UCCS
Anschutz Engineering Center

DESIGN REVIEW BOARD | CONCEPT DESIGN

COLORADO SPRINGS, CO | 2021.11.16

AGENDA

PROJECT VISION & GOALS

- College of Engineering & Applied Science
- Anschutz Engineering Center

SITE STRATEGIES

- Building Limits
- Environment
- Circulation
- Grade
- Vegetation

BUILDING CONCEPTS

- Program kit of parts
- Building concepts
- Program layout
- 3D massing, sections & elevations
- Sun/shade study
- Landscape concepts
- Materiality & campus context
- Signage & wayfinding

SUSTAINABILITY

- Sustainability goals & LEED scorecard

UCCS COLLEGE OF ENGINEERING & APPLIED SCIENCE

VISION

The College of Engineering & Applied Science aspires to **improve health, welfare, and prosperity** through technical learning, research, professional practice, and invention.

MISSION

In partnership with the community and our alumni, the mission of the College of Engineering & Applied Science is to: Inspire a passion in our students for **life-long learning**; and graduating engineers and scientists who are **knowledgeable and competitive in the global marketplace** throughout their careers.

KEY STRATEGIC GOALS

Illuminate: While sustaining academic quality and integrity, increase, at a responsible rate, the number of students in EAS programs who are passionate about life-long learning and who are knowledgeable and competitive in the global marketplace throughout their careers.

Investigate: Provide adequate support and incentives to increase, at a reasonable rate, **recognized and relevant research** that has both **local and global impact**.

Innovate: Develop practices, policies and incentives to support a reasonable increase in activities leading to **economic and technology development** that improves **health, welfare, and prosperity** through engineering.

ANSCHUTZ ENGINEERING CENTER - PROJECT SUMMARY

DESCRIPTION

The Anschutz Engineering Center will be an important stepping stone in the long term expansion of the engineering programs at UCCS. To meet the needs of the local economy, the college must grow, and new/larger facilities are needed to educate a growing student population. This building will offer additional classrooms, student labs & workshops, faculty research space, offices, and other amenities that are needed to add capacity to Electrical, Mechanical, Computer Science, and the proposed Aerospace Engineering programs.

PROJECT GOALS

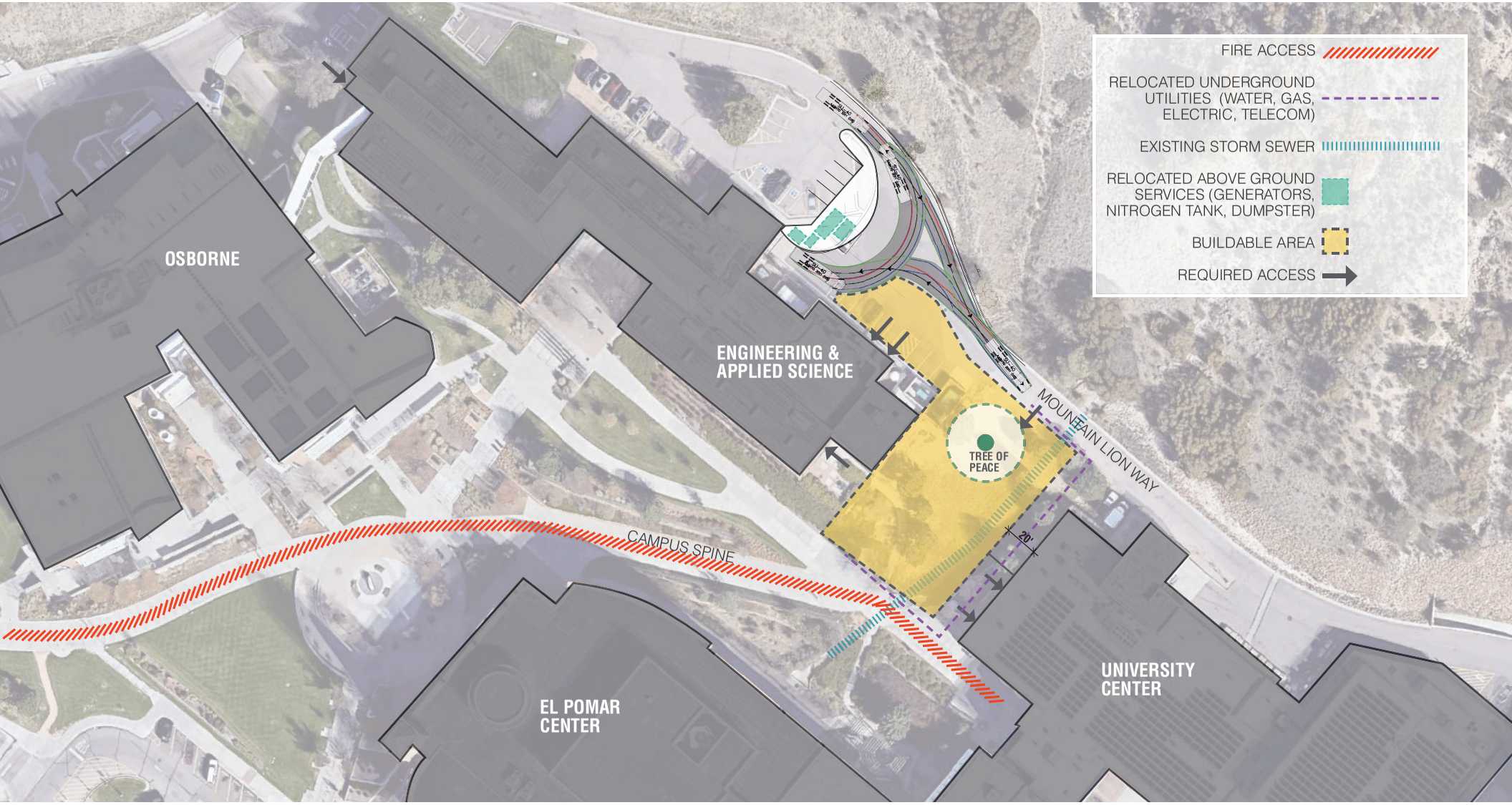
- Grow facilities to provide top notch education for an increasing student population & accommodation of new programs in the College of Engineering & Applied Science
- Create a beautiful new building that is visible from campus spine
- Energy conservation & sustainable practices are well integrated into the design
- Maintain sensitivity to cultural concerns & the natural environment
- Be a positive contribution to the UCCS campus environment

GIVENS (things we can't change)

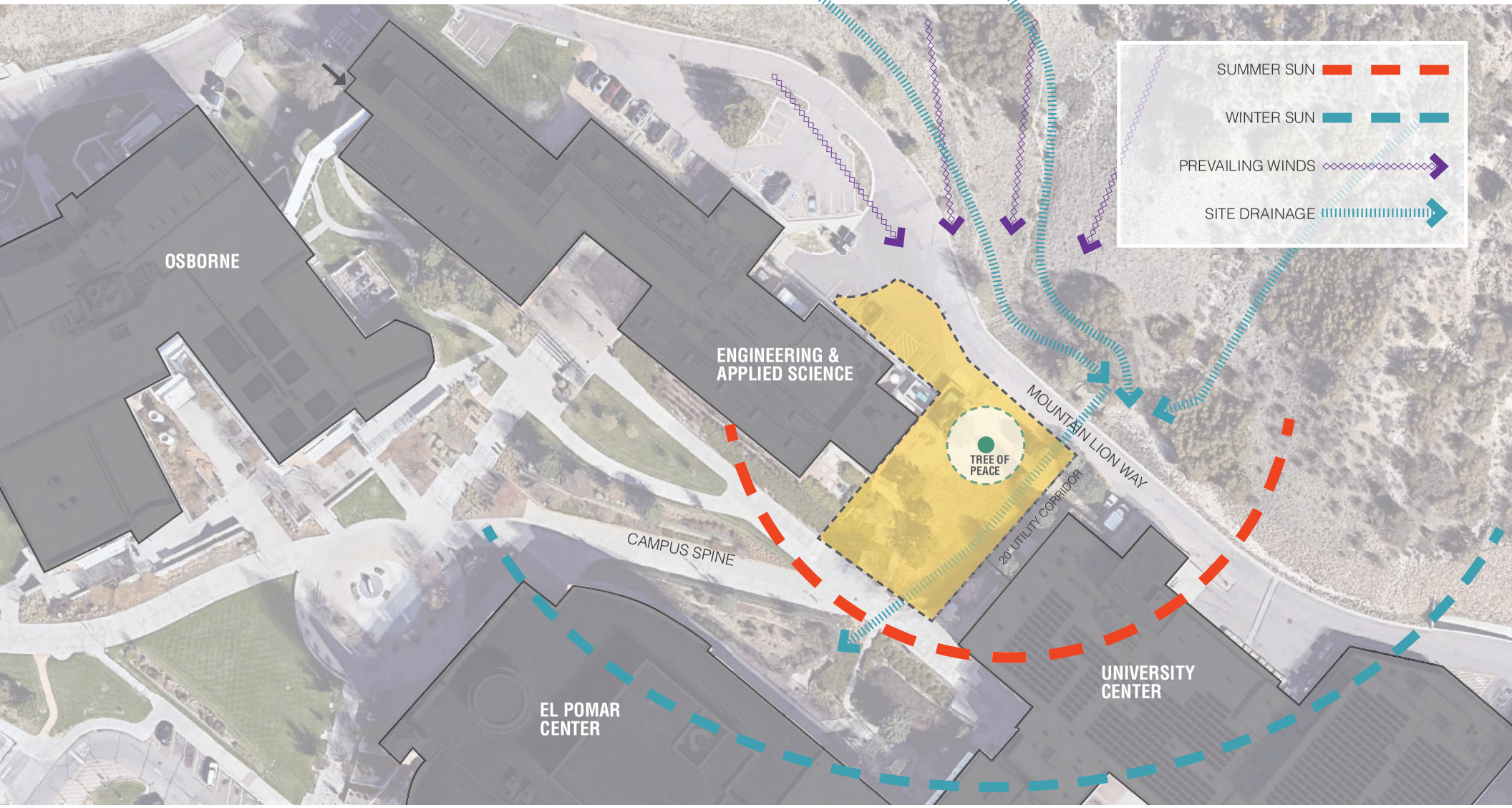
- Building size: approx. 25,000 SF (program is set)
- Project budget: $16 M
- Must preserve the Tree of Peace
- New building must be near existing EAS building for shared use
- New building must be a stand alone building
- Construction: Spring 2022 - Summer 2023, opening Fall 2023

