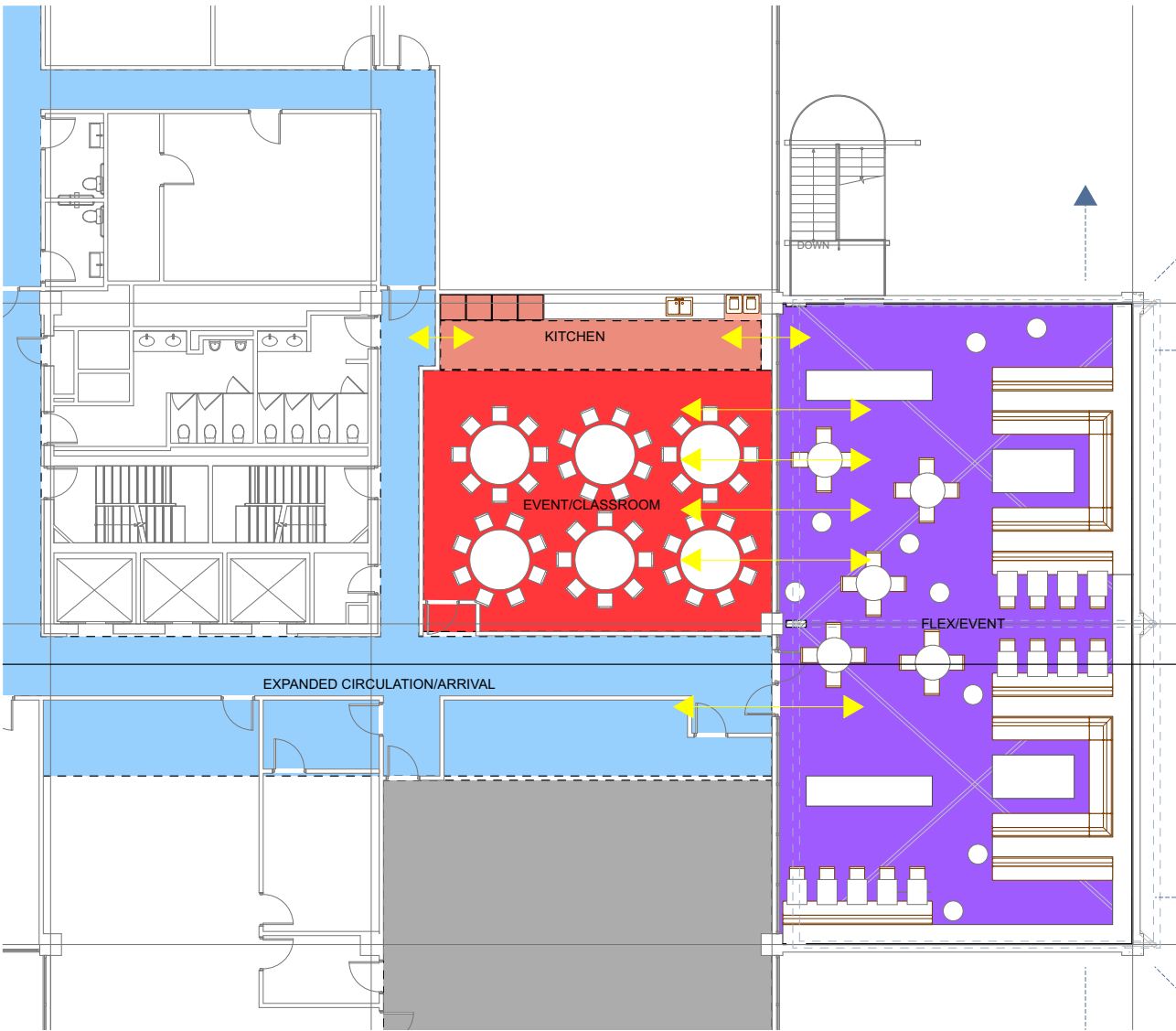
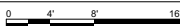
2 AERIAL ORG- HYBRID (EVERY DAY)
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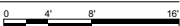
4 AERIAL ORG- HYBRID (EVENT)
SCALE: 1:106.67



1 4th FLOOR HYBRID
SCALE: 1/8" = 1'-0"



3 4th FLOOR HYBRID (EVENT)
SCALE: 1/8" = 1'-0"



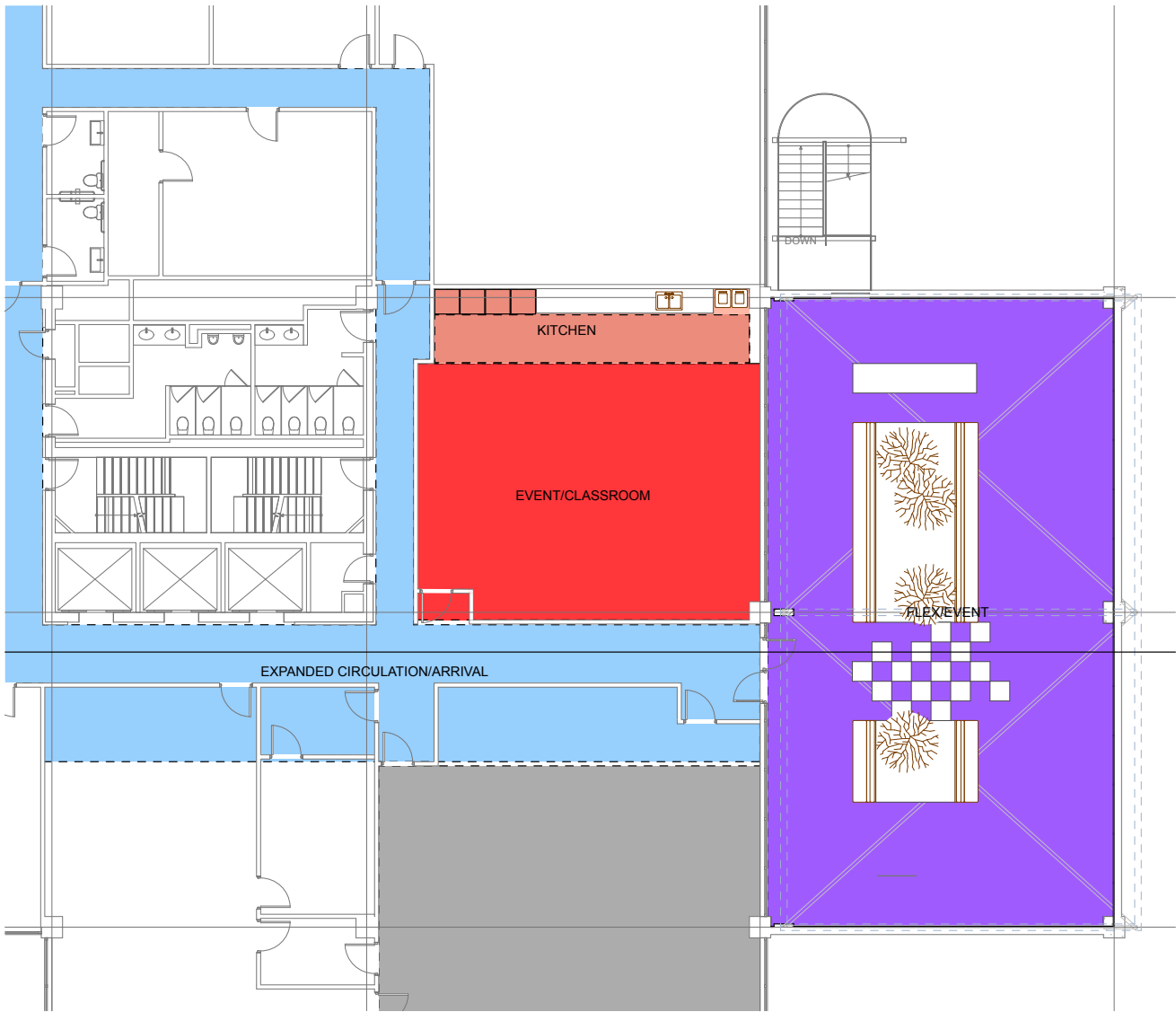
TEST FIT | FIELD



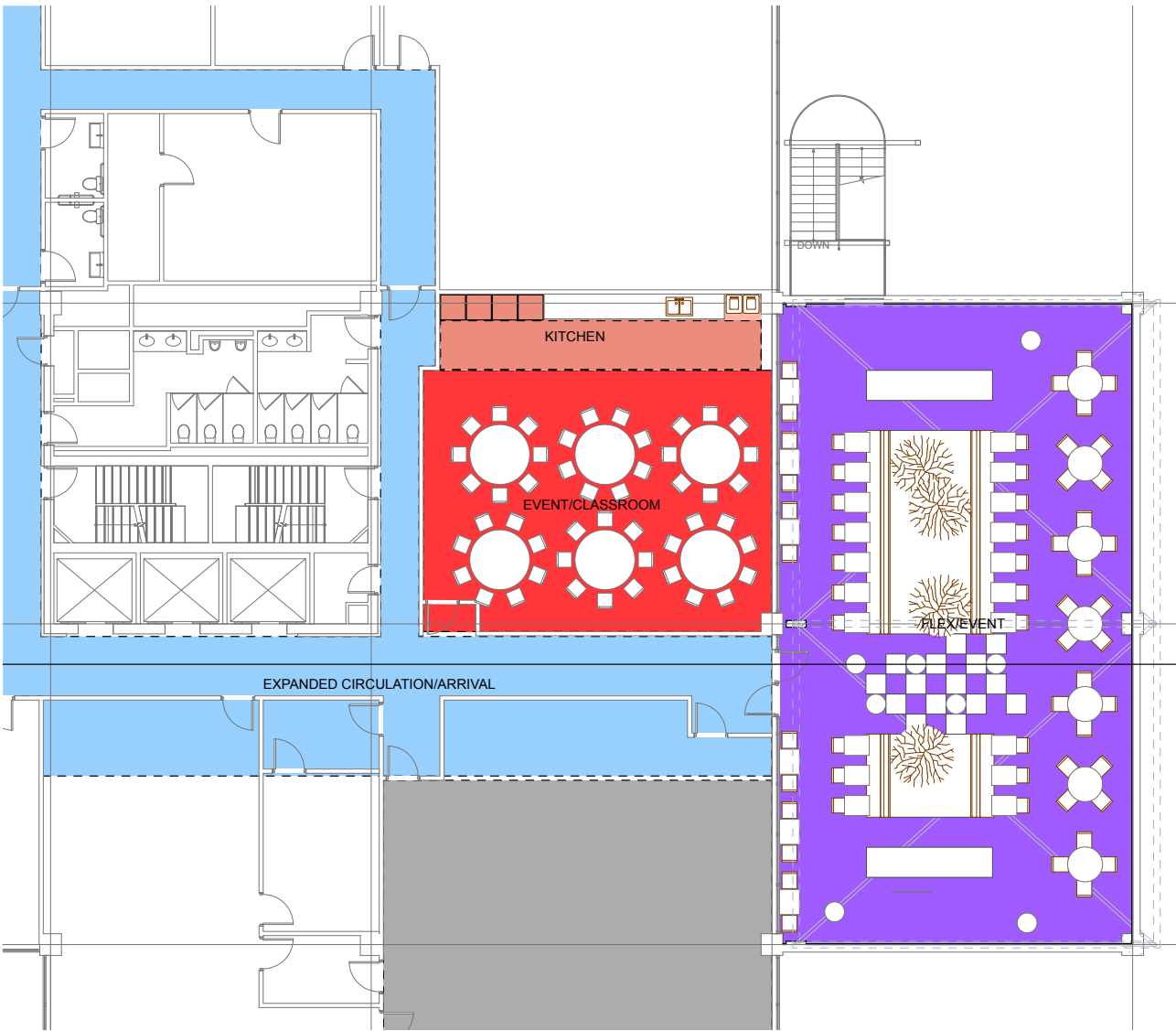
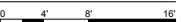
2 AERIAL ORG- CENTER (EVERY DAY)
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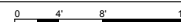
