Revitalizing a Pioneer: The Gregory Bateson Building Renovation

Sustainable Facilities Forum
May 15, 2025

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES

McCARTHY
GLUMAC

CANNONDESIGN

DESIGNER

Ian Merker

AIA, LEED AP BD+C, DBIA
Associate Vice President
CannonDesign

OWNER

Dan Burgoyne

LEED Fellow
Sustainability Manager
California Department
of General Services

ENERGY

Zoe Roberts

Senior Energy Consultant
Glumac

BUILDER

Todd Heath

DBIA
Preconstruction Director
McCarthy Building Companies

DESIGNER

Ian Merker

AIA, LEED AP BD+C, DBIA
Associate Vice President
CannonDesign

OWNER

Dan Burgoyne

LEED Fellow
Sustainability Manager
California Department
of General Services

ENERGY

Zoe Roberts

Senior Energy Consultant
Glumac

BUILDER

Todd Heath

DBIA
MEP Preconstruction Director
McCarthy Building Companies

Learning Objectives

Understand the Historical Significance

Gain insights into the original design and sustainable features of the Gregory Bateson Building, which set a precedent in ecological architecture

Explore Modern Sustainable Practices

Learn about the advanced sustainable technologies and materials used in the remodel, including the all-electric heating, new building envelope, high-performance insulation, and low-E glazing

Design-Build Delivery Method

Discover the benefits and challenges of using the progressive design-build delivery method for large-scale renovation projects

Achieving LEED Platinum Certification

Understand the steps and strategies involved in achieving LEED Platinum certification for a historic building

CA Sustainability Legislation

SB 416 (Laird - 2023)

State agency new buildings & major renovations designed after 1/2024 obtain LEED Gold or higher certification

SB 1020 (Laird - 2022)

100% non-carbon electricity purchases by state agencies by 2035

SB 1203 (Becker - 2022)

State agencies aim to achieve zero emissions from operations by 2035

Executive Order B-18-12

ZNE for all new & renovated state buildings and 50% of existing building area by 2025

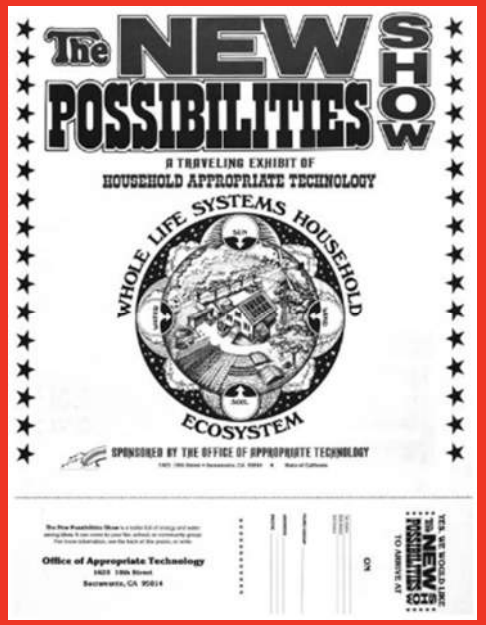
State Administrative Manual (SAM) Chapter 1815.31

ZNE for 100% of new buildings beginning design after 10/2017

The Historical Significance of the Bateson Building

The Office of Appropriate Technology

Brown administration's formalized agency to build energy efficiency into government operations