PROJECT SITE | STRATEGIES

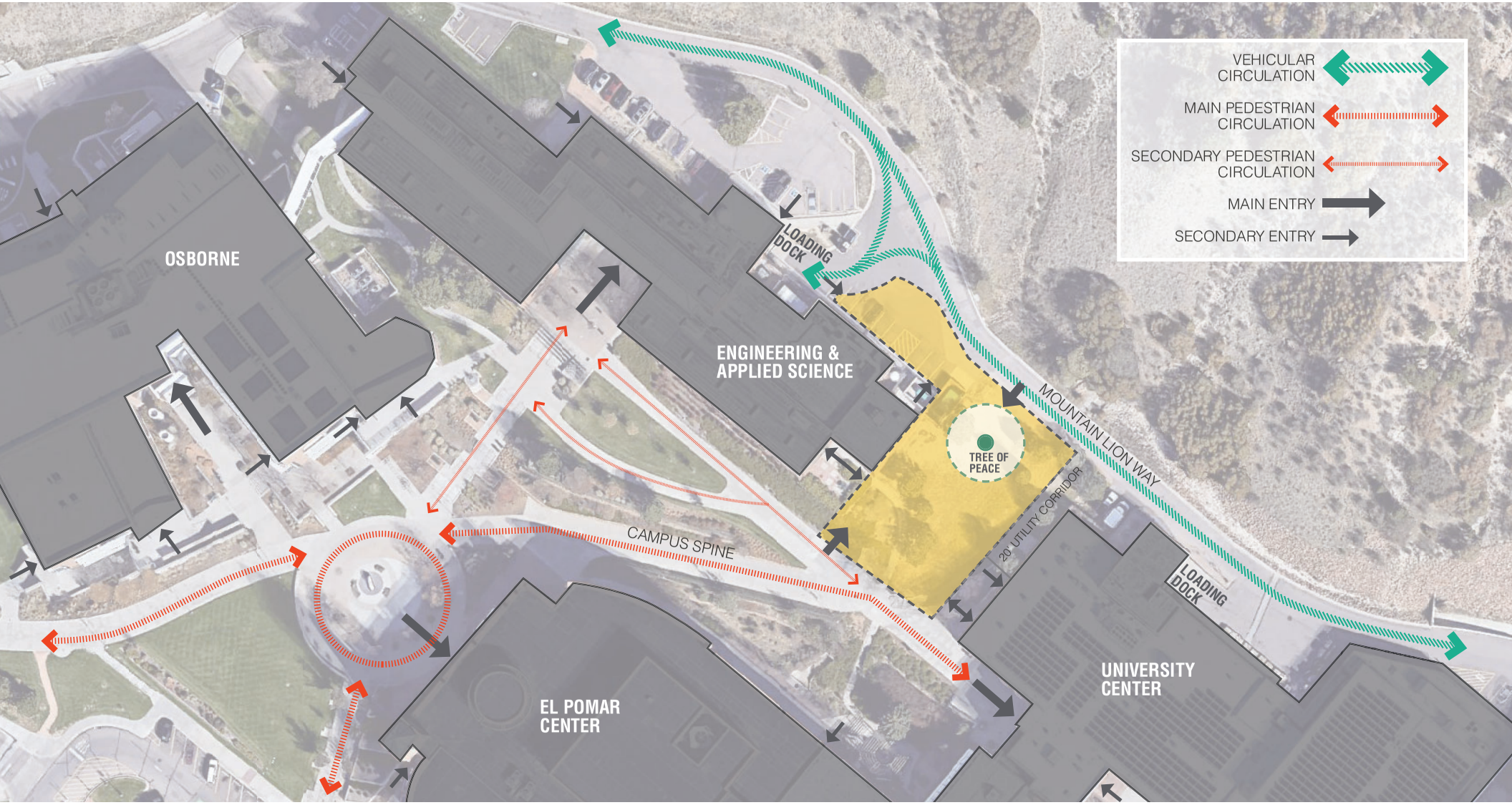
BUILDING LIMITS



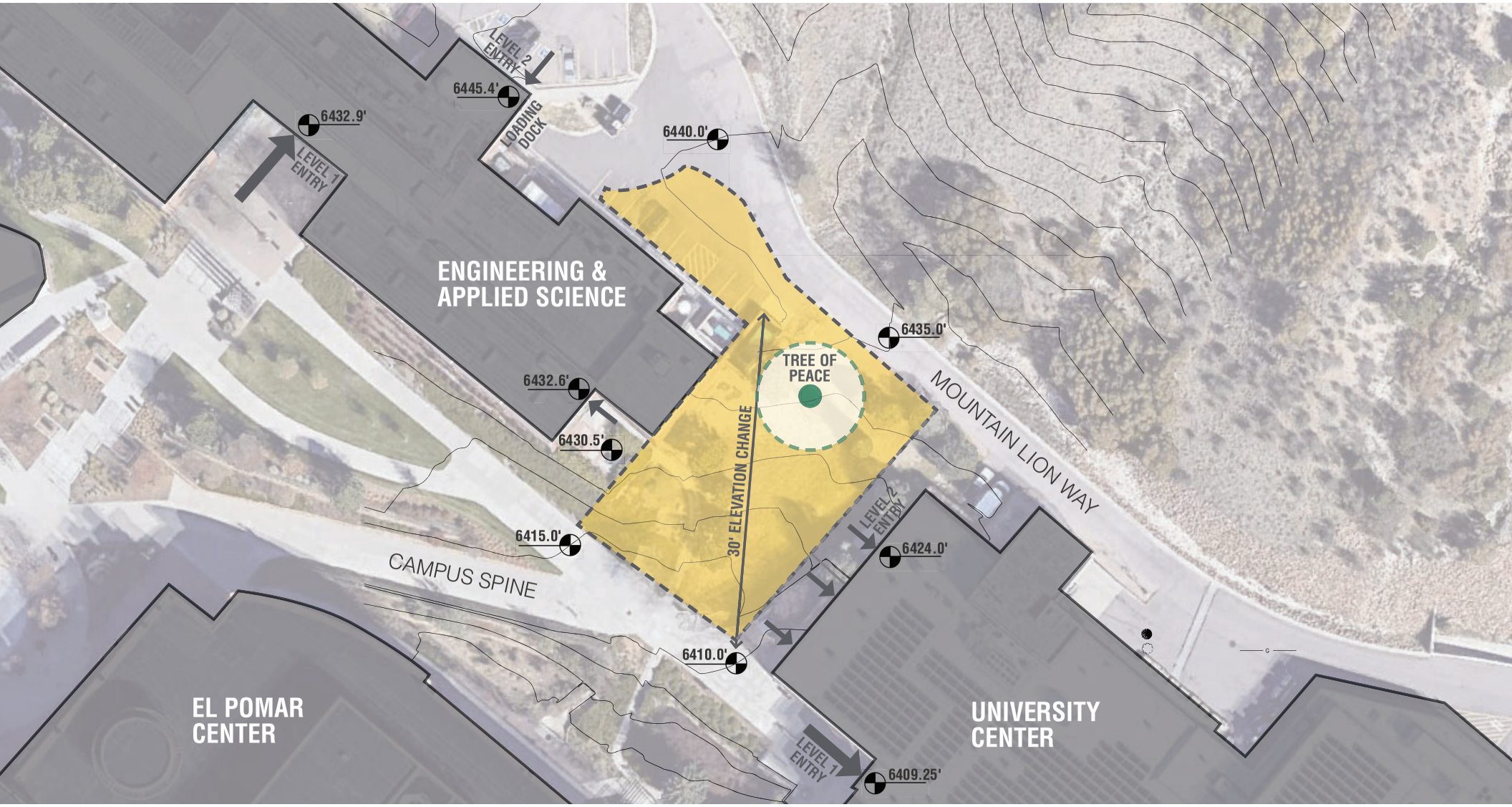
ENVIRONMENT



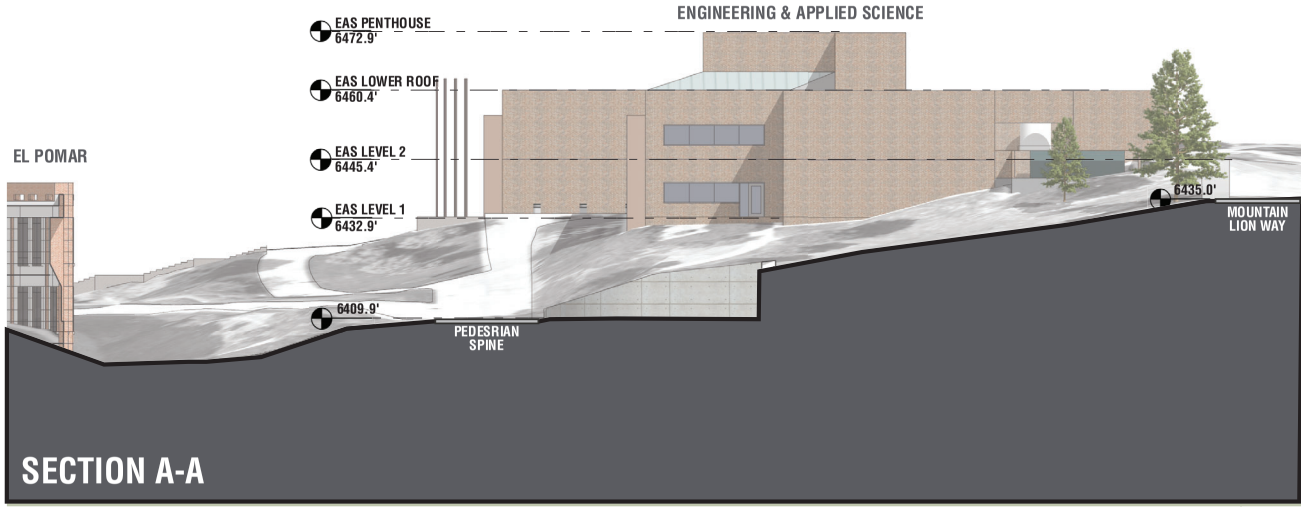
CIRCULATION

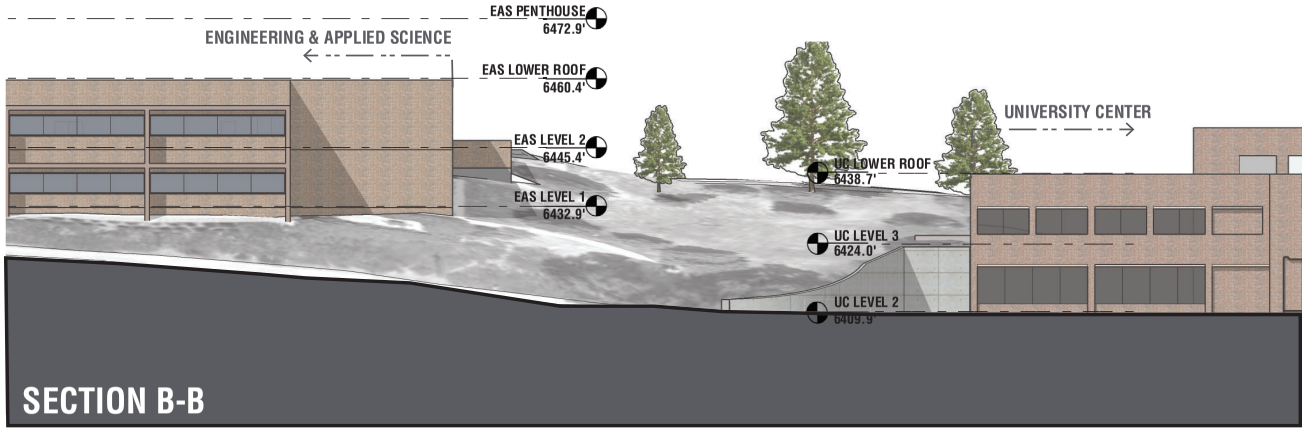


SITE ELEVATIONS



SITE SECTIONS



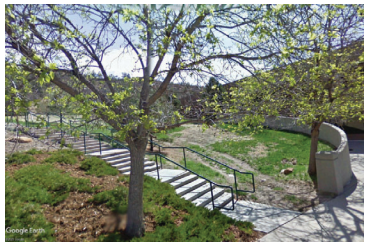


EXISTING VEGETATION

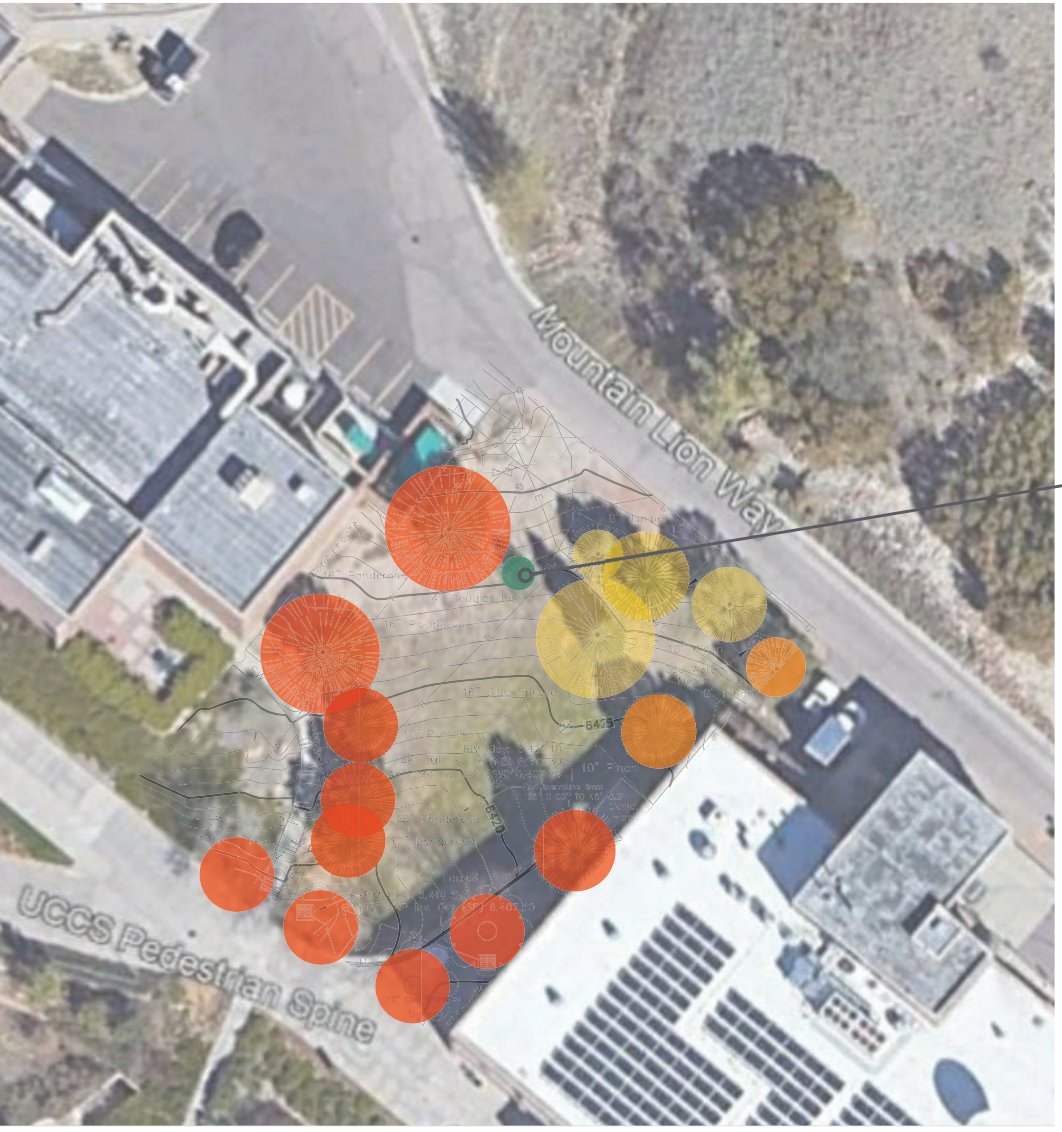
NATURAL LANDSCAPE (North of Mountain Lion Way)
consisting of Rock Outcrops and Natural Drainage Courses. Plant species include scrub oak, native grasses and shrubs, pines, and cottonwood trees along the drainage.

TREE OF PEACE: Douglas Fir

FORMAL LANDSCAPING (between and along existing buildings & campus spine) consisting of turf lawn and mulched planting beds. Plant species include junipers, pines, ash, and other shrubs.



EXISTING VEGETATION



TREE OF PEACE: PRESERVE IN PLACE

TREE TO REMAIN AND BE PROTECTED IN PLACE

TREE POSSIBLE TO REMAIN
(DEPENDENT ON SITE IMPROVEMENT REQUIREMENTS)

TREE POSSIBLE TO BE SPADED & RE-PLANTED

TREE TO BE REMOVED

TREE OF PEACE - ARBORIST REPORT

SUMMARY

- Soil chemistry could be improved with some amendments
- Soil replacement recommended on north side of tree (currently restricting root growth)
- Recommend minimum 4 hours of direct sunlight per day
- Anticipating 30' tall structure above tree level, maintaining 20' radius from tree, we can expect 2 - 5.5 hours of direct sunlight per day (see graphs at right)
  - Northeast construction will not impact direct sunlight to tree
  - Morning sun is partially blocked by existing neighboring trees
- Canopy width at full maturity may reach 30'

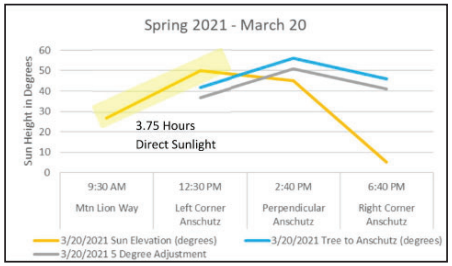
PROTECTION RECOMMENDATIONS

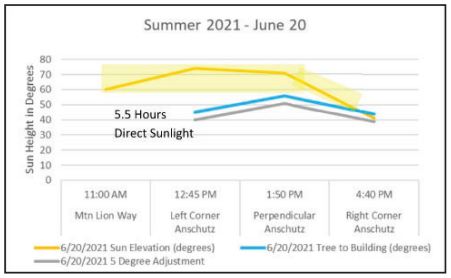
- Erect a 5' tall chain link fence 6' away from tree trunk on all 4 sides
- Apply wood mulch chips to depth of 3" inside fenced area
- No soil disturbance shall occur within fenced area
- Apply supplemental irrigation when dry
- Use load bearing mats for construction equipment to reduce soil compaction
- Post construction, pneumatically till soil to mitigate compaction

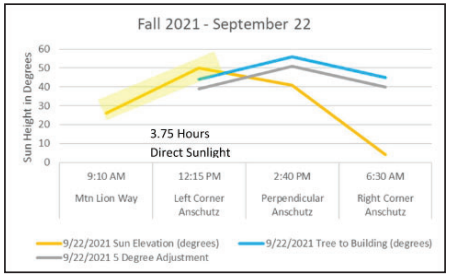
RELOCATION RECOMMENDATIONS

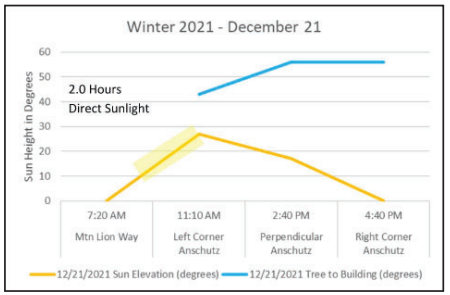
- Tree can be moved via 90" tree spade
- Move tree during spring
- Relocate tree on a west or north facing slope with similar slope angle, good drainage & soil structure