4 AERIAL ORG- CENTER (EVENT)
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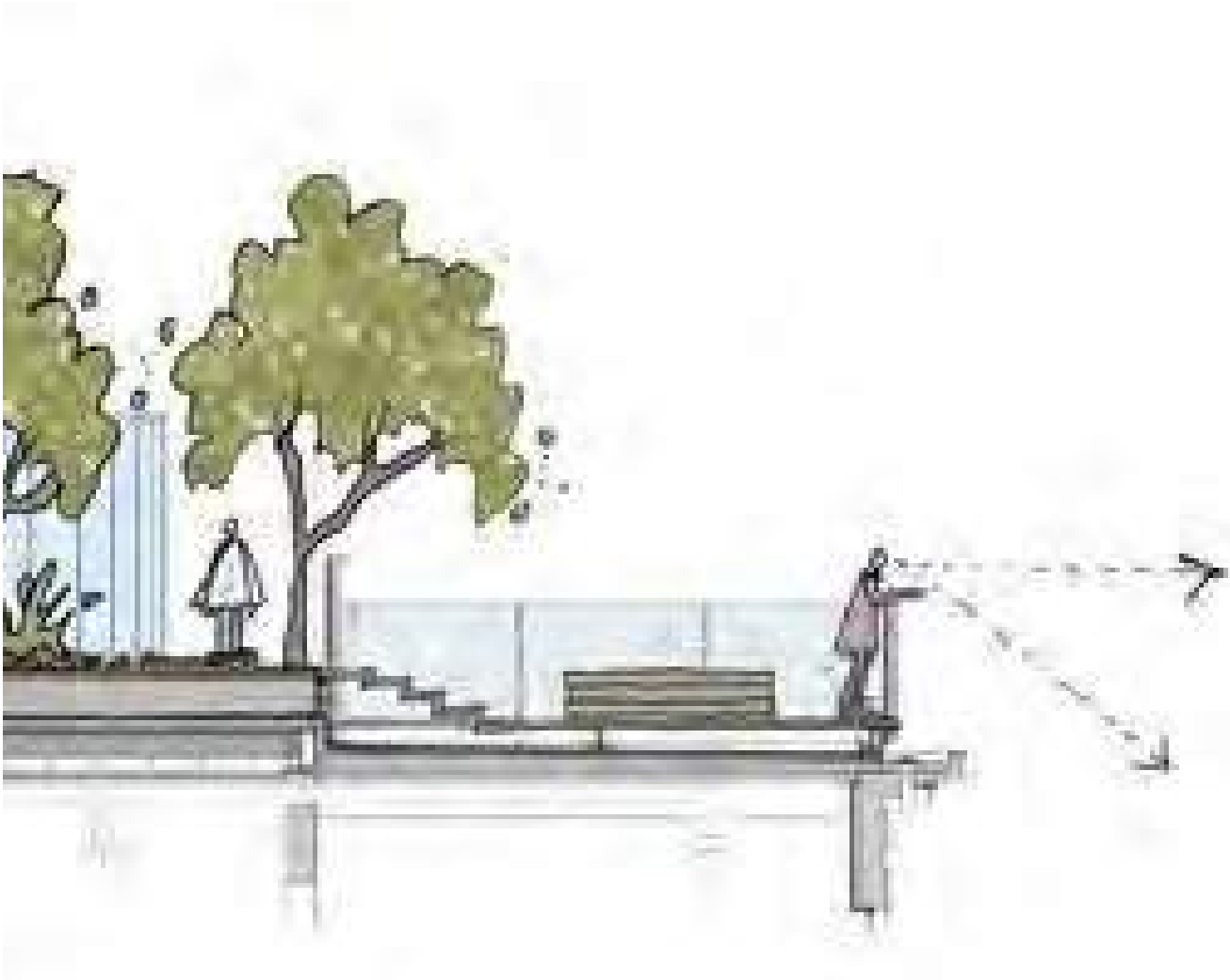
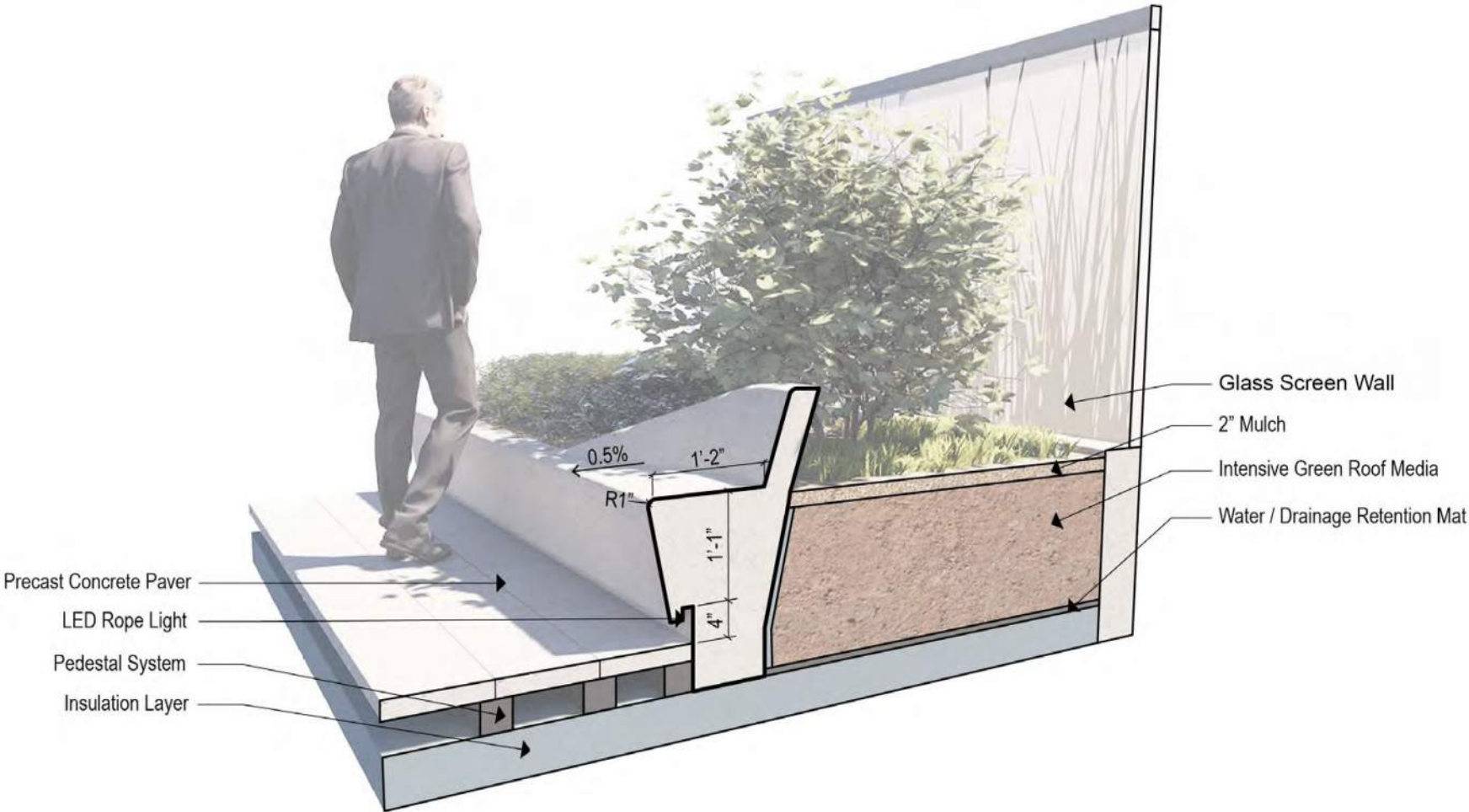
1 4th FLOOR CENTERED
SCALE: 1/8" = 1'-0"








3 4th FLOOR CENTERED (EVENT)
SCALE: 1/8" = 1'-0"



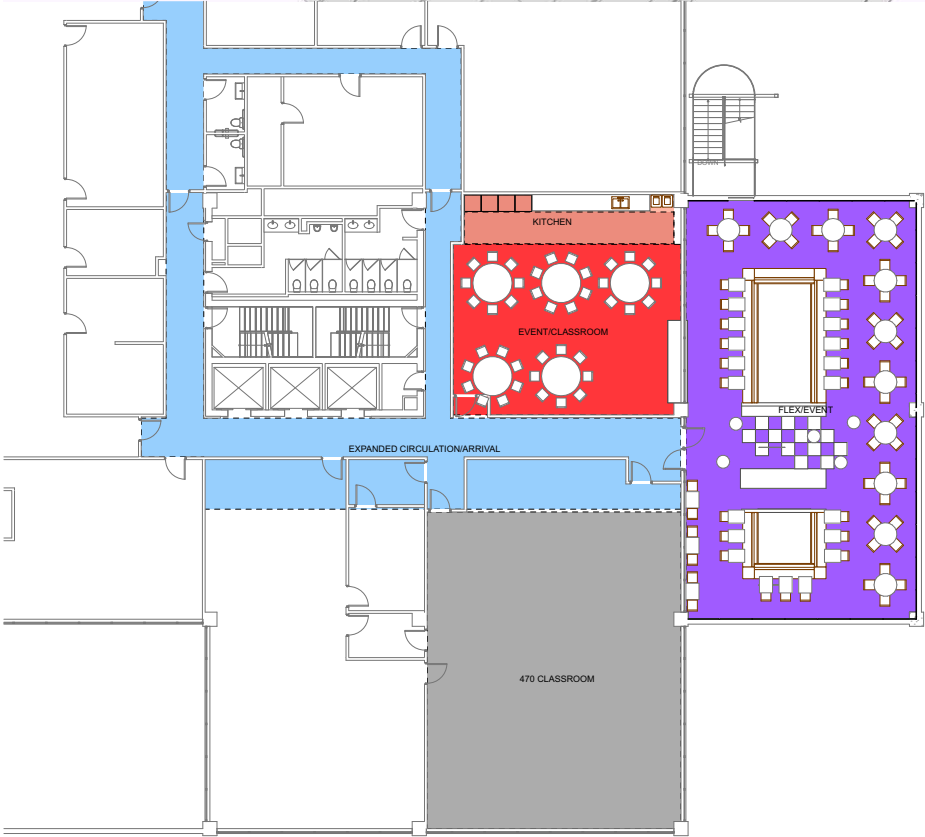
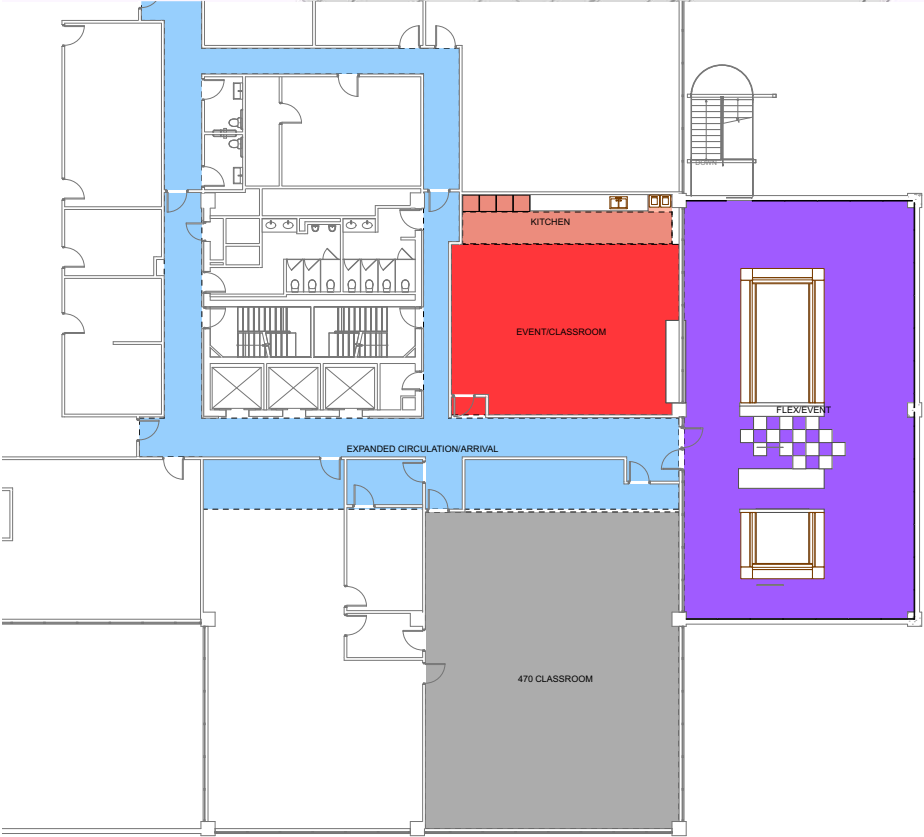
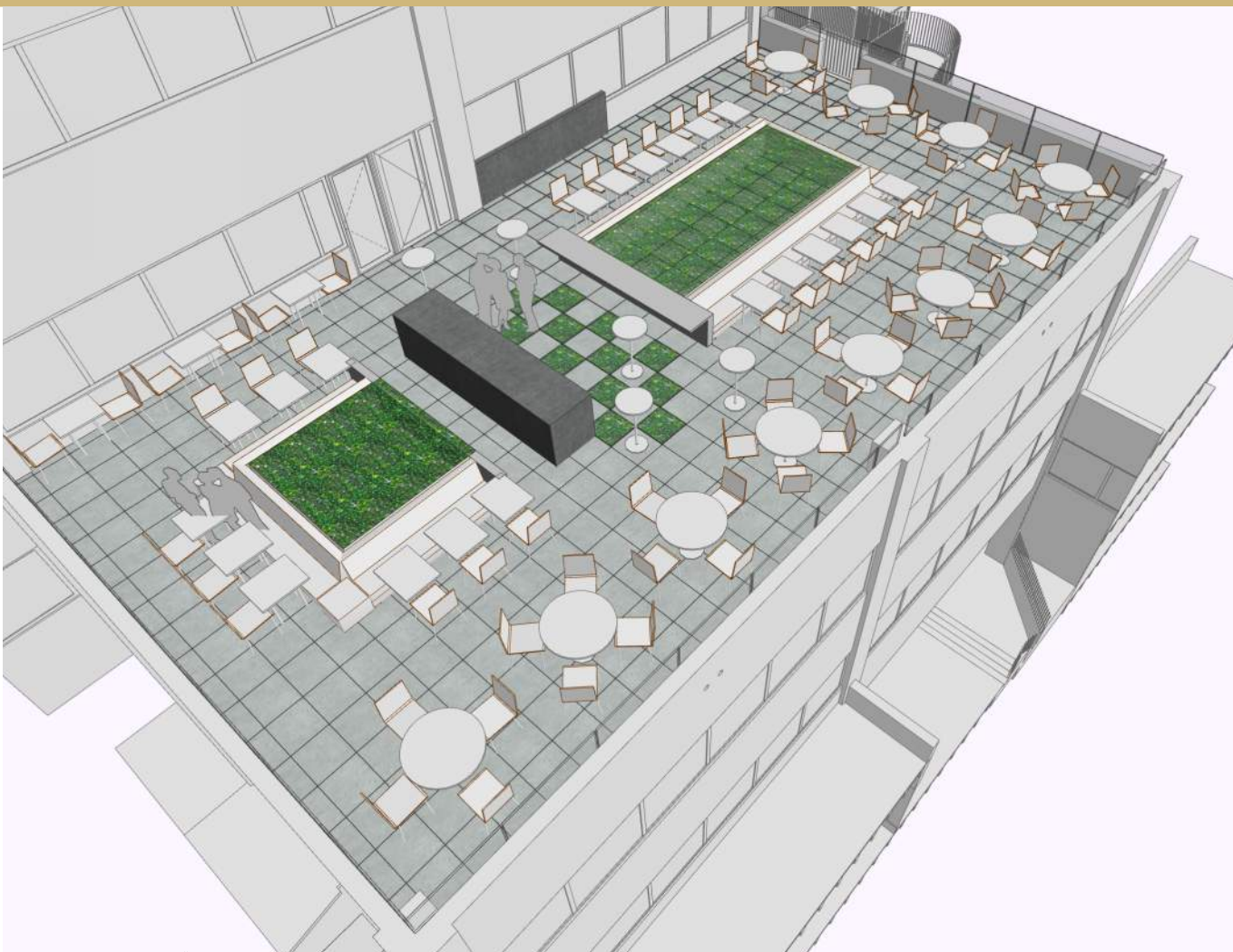
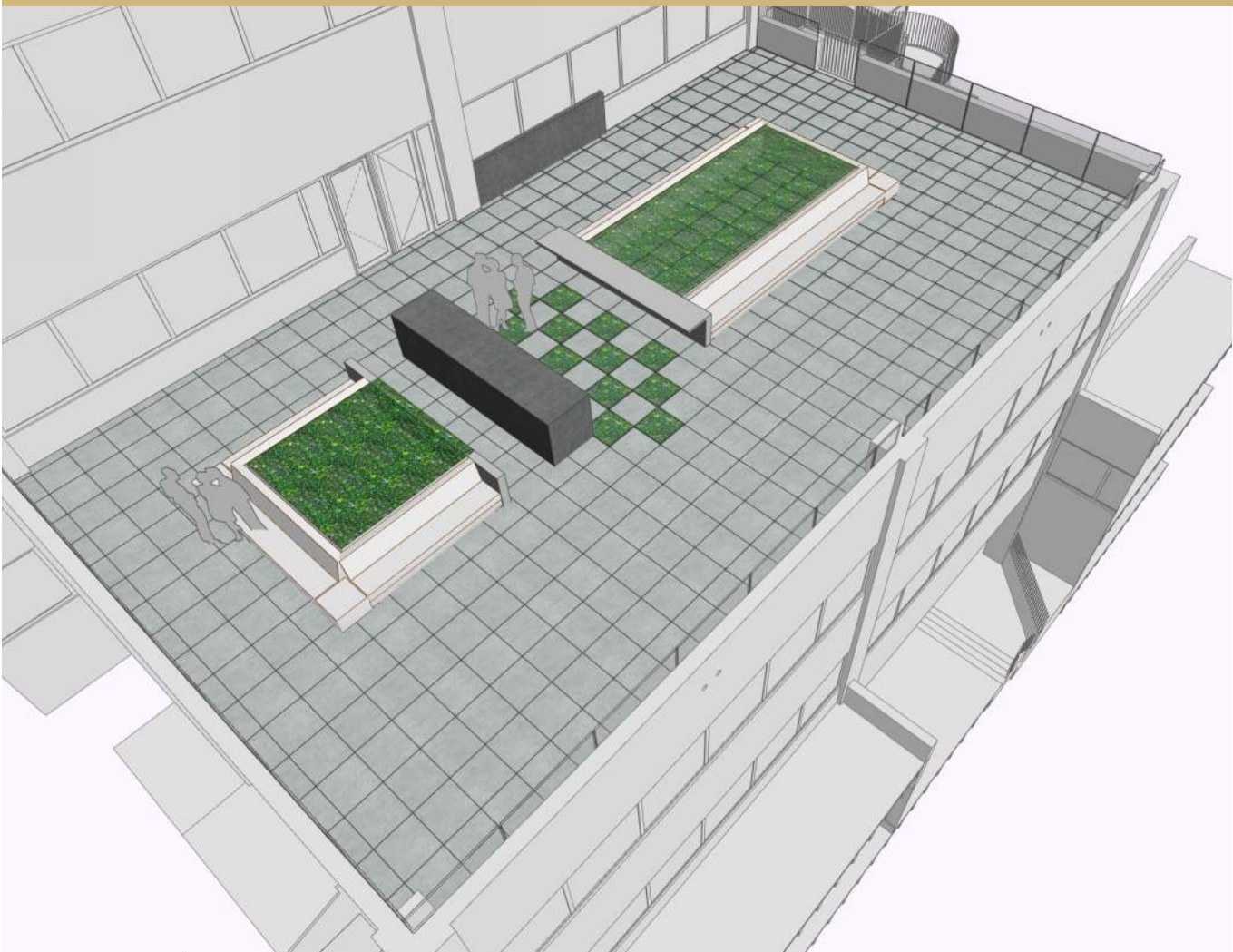
THE EDGE



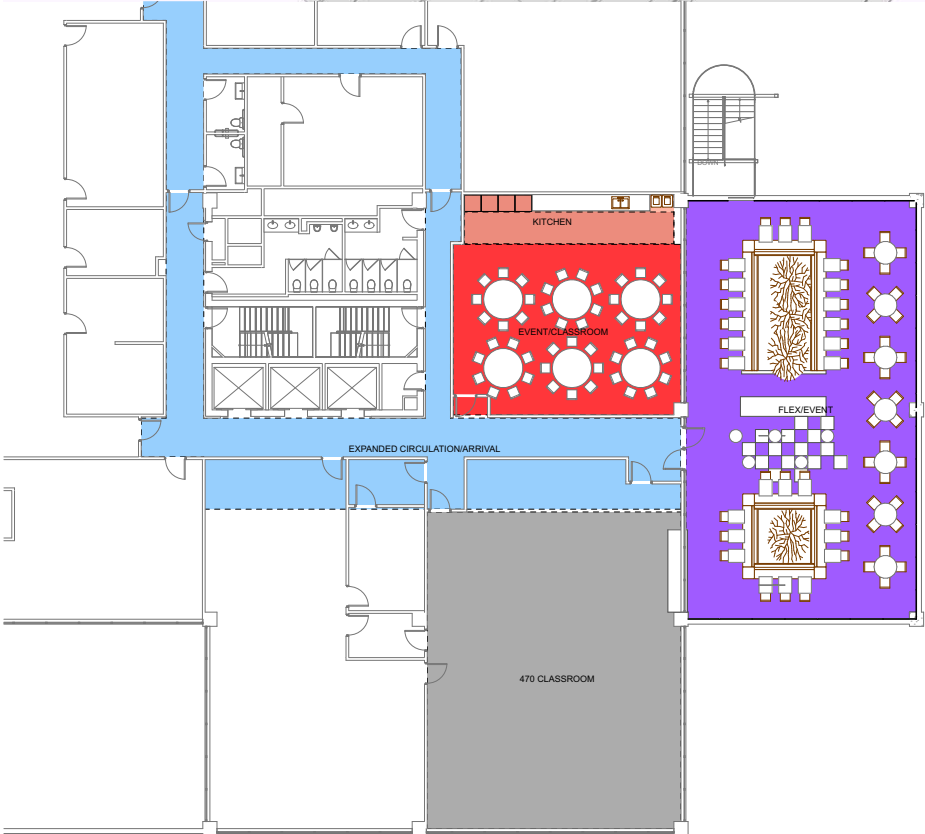
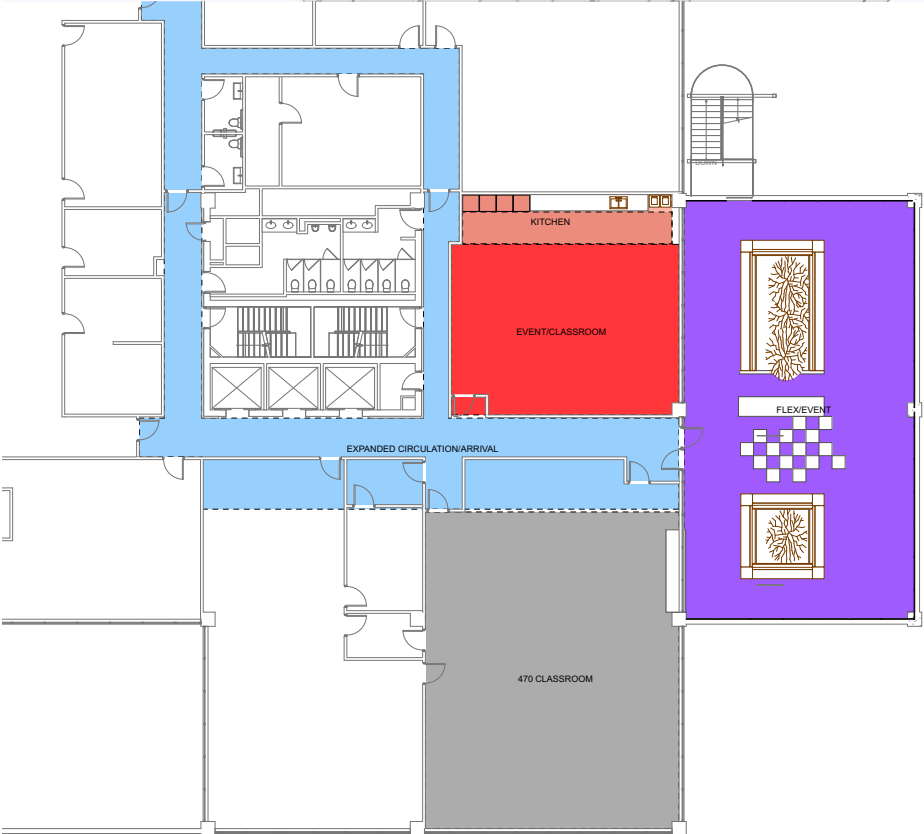