AVAILABLE DIRECT SUNLIGHT
GIVEN SIZE & LOCATION OF BUILDING



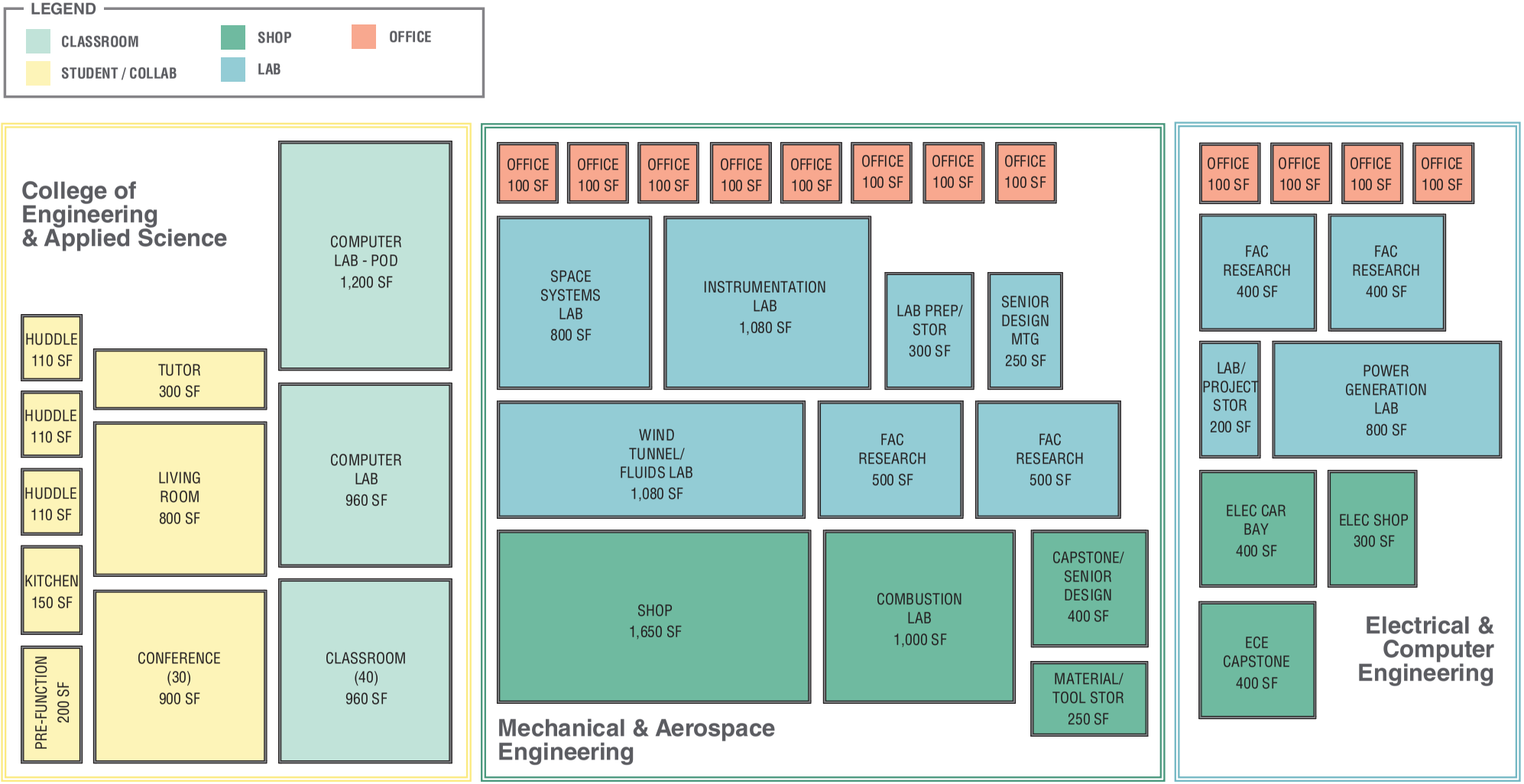




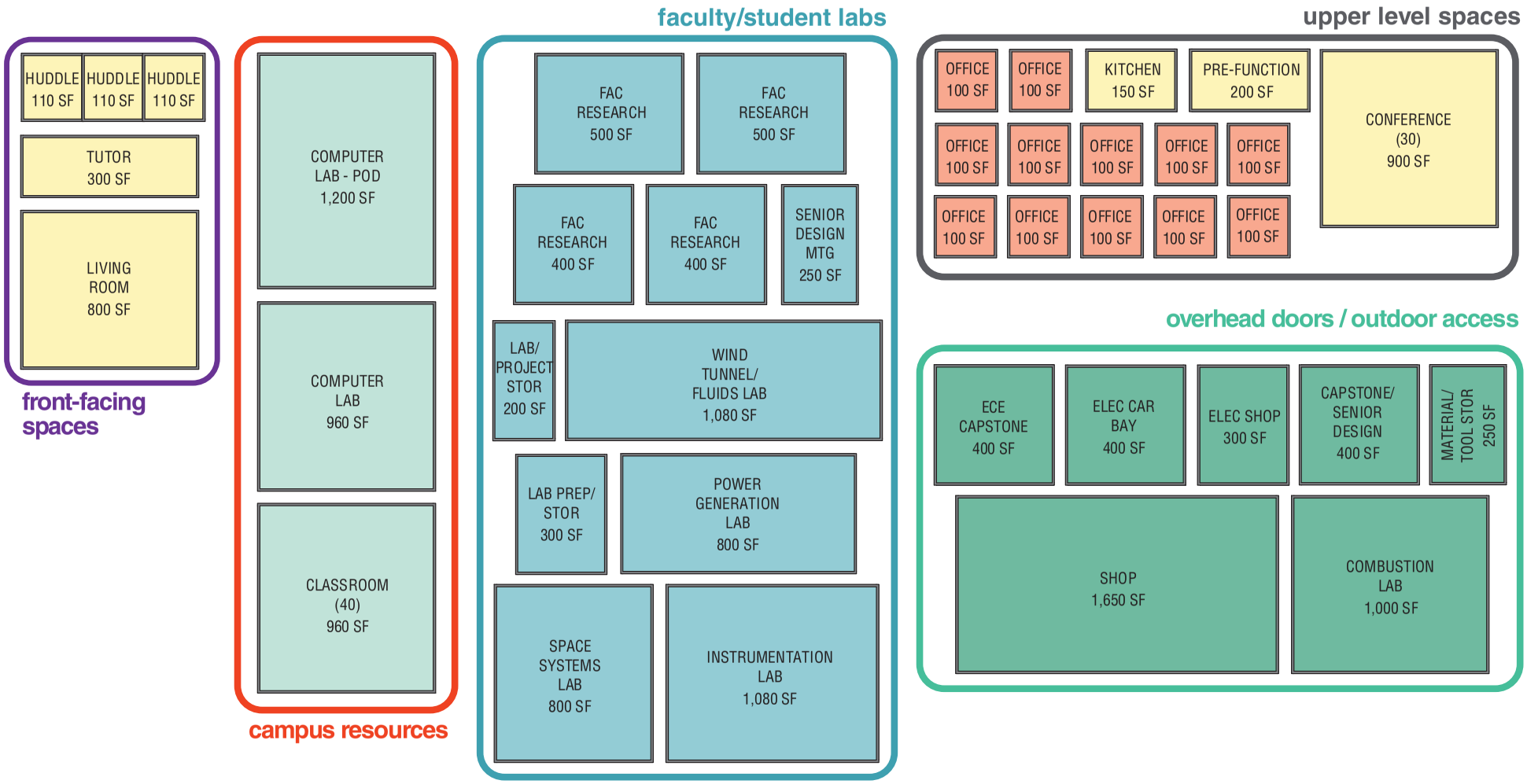


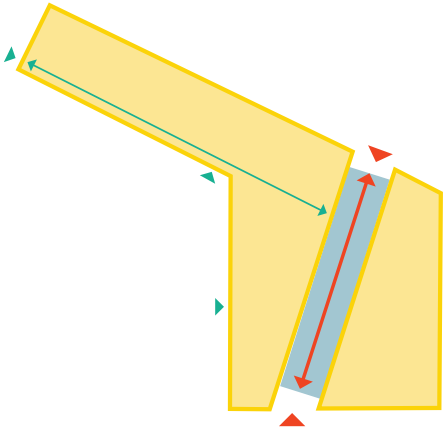
BUILDING CONCEPT | PROGRAM & MASSING

PROGRAM KIT OF PARTS

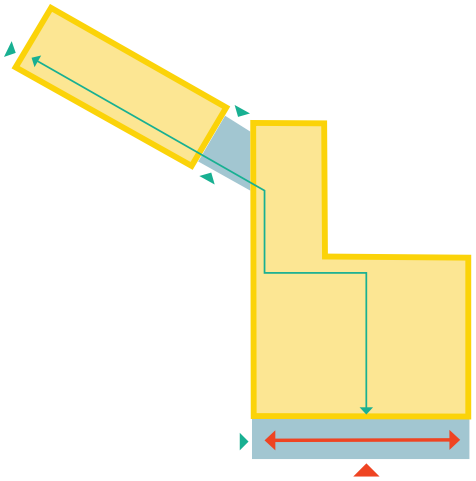


PROGRAM ADJACENCIES

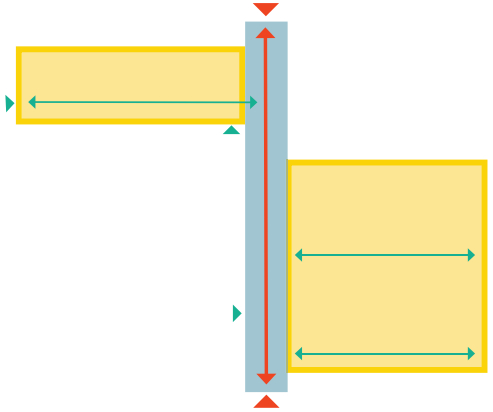




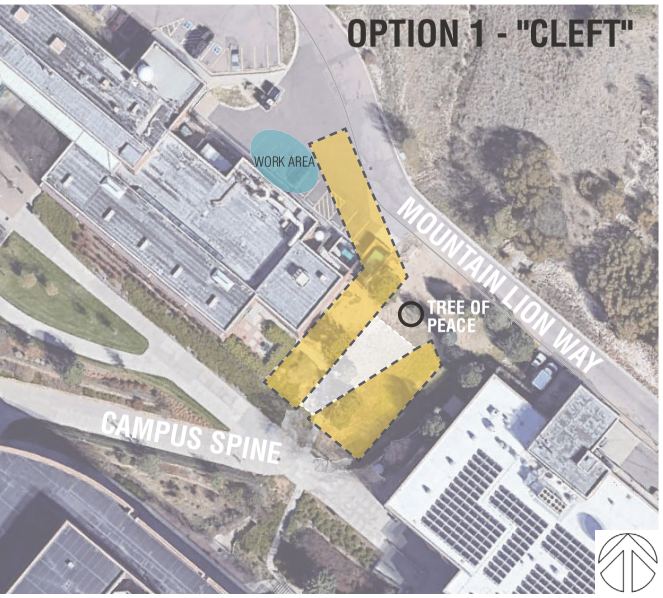
CONCEPT 1 - **"CLEFT"**

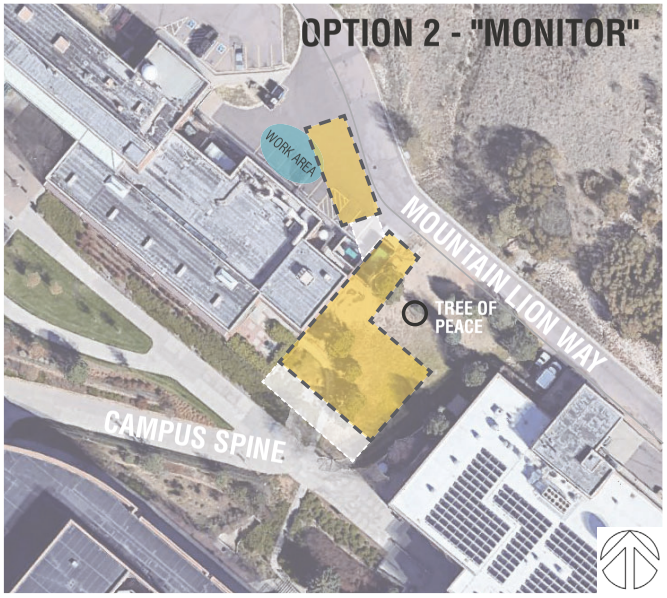


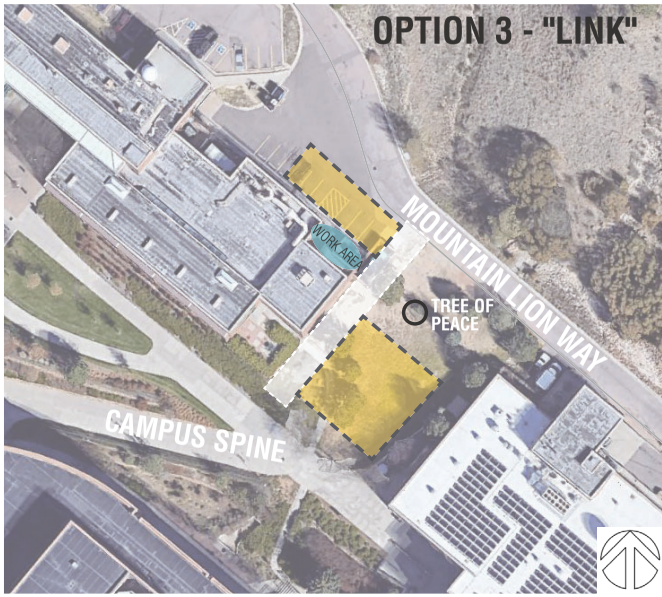
CONCEPT 2 - **"MONITOR"**



CONCEPT 3 - **"LINK"**


OPTION 1 - "CLEFT"
WORK AREA
TREE OF PEACE
MOUNTAIN LION WAY
CAMPUS SPINE


OPTION 2 - "MONITOR"
WORK AREA
TREE OF PEACE
MOUNTAIN LION WAY
CAMPUS SPINE


OPTION 3 - "LINK"
WORK AREA
TREE OF PEACE
MOUNTAIN LION WAY
CAMPUS SPINE

PROGRAM LAYOUT - "CLEFT"

LEGEND

CLASSROOM	SHOP	OFFICE
STUDENT / COLLAB	LAB	VERT CIRC

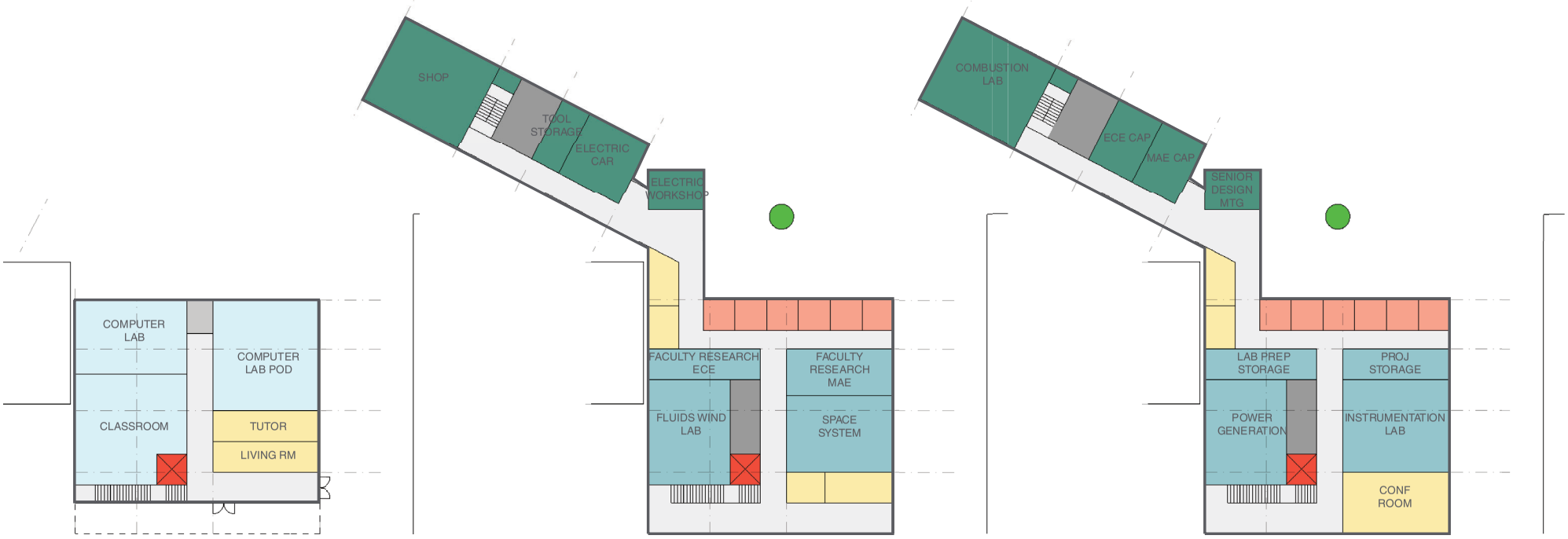
LEVEL 1 **LEVEL 2** **LEVEL 3**

"CLEFT"

PROGRAM LAYOUT - "MONITOR"

LEGEND

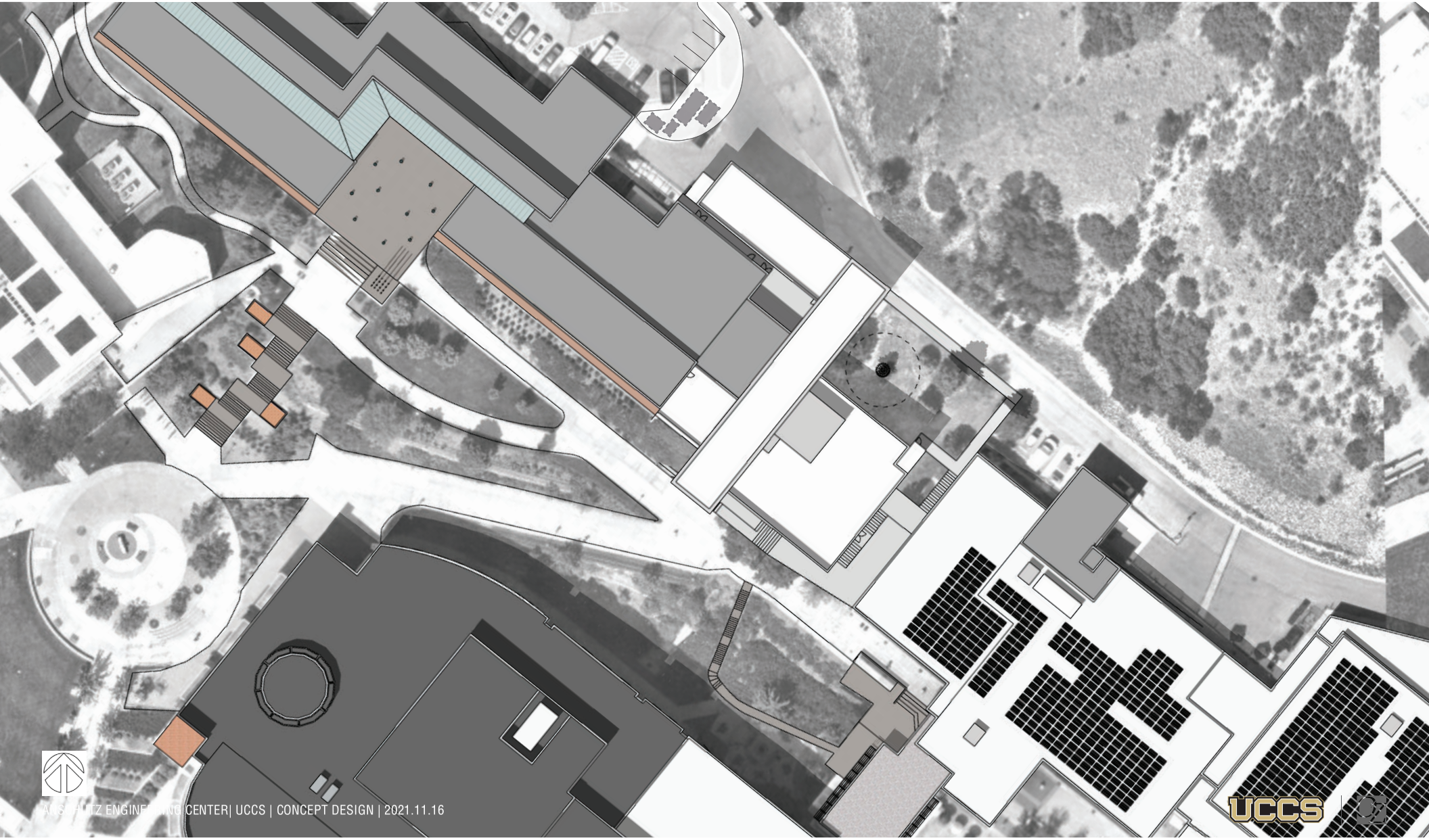
- CLASSROOM
- STUDENT / COLLAB
- SHOP
- LAB
- OFFICE
- VERT CIRC



LEVEL 1 **LEVEL 2** **LEVEL 3**

"MONITOR"

SITE PLAN - "LINK"

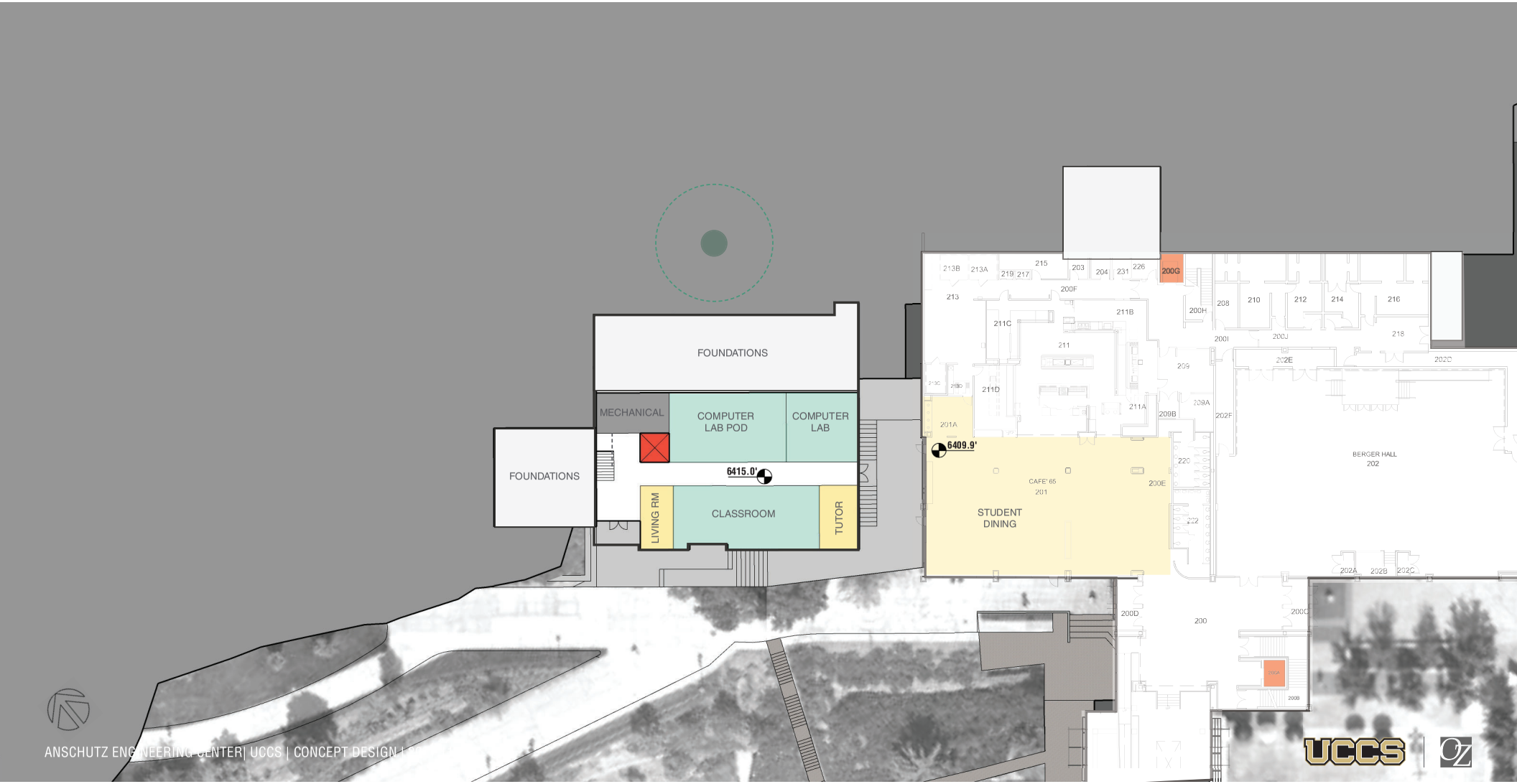


PROGRAM LAYOUT - "LINK"

LEGEND

CLASSROOM	SHOP	OFFICE
STUDENT / COLLAB	LAB	VERT CIRC

LEVEL 1



PROGRAM LAYOUT - "LINK"

LEGEND

- CLASSROOM
- STUDENT / COLLAB
- SHOP
- LAB
- OFFICE
- VERT CIRC

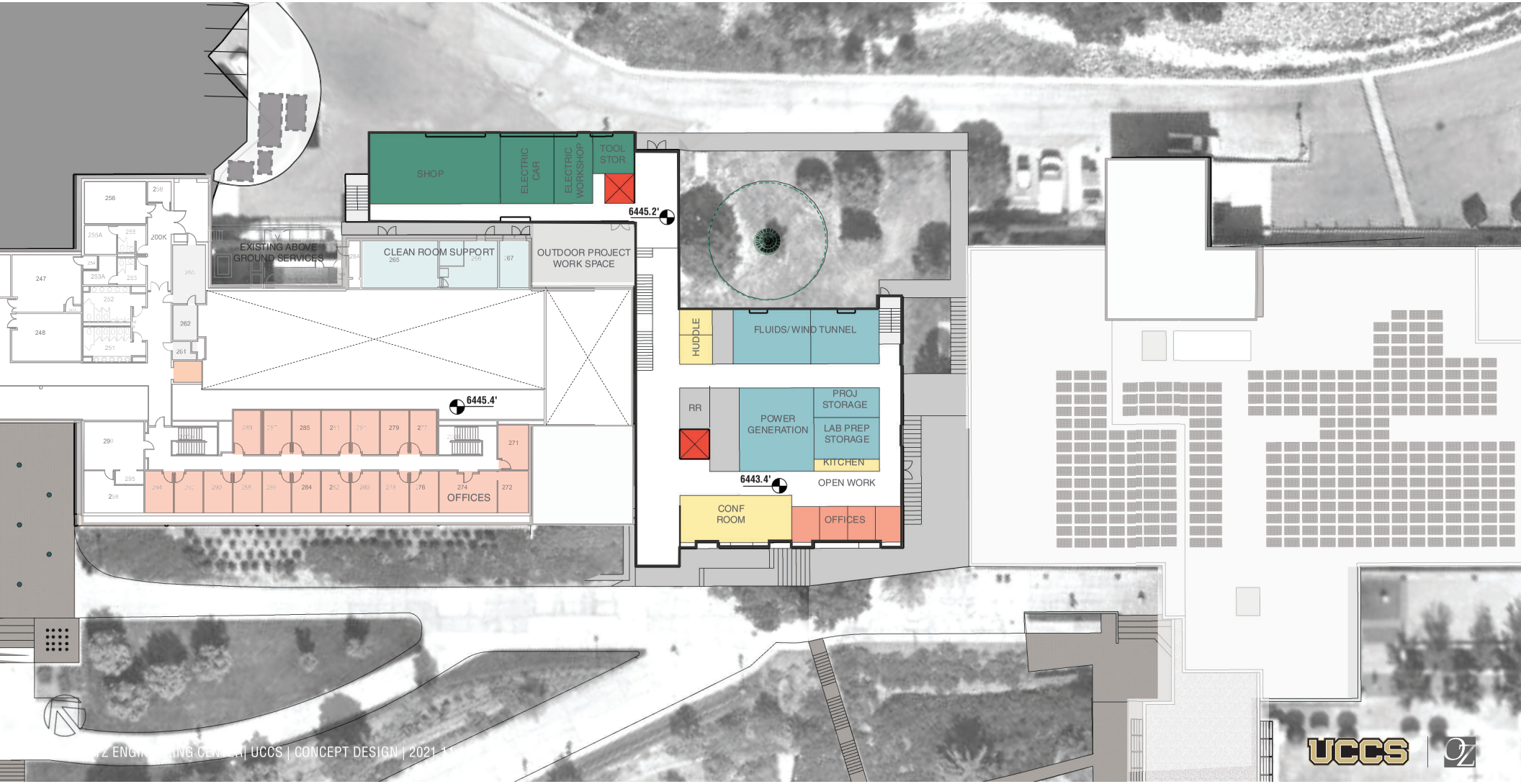
LEVEL 2

PROGRAM LAYOUT - "LINK"

LEGEND

- CLASSROOM
- STUDENT / COLLAB
- SHOP
- LAB
- OFFICE
- VERT CIRC

LEVEL 3

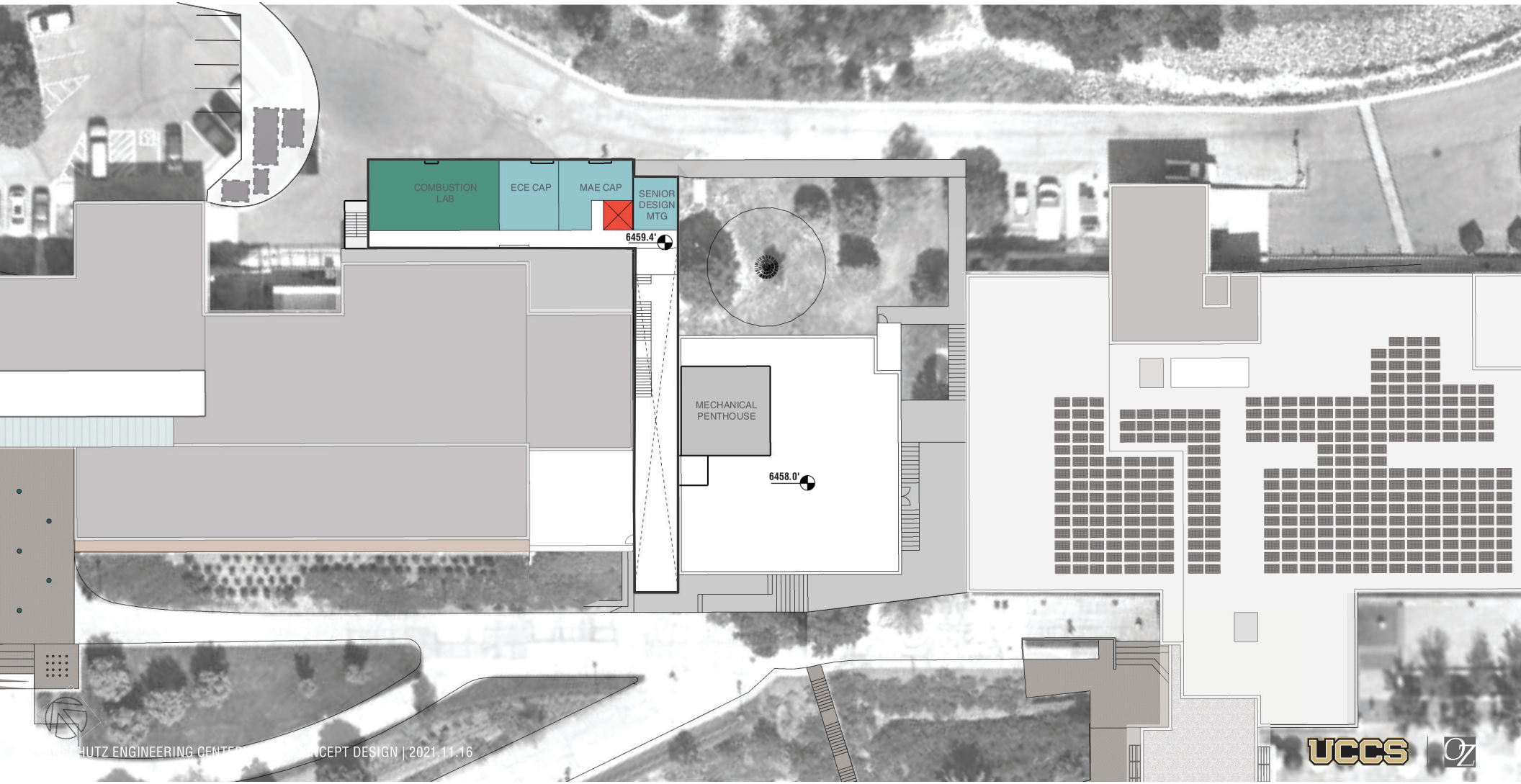


PROGRAM LAYOUT - "LINK"