ROOFTOP MATERIAL STUDY

		DESCRIPTION	THICKNESS/ TRANSITION	COST	LIFESPAN	AESTHETICS	WEIGHT/ STRUCTURAL	PROS	CONS
PAVERS ON PEDESTAL *PREFERRED OPTION (PORCELAIN)		MODULAR PAVERS ON PEDESTAL SYSTEM			EASY MAINTENANCE	ALLOWS FOR A FLAT SURFACE		<ul style="list-style-type: none">EASE OF ACCESS TO DRAIN BODYFLEXIBILITY FOR FUTURE UTILITIESPROTECTION OF WATERPROOF MEMBRANEFLAT TOP SURFACE	<ul style="list-style-type: none">COST
PORCELAIN		3/4" LIGHTWEIGHT PORCELAIN PAVERS	APPROX 1-3/4" W/ PEDESTAL	\$27-32/SF	HIGHLY DURABLE	NUMEROUS OPTIONS AND STYLES	9 LBS/SF	<ul style="list-style-type: none">LOW WEIGHT FOR ADDED BENEFITSELEVATED AESTHETIC FINISH & SIZE OPTIONS	<ul style="list-style-type: none">MIN. TRANSITION SLOPEVERIFY GUARD RAIL IMPACT
CONCRETE		2" CONCRETE PAVERS	3" MIN WITH PEDESTAL	\$27-35/SF	MOST DURABLE	NUMEROUS OPTIONS AND STYLES	22 LBS/SF	<ul style="list-style-type: none">NICE AESTHETIC	<ul style="list-style-type: none">WEIGHTTRANSITION SLOPEVERIFY GUARD RAIL IMPACT
NEW MEMBRANE	NOT NECESSARILY REQUIRED	NEW WATERPROOFING MEMBRANE UNDER PAVER SYSTEM	1/8"	\$12/SF					
PAVERS ON DECK		PAVERS LAID ON SAND/SHALE BED ON ROOF DECK				"FLATTER" SURFACE, BUT STILL WITH SOME SLOPE		<ul style="list-style-type: none">AESTHETIC BASED ON OPTION SELECTED	<ul style="list-style-type: none">WEIGHTCOST?SLOPED TOP SURFACE
PORCELAIN		3/4" LIGHTWEIGHT PORCELAIN PAVERS	1-3/4" W/ 1" SAND BED		HIGHLY DURABLE		17 LBS/SF	<ul style="list-style-type: none">ELEVATED AESTHETIC FINISH & SIZE OPTIONS	<ul style="list-style-type: none">MIN. TRANSITION SLOPEFUTURE MAINTENANCEVERIFY GUARD RAIL IMPACTSLOPED TRANSITIONCOST
CONCRETE		1" CONCRETE PAVERS	2" W/ 1" SAND BED		MOST DURABLE		19 LBS/SF	<ul style="list-style-type: none">NICE AESTHETIC	<ul style="list-style-type: none">TRANSITION SLOPEFUTURE MAINTENANCEVERIFY GUARD RAIL IMPACTCOST
COMPOSITE WOOD		COMPOSITE WOOD DECKING ON MODULAR CONNECTING BASE	APPROX 2" W/ SANDBED	\$15/SF	LESS DURABLE THAN PAVER OR TOPPING OPTIONS. ATYPICAL FOR INSTITUTIONAL SETTINGS	NUMEROUS COLORS. "TREX" LOOK	15 LBS/SF		<ul style="list-style-type: none">MAINTENANCERESIDENTIAL QUALITYLONGEVITY
DRAINAGE MODIFICATIONS		NEW DRAIN BODY AND FLASHING							
COATINGS **2ND OPTION		ELASTOMERIC WATERPROOF COATING (SIMILAR TO EXISTING)	0"	LEAST COST	LEAST DURABLE	SLOPED