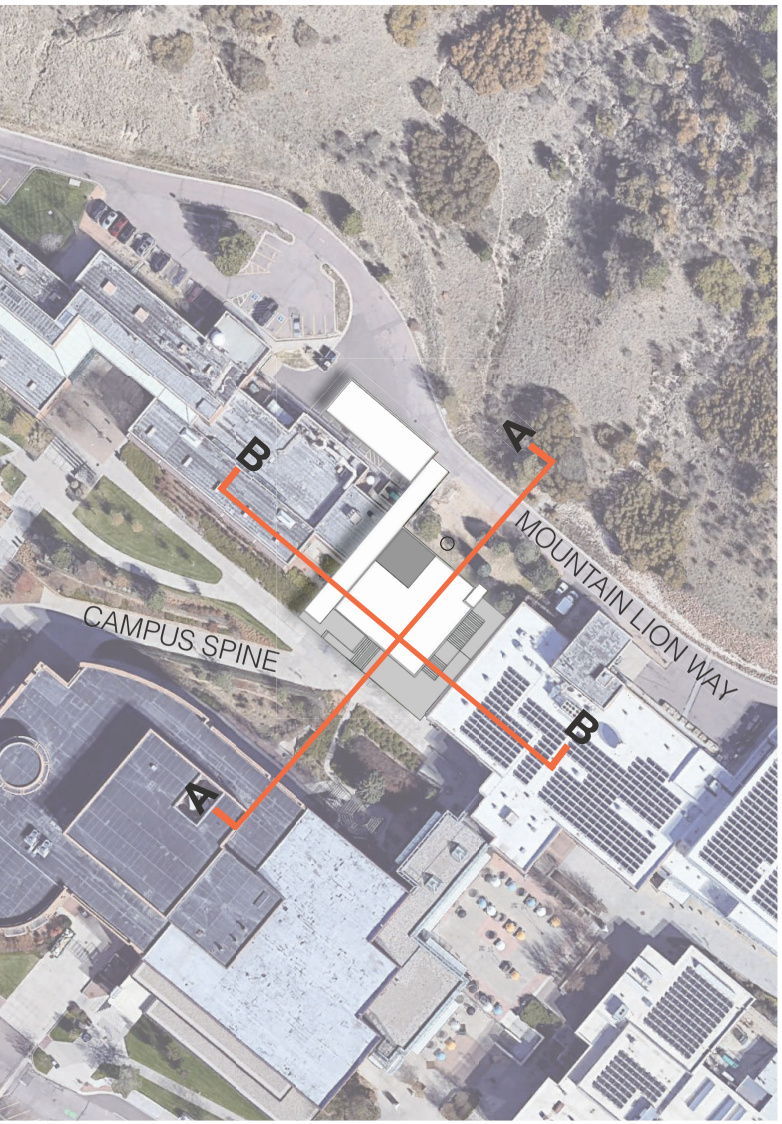
LEVEL 4

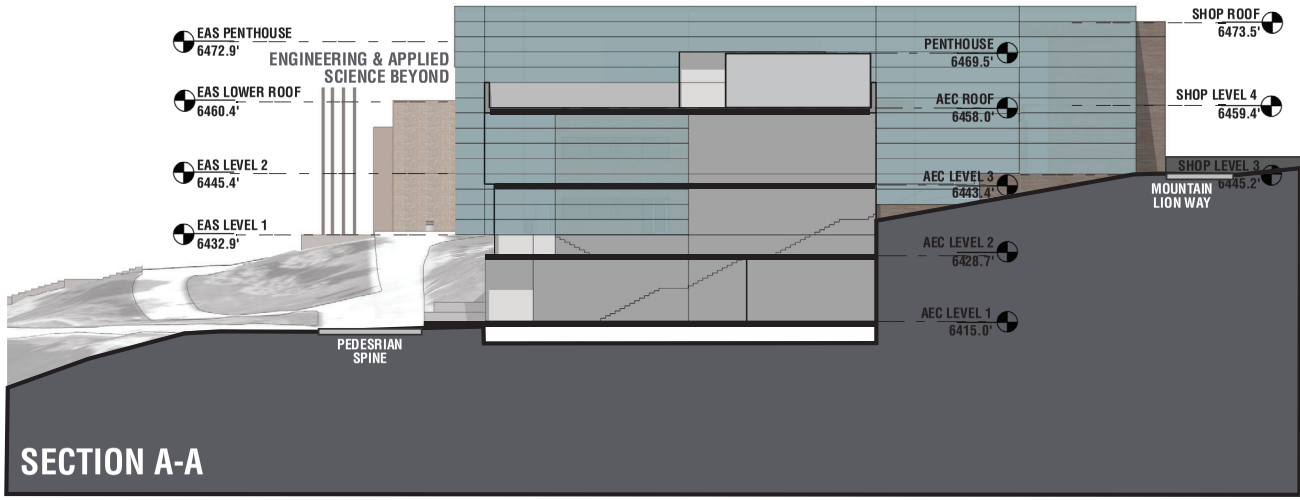
LEGEND

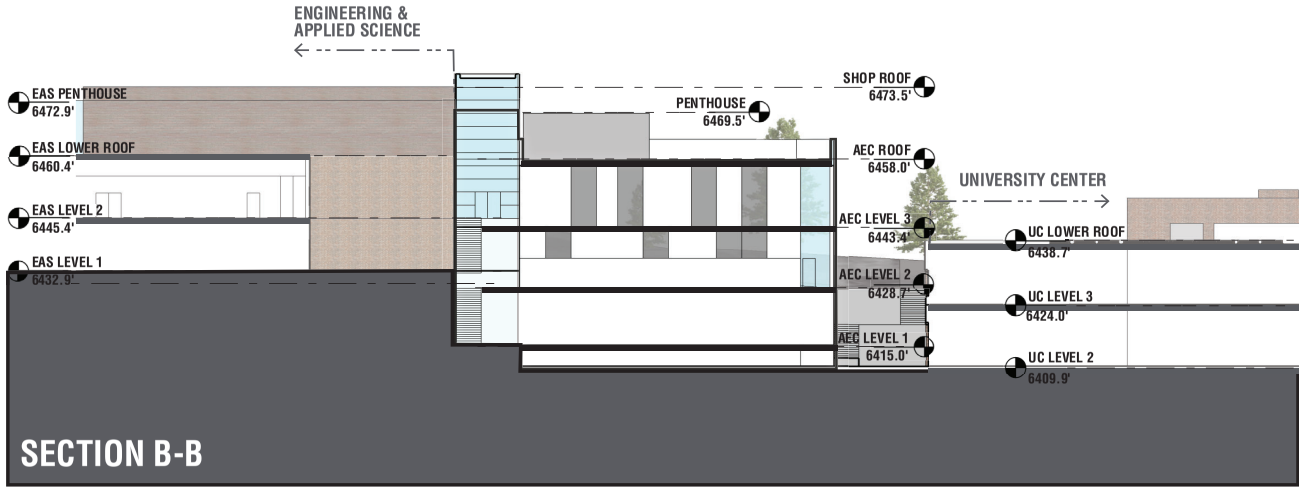
- CLASSROOM
- STUDENT / COLLAB
- SHOP
- LAB
- OFFICE
- VERT CIRC



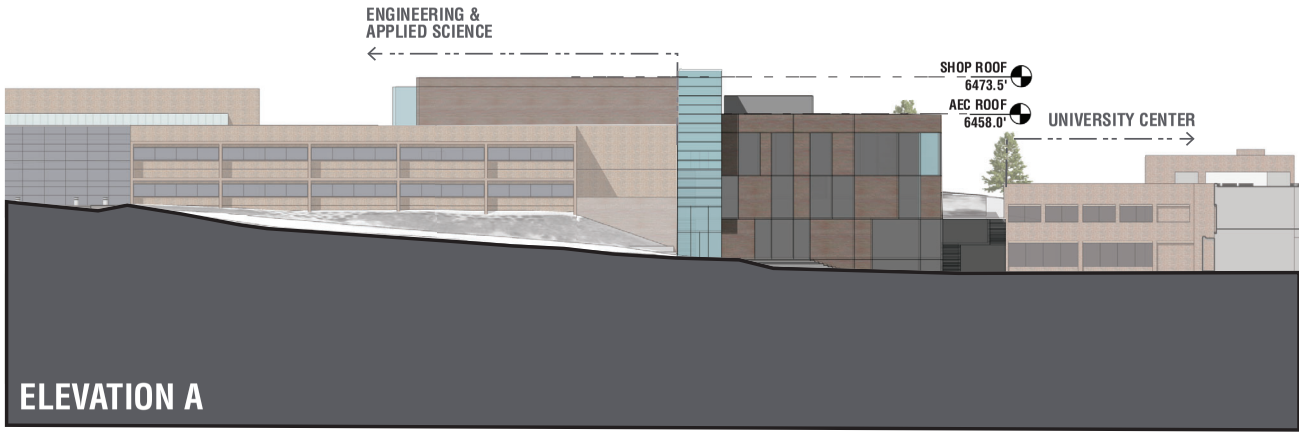
CONCEPT SITE SECTIONS - "LINK"

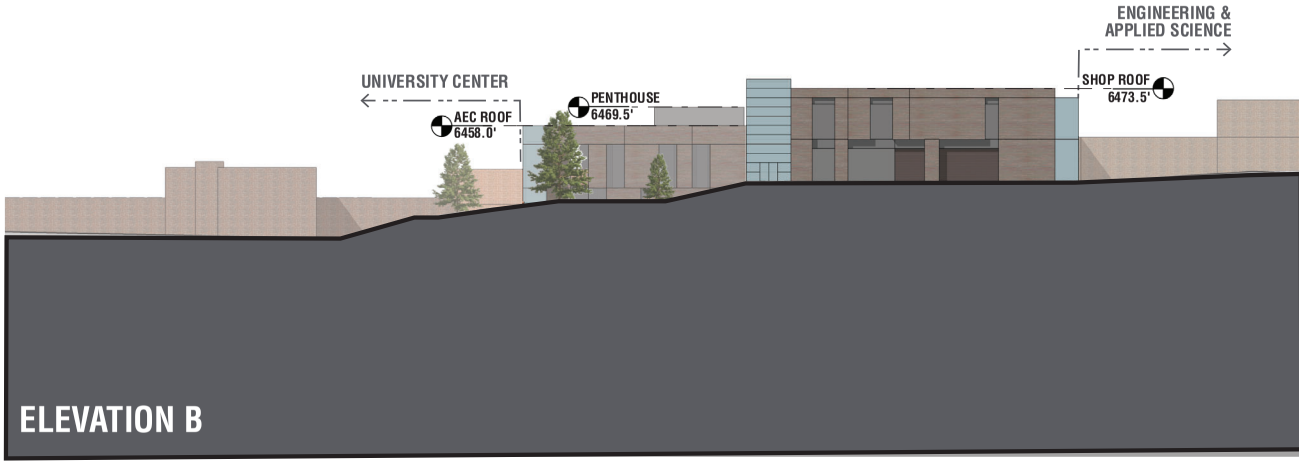


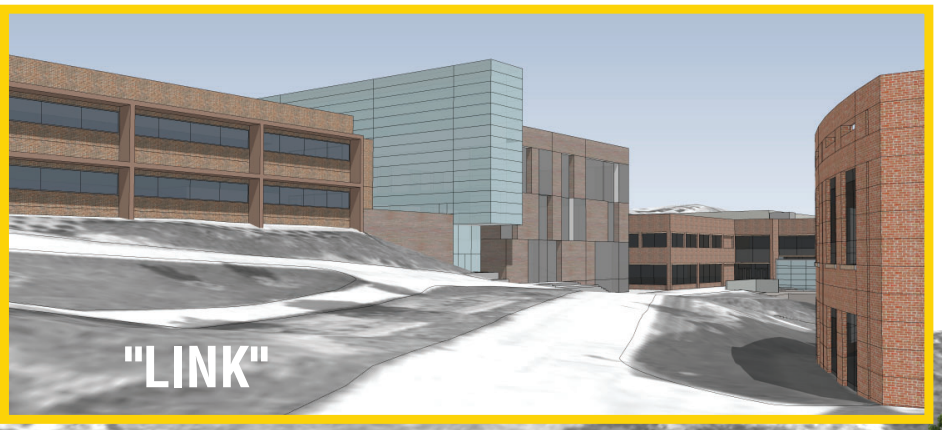




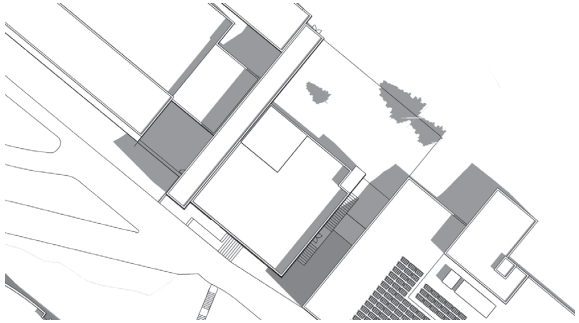
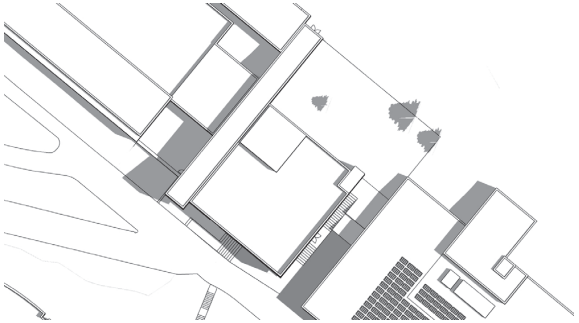
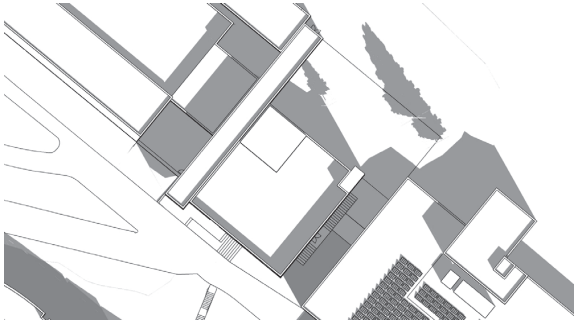
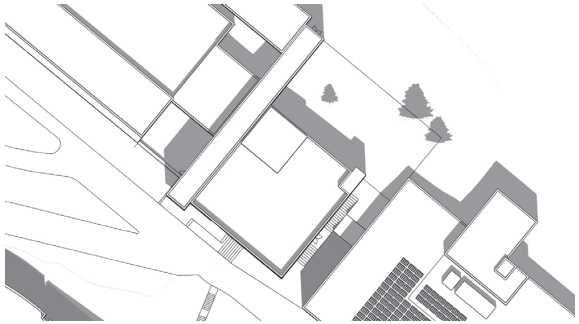
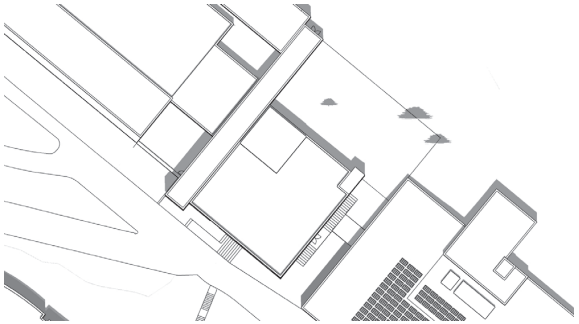
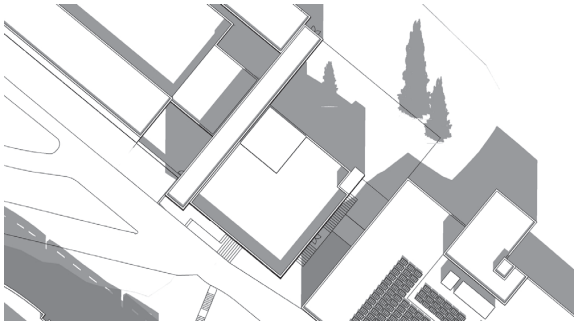
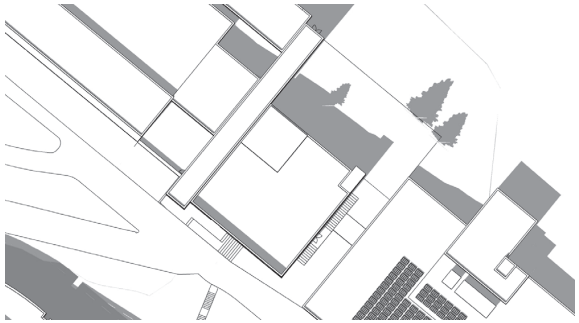
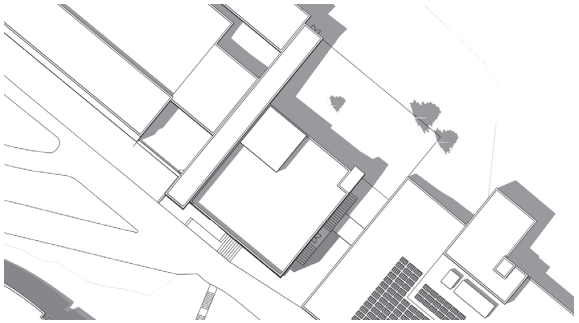
CONCEPT ELEVATIONS - "LINK"



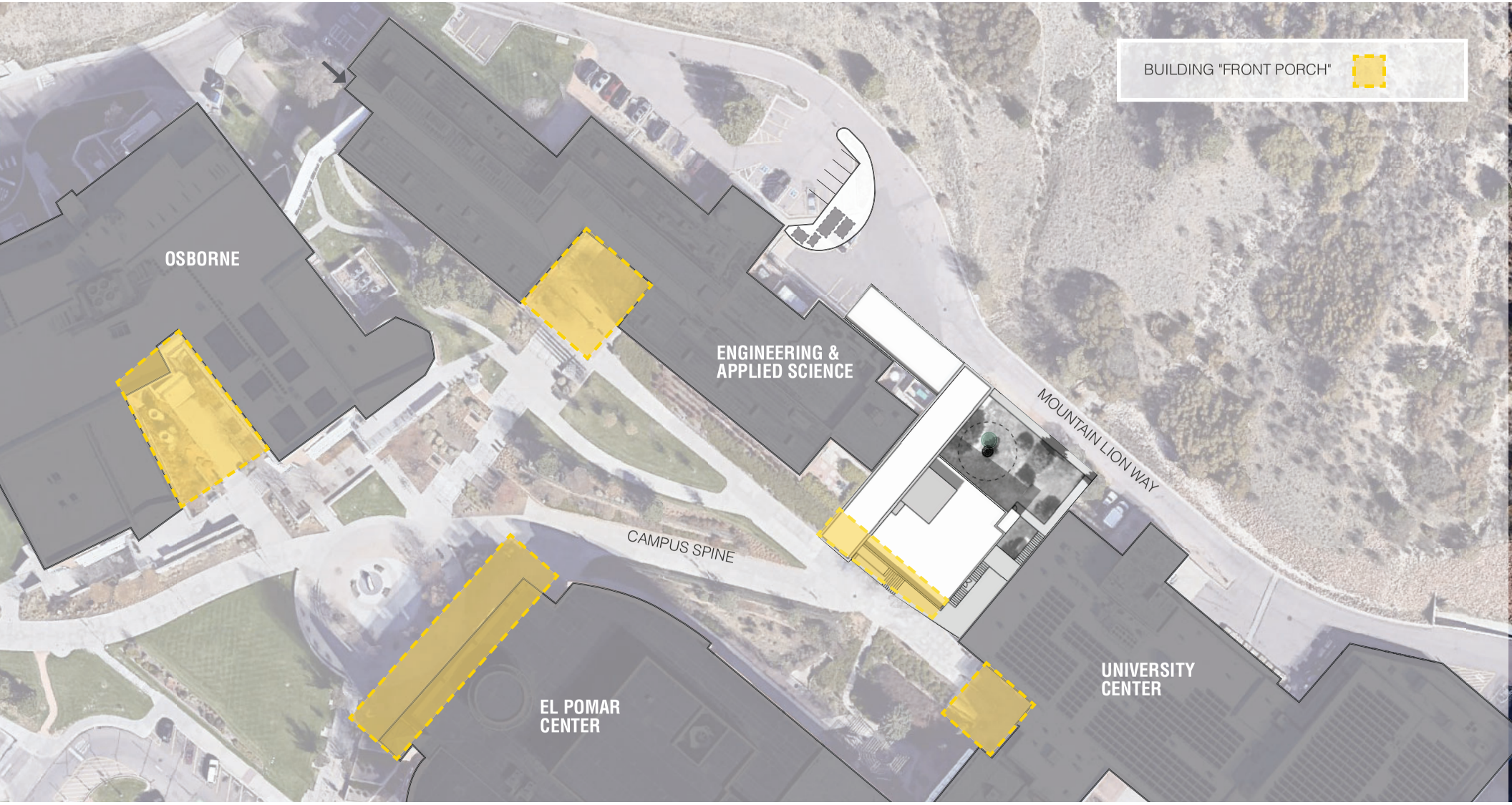



"LINK"

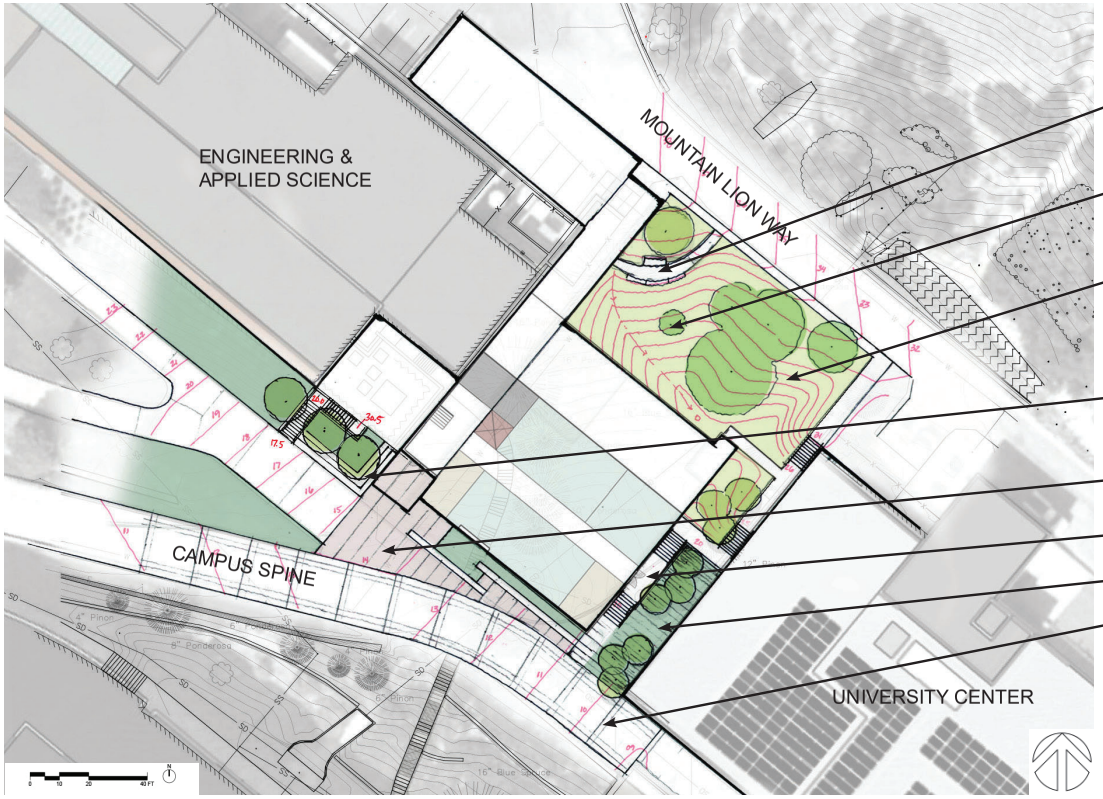
SUN / SHADE STUDY

	MARCH 21ST	JUNE 21ST	DECEMBER 21ST
10:00 AM			
12:00 PM			
2:00 PM			

CAMPUS CONTEXT



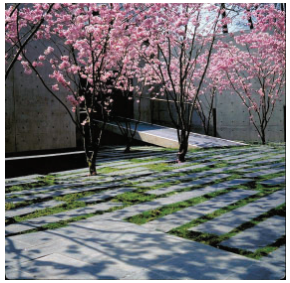
"LINK" - LANDSCAPE CONCEPT A



- INFORMAL PATH AND BENCH FOR TREE OF PEACE VIEWING
- TREE OF PEACE: PRESERVE IN PLACE
- ENHANCED NATIVE LANDSCAPE PLANTING
- TERRACE SEATING EDGE WITH EGRESS STAIRS FROM EAS BUILDING
- BUILDING ENTRANCE PLAZA WITH SEAT WALLS AND PLANTING
- STAIRS AND PATH TO CONNECT SPINE TO MOUNTAIN LINE WAY
- SHADE GARDEN: MAINTAIN CIRCULATION TO UNIVERSITY CENTER
- CAMPUS SPINE PAVING PATTERN

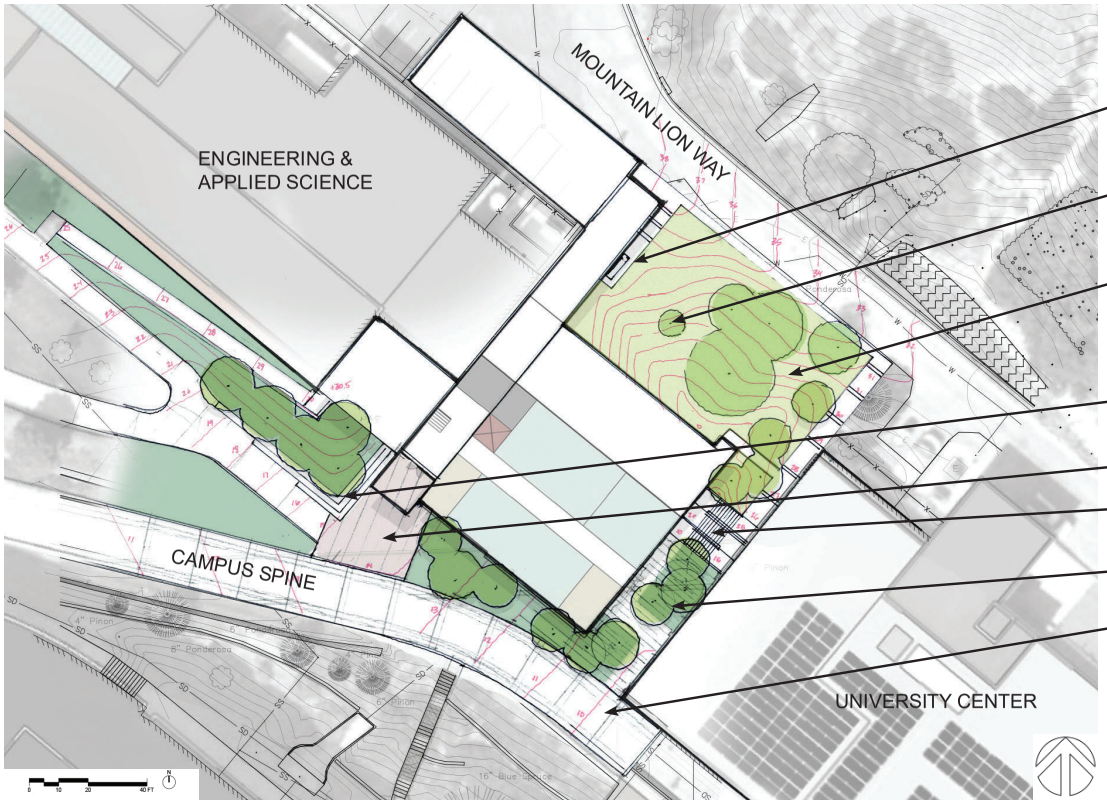
TERRACE SEATING EDGE

ENHANCED NATIVE LANDSCAPE PLANTING


SHADE GARDEN

CAMPUS SPINE PAVING PATTERN

"LINK" - LANDSCAPE CONCEPT B



- INFORMAL PATH AND BENCH FOR TREE OF PEACE VIEWING
- TREE OF PEACE: PRESERVE IN PLACE
- ENHANCED NATIVE LANDSCAPE PLANTING
- EXPANDED TERRACE SEATING EDGE WITH EGRESS PATH FROM EAS BUILDING
- BUILDING ENTRANCE PLAZA WITH PLANTING
- CONSOLIDATED STAIRS AND PATH TO CONNECT SPINE TO MOUNTAIN LINE WAY
- EXPANDED SHADE GARDEN: MAINTAIN CIRCULATION TO UNIVERSITY CENTER
- CAMPUS SPINE PAVING PATTERN