WALKING SURFACE LIMITED COLORS AND STYLES	NEGLIGIBLE	<ul style="list-style-type: none">LOWEST COSTNO LEVEL TRANSITION REQUIREDNO GUARDRAIL IMPACTEASY TO MAINTAINLEAST WEIGHT IMPACT	<ul style="list-style-type: none">LEAST ATTRACTIVENO FLEXIBILITY WITH UTILITIESSLOPED TOP SURFACE
NEW TOPPING (CONCRETE, STONE, OR PAVERS)		NEW NON PERVIOUS TRAFFIC LAYER ON NEW WATERPROOFING MEMBRANE			HIGHLY DURABLE. NO ACCESS TO WATERPROOFING LAYER	SLOPED WALKING SURFACE		<ul style="list-style-type: none">AESTHETIC BASED ON OPTION SELECTED	<ul style="list-style-type: none">HIGH MAINTENANCECOST TO MAINTAIN/REPAIRUNFORESEEN CONDITIONSSLOPED TOP SURFACEWEIGHT BASED ON SELECTION OF TOPPING

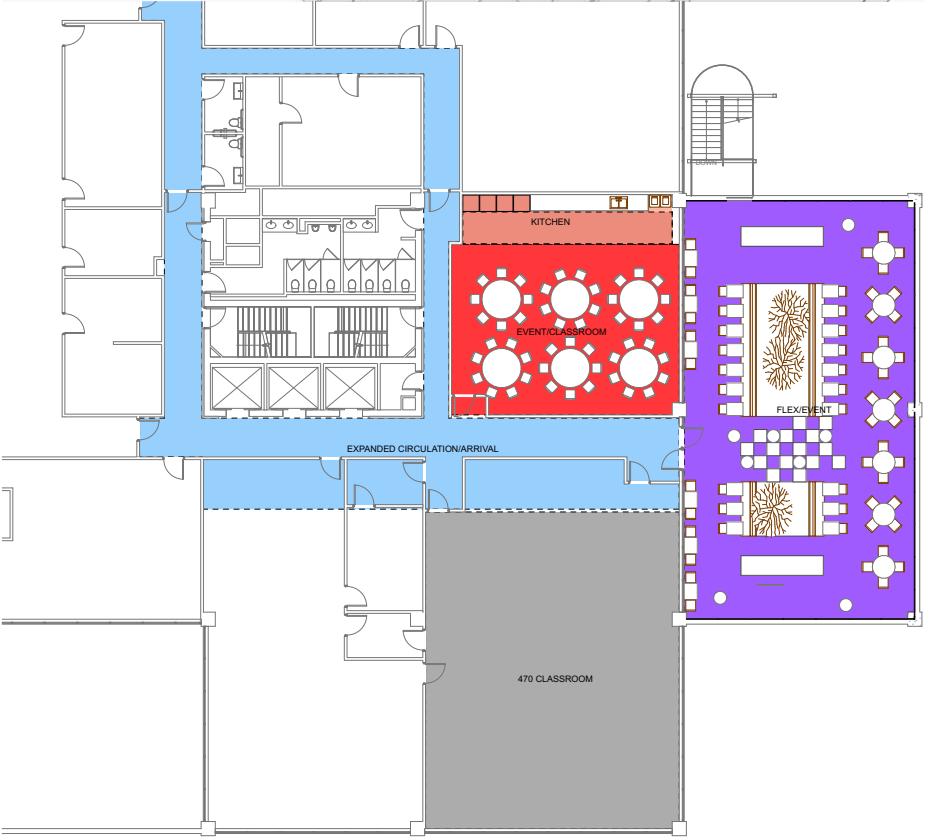
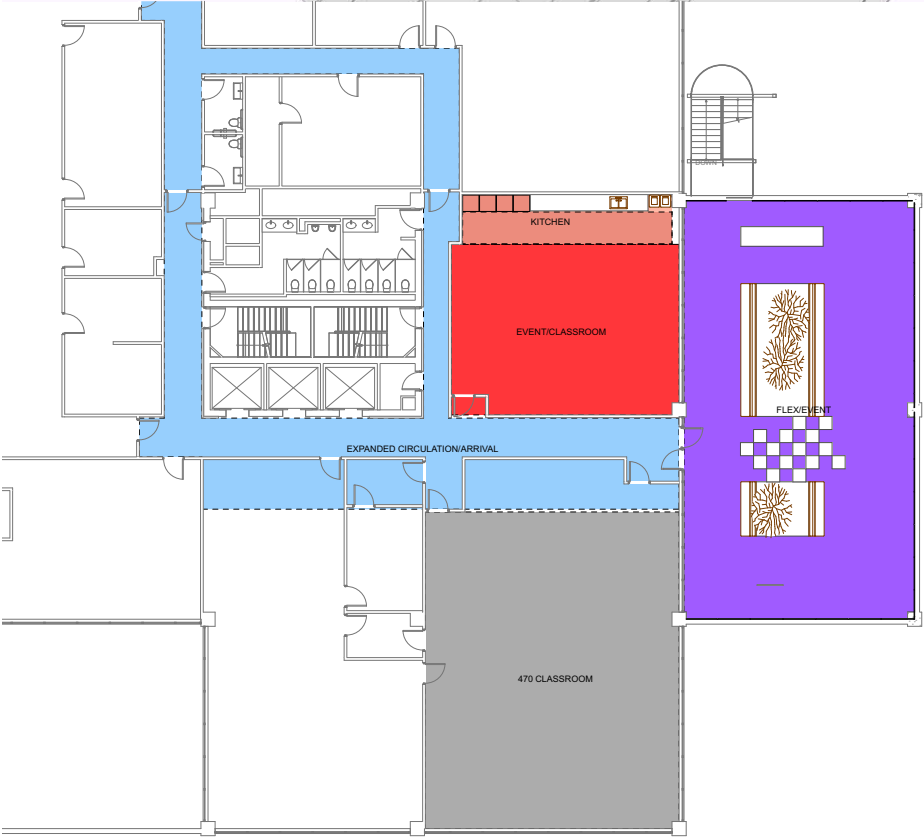
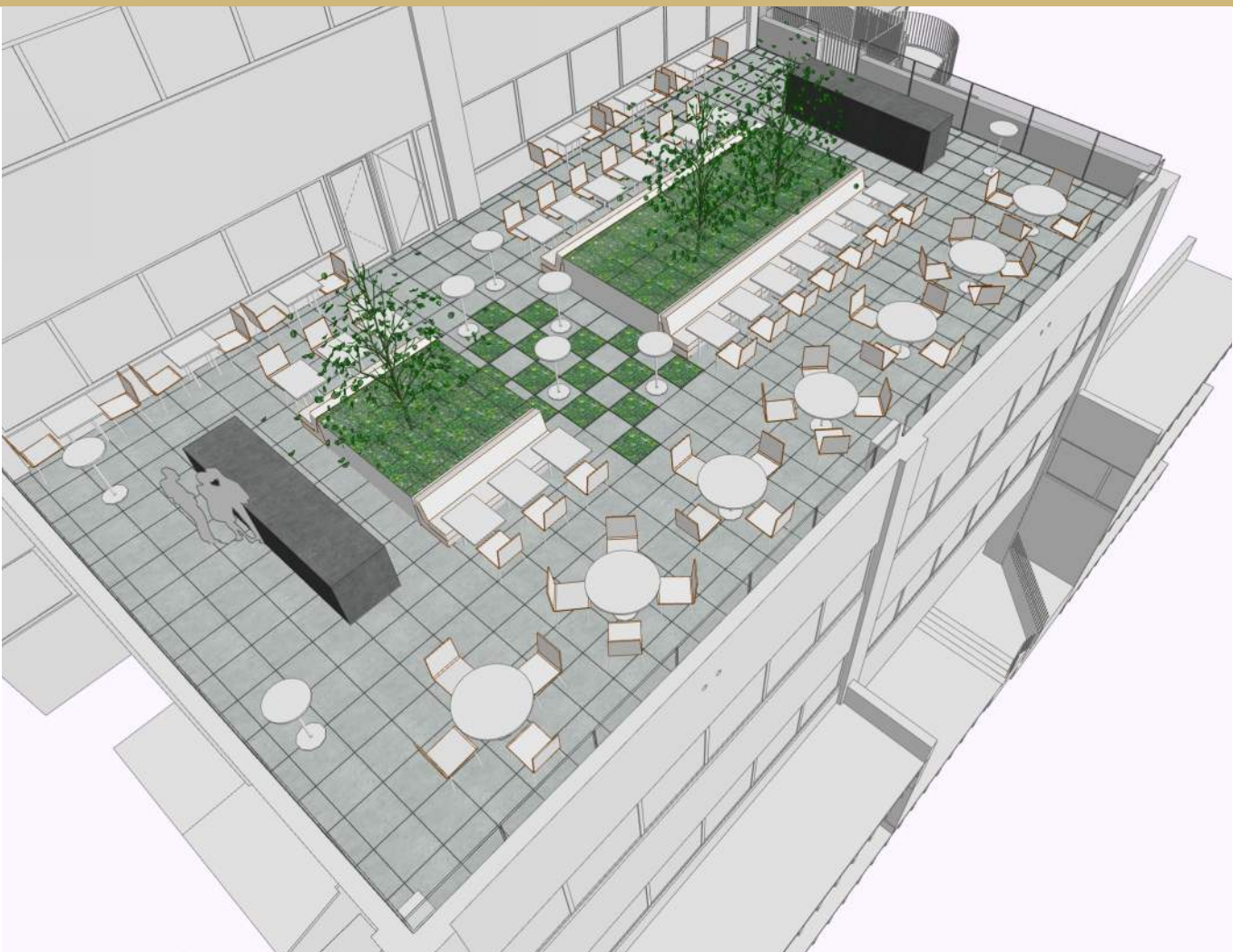
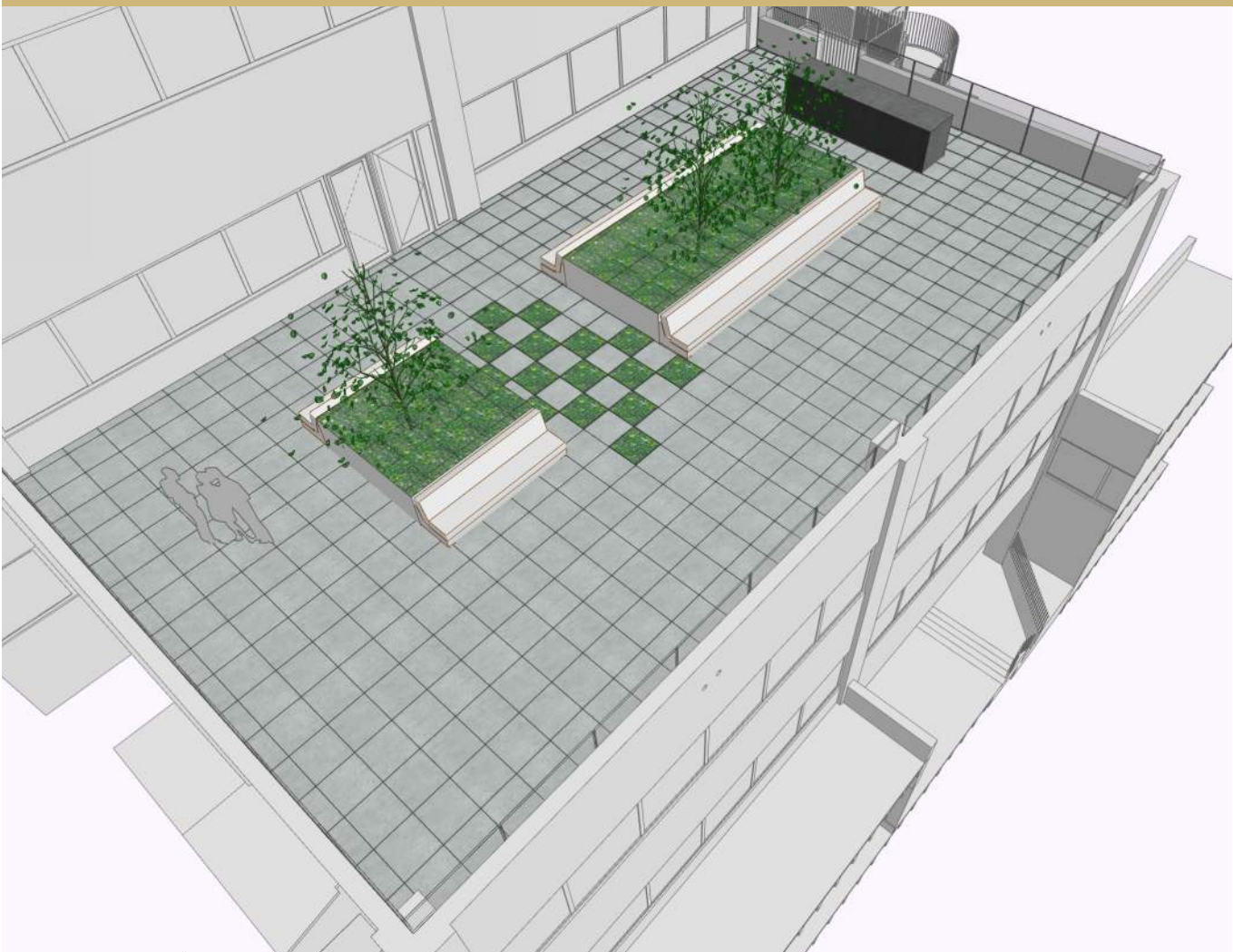
ROOFTOP OPERATION STUDIES | CENTRAL BAR EAST



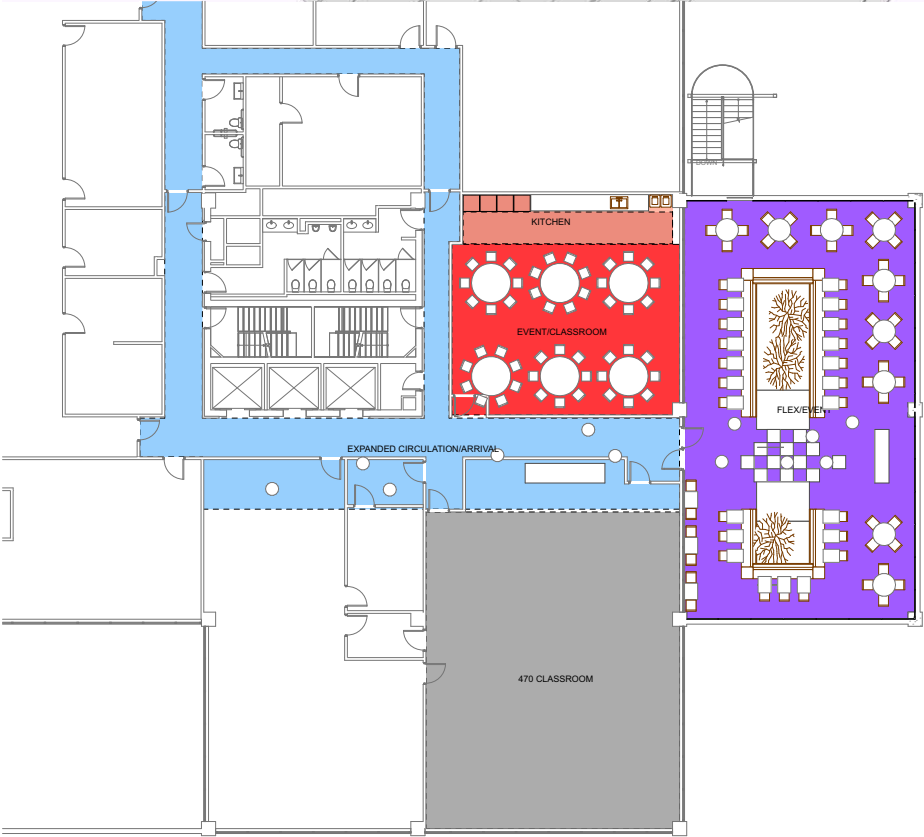
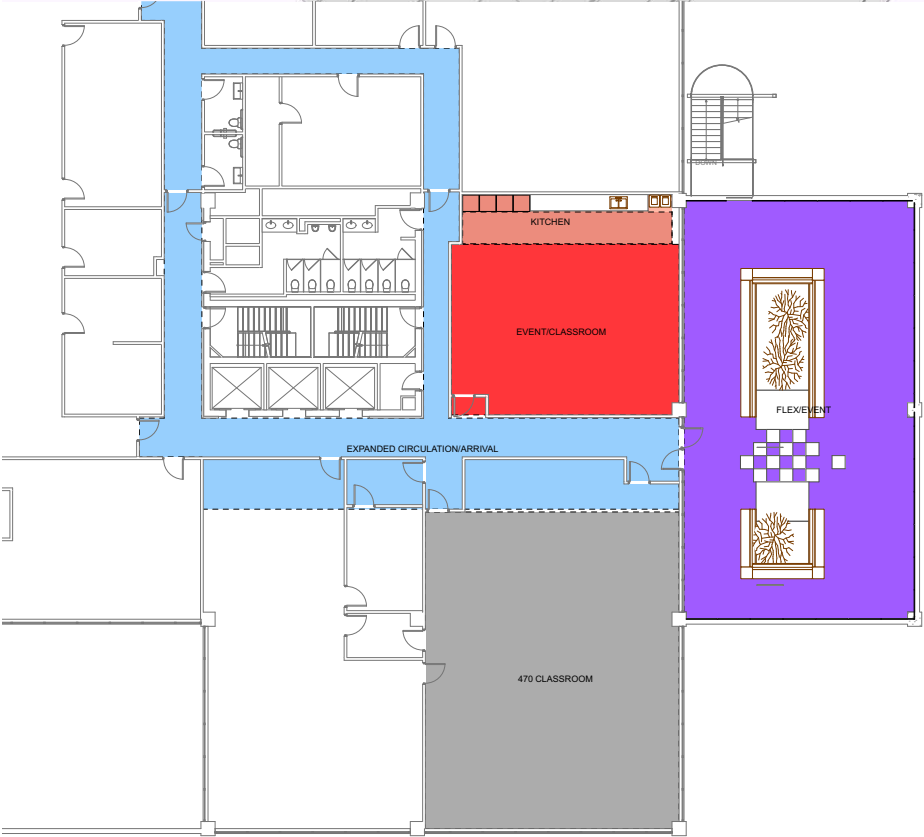
ROOFTOP OPERATION STUDIES | CENTRAL BAR WEST



ROOFTOP OPERATION STUDIES | PERIMETER BARS



PREFERRED ROOFTOP OPERATION | PATH TO END



ROOFTOP VIEWS



ROOFTOP VIEWS