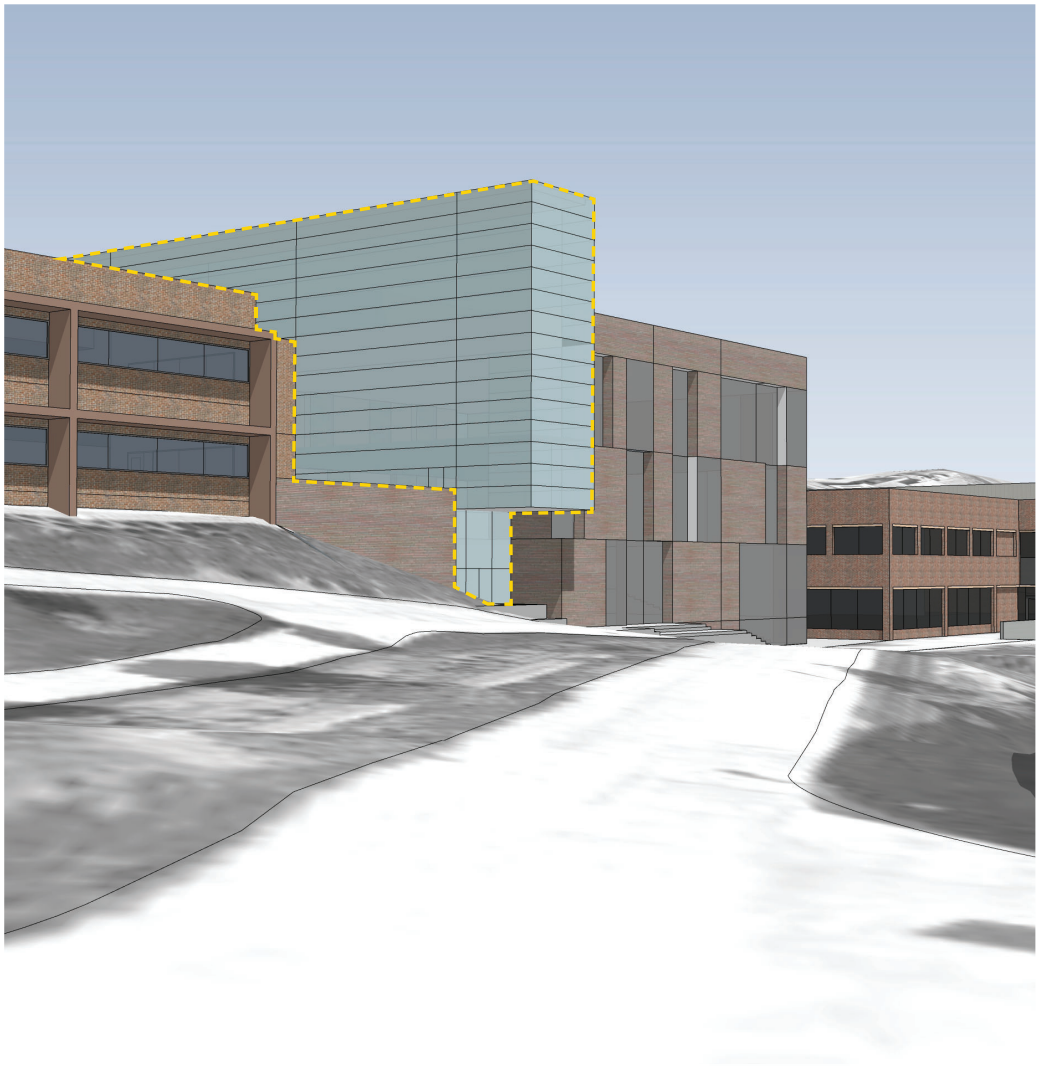
TERRACE SEATING EDGE

ENHANCED NATIVE LANDSCAPE PLANTING

SHADE GARDEN

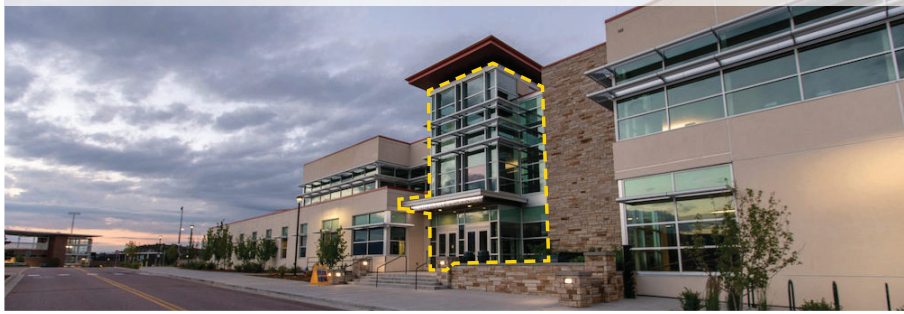
CAMPUS SPINE PAVING PATTERN

MATERIALITY & CAMPUS CONTEXT

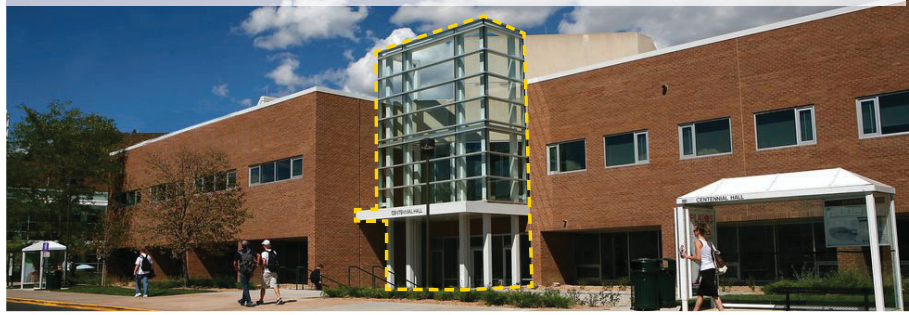


VERTICAL GLASS ELEMENT & ENTRY CANOPY

GALLOGLY EVENT CENTER

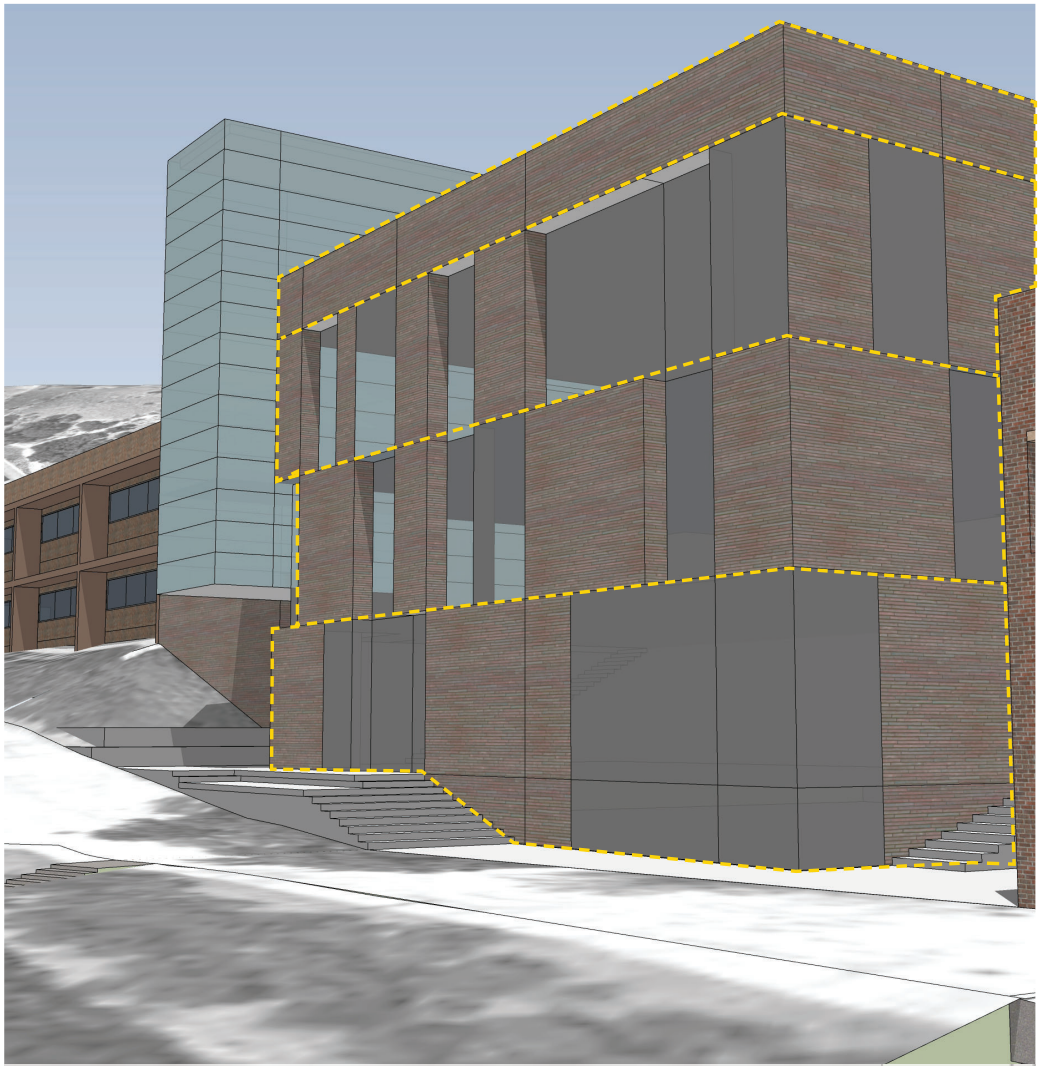


CENTENNIAL HALL



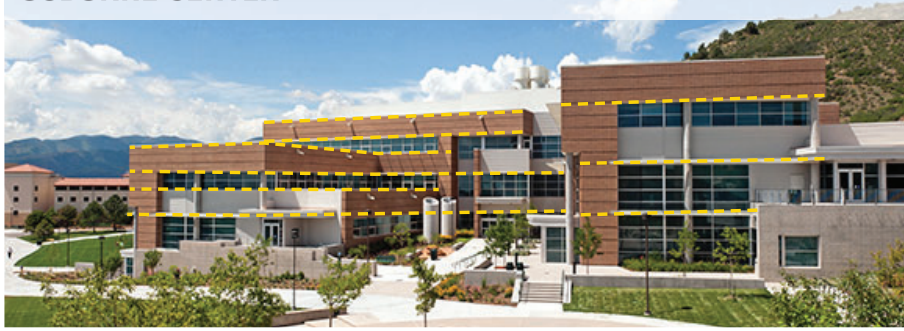
UNIVERSITY CENTER

MATERIALITY & CAMPUS CONTEXT



HORIZONTAL BANDS OF BRICK & GLASS

OSBORNE CENTER

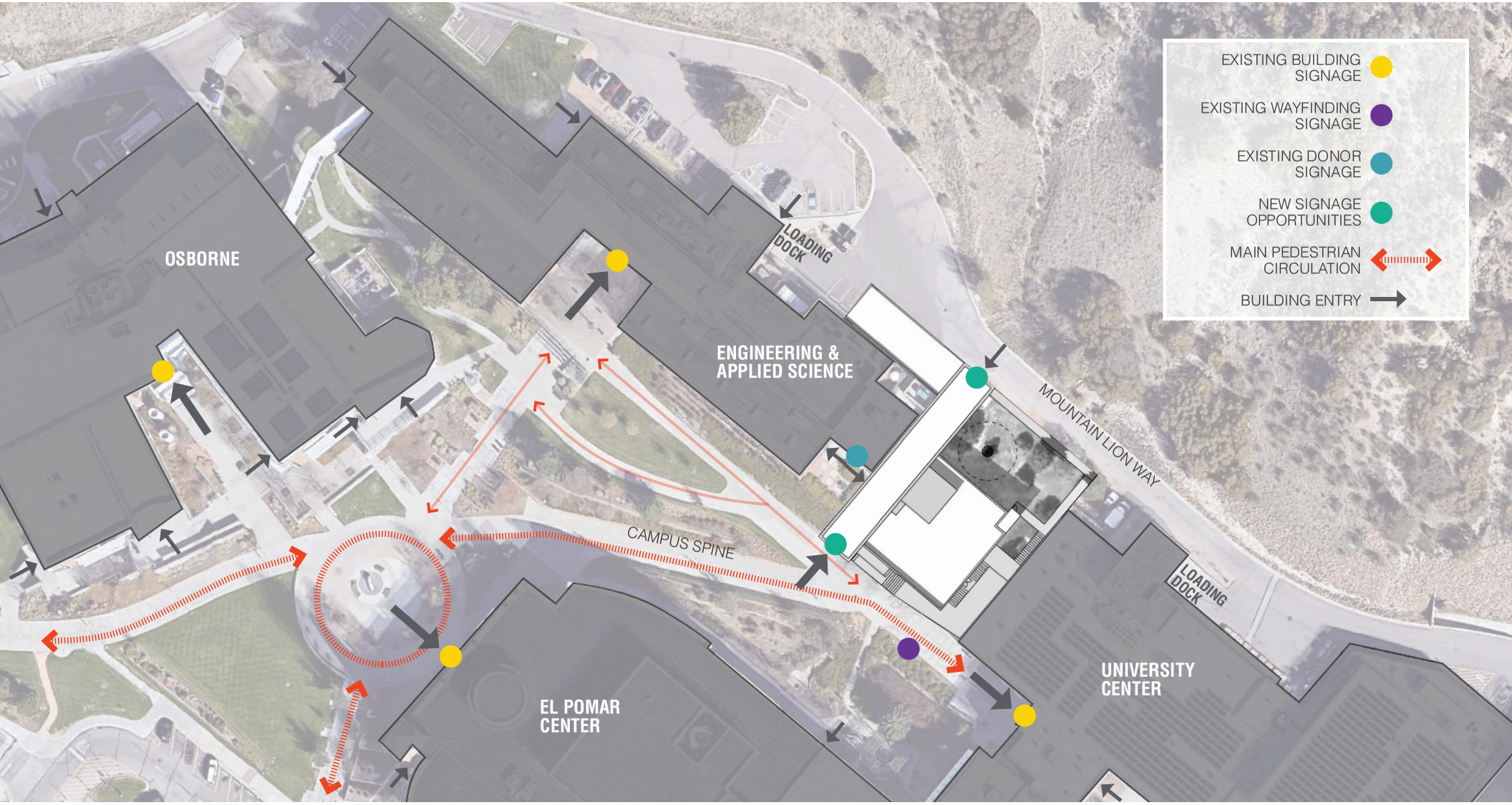


ENGINEERING & APPLIED SCIENCE

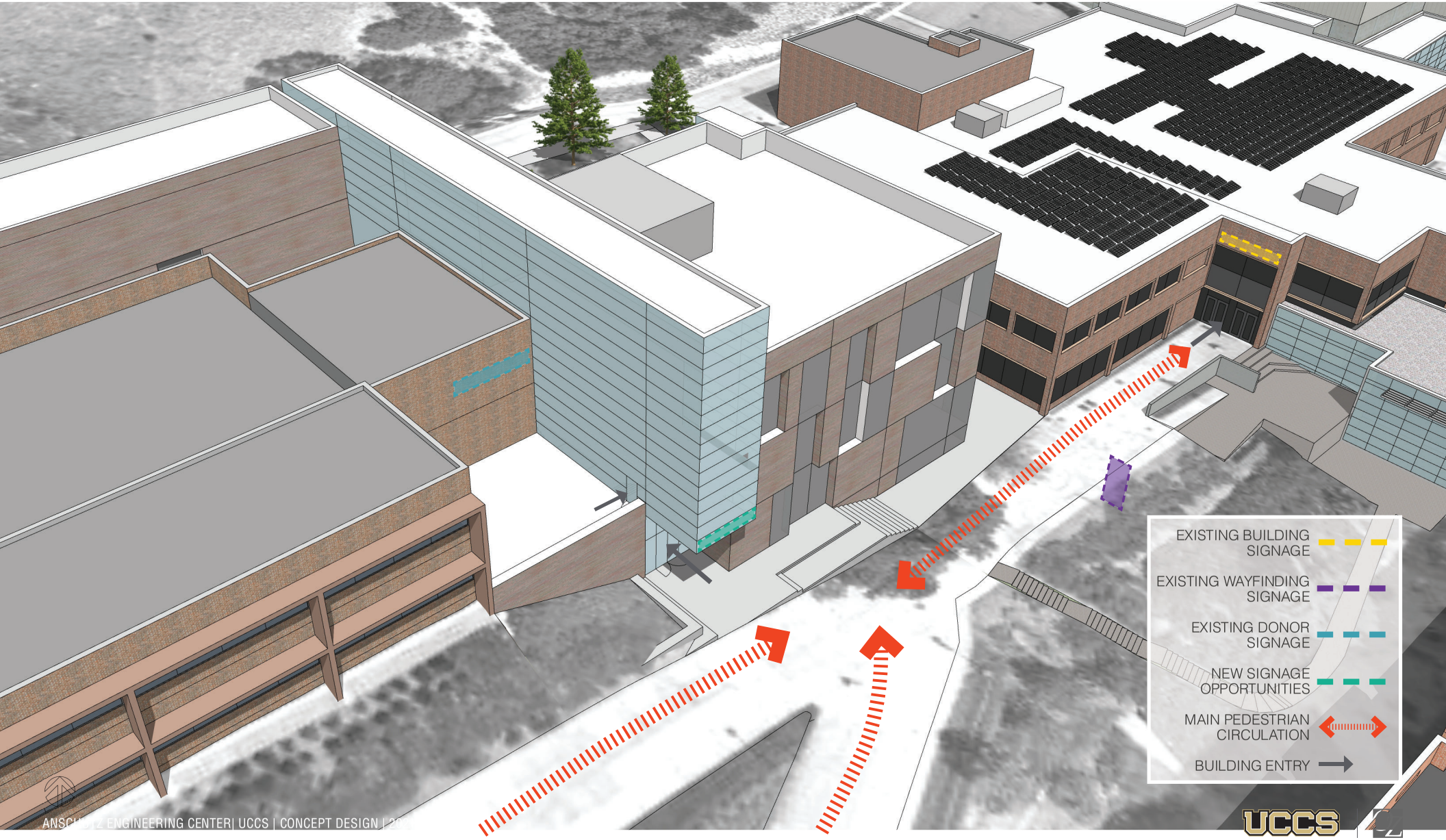
UNIVERSITY CENTER

SIGNAGE & WAYFINDING

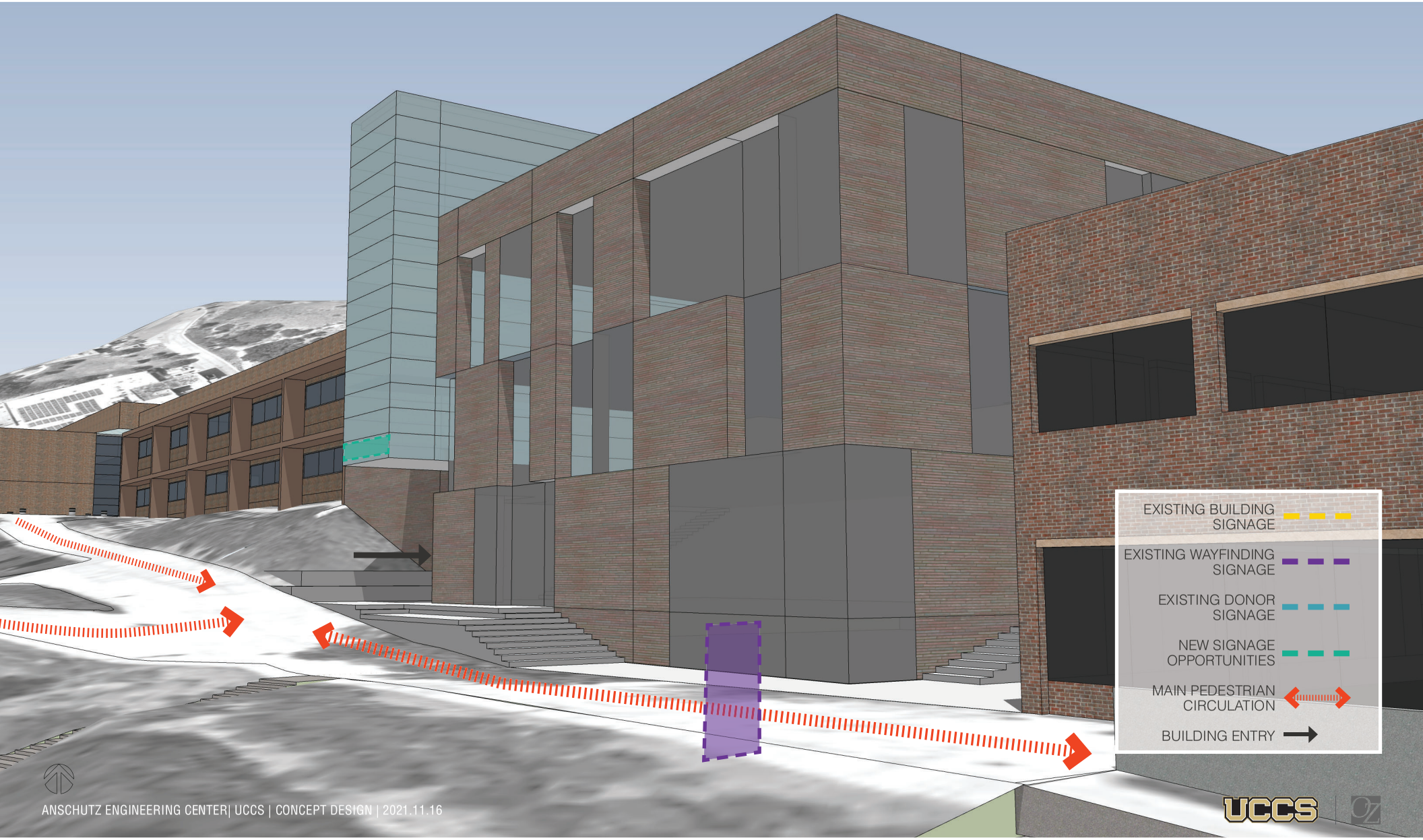
ZOOM IN PLUG IN PREF SCHEME W/ LEGEND AND MAIN LOCATIONS



SIGNAGE & WAYFINDING



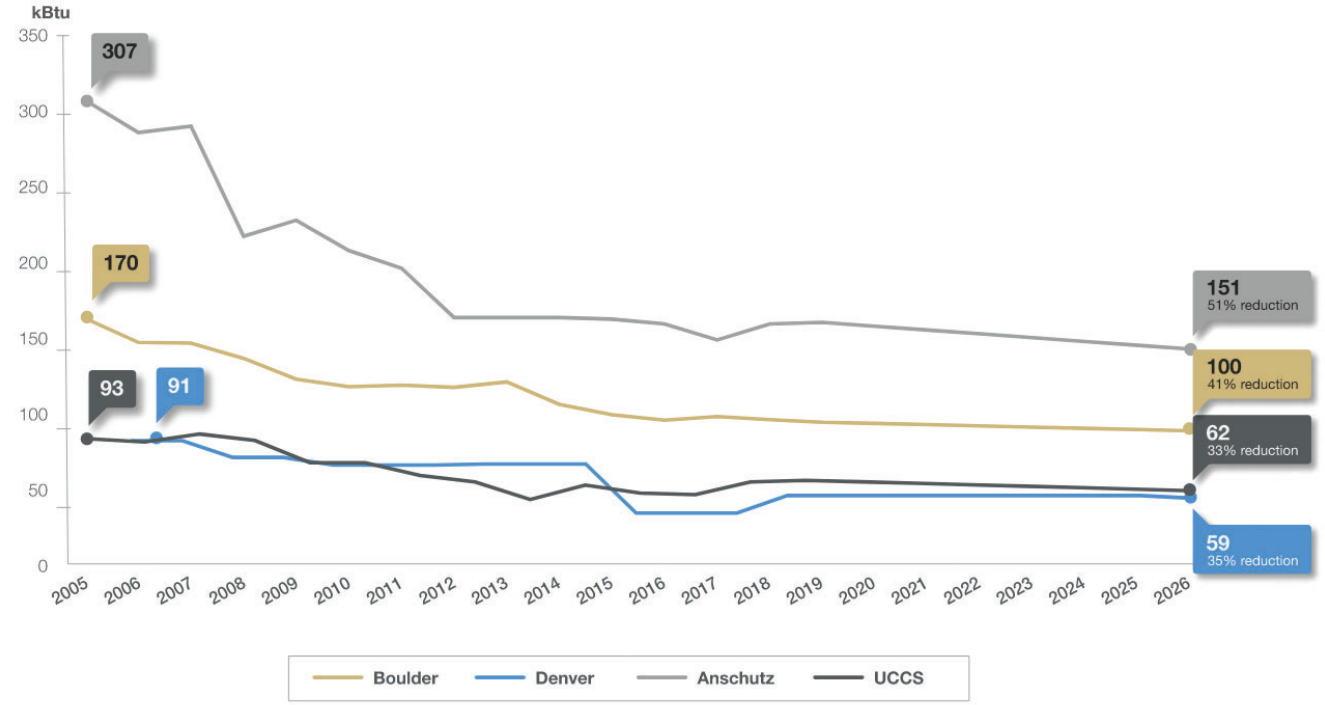
SIGNAGE & WAYFINDING



SUSTAINABILITY| LEED AND GOALS

SUSTAINABILITY GOALS & LEED SCORECARD

CU ENERGY USE GOALS



SUSTAINABILITY GOALS & LEED SCORECARD

LEED BD+C: New Construction and Major Renovation v4 & v4.1
UCCS Engineering Annex
Date Registered: TBD
Date Updated: 11/1/2021
Goal: Gold

ambient energy
A Mead & Hunt Company

Cells highlighted in salmon color indicate alternative compliance paths using LEED v4.1

Yes	SM	WM	No				
56	15	20	19		**Project Totals (Pre-certification estimates)**		
Current Yes's =					Certified 40-49 Silver 50-59 points Gold 60-79 points Platinum 80-110 points		d = Design Submittal c = Construction Submittal
1					**Integrative Process (IP) - 1 Point Available**		**Champion**
1				IPc1	**Integrative Process (1)**	d	Ambient Energy
3	2	3	8		**Location and Transportation (LT) - 16 Points Available**		**Champion**
				LTc1	**LEED for Neighborhood Development Location (8-16)**	d	Ambient Energy, Owner
1				LTc2	**Sensitive Land Protection (1)**	d	Ambient Energy
	1		1	LTc3	**High Priority Site (1-2)**	d	Ambient Energy
	1	1	3	LTc4 (v4.1)	**Surrounding Density and Diverse Uses (1-5)**	d	Ambient Energy
		1	4	LTc5 (v4.1)	**Access to Quality Transit (1-5)**	d	Ambient Energy
1				LTc6 (v4.1)	**Bicycle Facilities (1)**	d	Oz Architects, Landscape
1				LTc7 (v4.1)	**Reduce Parking Footprint (1)**	d	Oz Architects, Landscape
		1		LTc8 (v4.1)	**Electric Vehicles (1)**	d	Oz Architects, Landscape
3	3	1	3		**Sustainable Sites (SS) - 10 Points Available**		**Champion**
Y				SSp1	**Construction Activity Pollution Prevention (P)**	c	Civil, Contractor
		1		SSc1	**Site Assessment (1)**	d	Civil, Oz Architects
	2			SSc2 (v4.1)	**Protect or Restore Habitat (1-2)**	d	Landscape, Owner
	1			SSc3 (v4.1)	**Open Space (1)**	d	Landscape, Owner
			3	SSc4	**Rainwater Management (1-3)**	d	
2				SSc5 (v4.1)	**Heat Island Reduction (1-2)**	d	Oz Architects, Landscape
1				SSc6	**Light Pollution Reduction (1)**	d	Electrical
6		5			**Water Efficiency (WE) - 11 Points Available**		**Champion**
Y				WEp1	**Outdoor Water Use Reduction, 30% (P)**	d	Landscape
Y				WEp2	**Indoor Water Use Reduction, 20% (P)**	d	Ambient Energy
Y				WEp3	**Building-level Water Metering (P)**	d	Plumbing
1		1		WEc1	**Outdoor Water Use Reduction (1-2)**	d	Landscape
4		2		WEc2	**Indoor Water Use Reduction (1-6)**	d	Ambient Energy
		2		WEc3 (v4.1)	**Optimize Process Water Use (1-2)**	d	Mechanical
1				WEc4	**Water Metering (1)**	d	Plumbing
21	5	3	4		**Energy and Atmosphere (EA) - 33 Points Available**		**Champion**
Y				EAp1	**Fundamental Commissioning and Verification (P)**	c	Commissioning Agent
Y				EAp2	**Minimum Energy Performance, 5% (P)**	d	Energy Modeler
Y				EAp3	**Building-level Energy Metering (P)**	d	Mechanical
Y				EAp4	**Fundamental Refrigerant Management (P)**	d	Mechanical
5	1			EAc1	**Enhanced Commissioning (2-6)**	c	Commissioning Agent
12	2	2	2	EAc2	**Optimize Energy Performance (1-18)**	d	Energy Modeler
1				EAc3	**Advance Energy Metering (1)**	d	Mechanical / Electrical
			2	EAc4 (v4.1)	**Grid Harmonization (1-2)**	c	
3	1	1		EAc5 (v4.1)	**Renewable Energy (1-5)**	d	Energy Modeler, Mechanical, Oz Architects, Owner
	1			EAc6	**Enhanced Refrigerant Management (1)**	d	Mechanical

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UCCS Engineering Annex
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ambient energy
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Yes	SM	WM	No				
4		5	4		**Materials & Resources (MR) - 13 Points Available**		**Champion**
Y				MRp1	**Storage and Collection of Recyclables (P)**	d	Ambient Energy, Owner
Y				MRp2 (v4.1)	**Construction and Demolition Waste Management Planning (P)**	c	Contractor
		1	4	MRc1	**Building Life-cycle Impact Reduction (2-5)**	c	
1		1		MRc2	**BPDO - Environmental Product Declarations (1-2)**	c	Oz Architects, Contractor
1		1		MRc3 (v4.1)	**BPDO - Sourcing of Raw Materials (1-2)**	c	Oz Architects, Contractor
1		1		MRc4 (v4.1)	**BPDO - Material Ingredients (1-2)**	c	Oz Architects, Contractor
1		1		MRc5 (v4.1)	**Construction and Demolition Waste Management (1-2)**	c	Oz Architects, Contractor
9	4	3			**Indoor Environmental Quality (EQ) - 16 Points Available**		**Champion**
Y				EQp1	**Minimum IAQ Performance (P)**	d	Mechanical
Y				EQp2 (v4.1)	**Environmental Tobacco Smoke (ETS) Control (P)**	d	Ambient Energy, Owner, Oz Architects/Landscape
2				EQc1	**Enhanced Indoor Air Quality Strategies (1-2)**	d	Oz Architects, Mechanical
3				EQc2 (v4.1)	**Low Emitting Materials (1-3)**	c	Oz Architects, Contractor
1				EQc3	**Construction Indoor Air Quality Management Plan (1)**	c	Contractor
1	1			EQc4 (v4.1)	**Indoor Air Quality Assessment (1-2)**	c	Mechanical, Contractor or IAQ Testing Consultant
1				EQc5	**Thermal Comfort (1)**	d	Mechanical
1	1			EQc6	**Interior Lighting (1-2)**	d	Electrical
		3		EQc7 (v4.1)	**Daylight (1-3)**	d	Daylight Consultant, Oz Architects
	1			EQc8	**Quality Views (1)**	d	Oz Architects
	1			EQc9 (v4.1)	**Acoustic Performance (1)**	d	Oz Architects, K2
6					**Innovation (IN) - 6 Points Available**		**Champion**
1				INc1.1	**Innovation, Provide Specific Title**	d/c	TBD
1				INc1.2	**Innovation, Provide Specific Title**	d/c	TBD
1				INc1.3	**Innovation, Provide Specific Title**	d/c	TBD
1				INc1.4	**Innovation, Provide Specific Title**	d/c	TBD
1				INc1.5	**Innovation, TBD (Pilot)**	d/c	TBD
1				INc2	**LEED® Accredited Professional**	c	Ambient Energy
3	1				**Regional Priority (RP) - 4 Points Available**		**Champion**
1				RPc1.1	**Renewable Energy Production (Meet 3 points Threshold)**	d/c	See above.
1				RPc1.2	**Optimize Energy Performance (Meet 10 points Threshold)**	d/c	See above.
1				RPc1.3	**Indoor Water Use Reduction (Meet 4 points Threshold)**	d/c	See above.
	1			RPc1.4	**Surrounding Density and diverse uses (Meet 3 points Threshold)**	d/c	See above.
				Alt	**Rainwater Management (Meet 2 points Threshold)**	d/c	
				Alt	**Outdoor Water Use Reduction (Meet 2 points Threshold)**	d/c	

TOTAL:

YES - 56

STRONG MAYBE - 15

WEAK MAYBE - 20

NO - 19

LEED GOLD = 60-79 POINTS

TARGET = 64 points

SUSTAINABILITY GOALS & LEED SCORECARD

PROJECT SUSTAINABILITY GOALS

- Minimum LEED Gold
- Reduce energy use by 30% compared to ASHRAE 90.1 baseline
- EUI Target = 40 kBtu/SF/YR compared to an estimated EUI of 55 for similar building without advanced energy conservation measures

SUSTAINABILITY STRATEGIES

- Photovoltaic ready, with a goal of incorporating at least 10% PV within the project
- Daylighting where possible and appropriate for the building program
- Passive Ventilation strategies
- Wall insulation target = U-0.05 or better, below grade C-0.119 or better
- Roof insulation target = U-0.033 or better
- Glazing performance: U-0.28 or better; SHGC 0.25; VLT >0.5
- Solar control to manage glare and solar heat gain

THANK YOU!