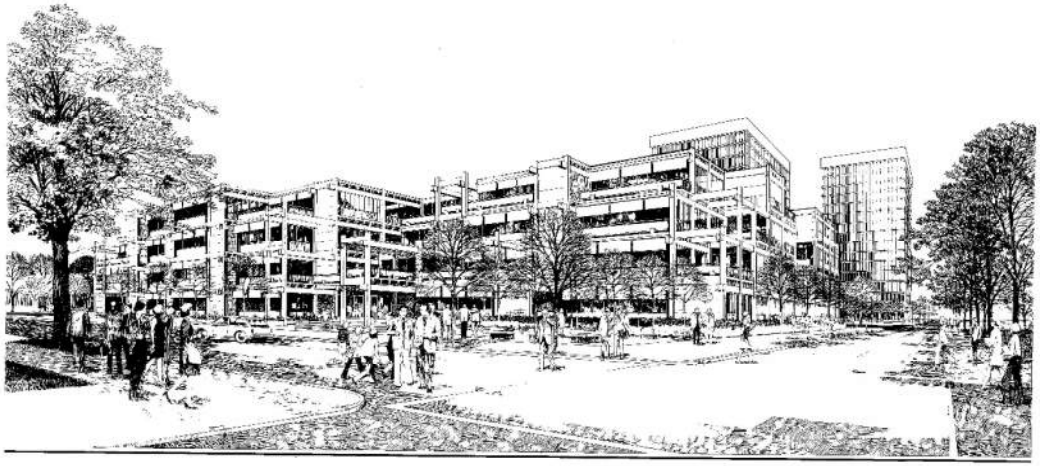
Office of the State Architect

A TRAVELING EXHIBIT OF
HOUSEHOLD APPROPRIATE TECHNOLOGY

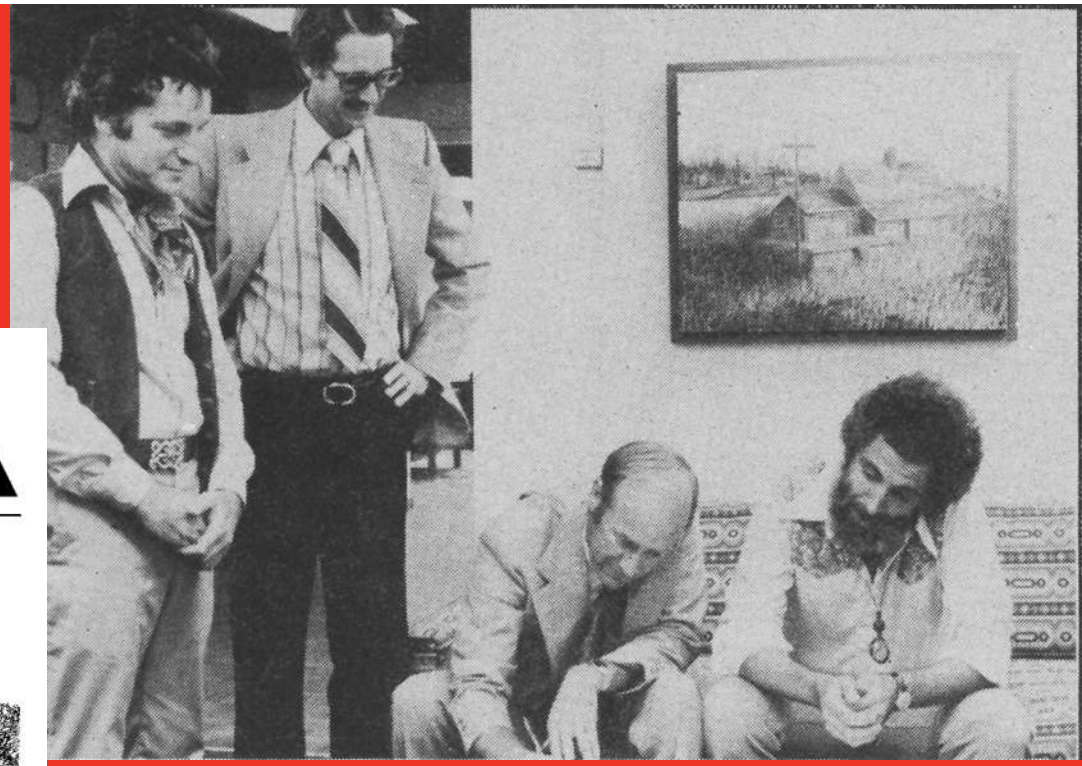
WHOLE LIFE SYSTEMS HOUSEHOLD ECOSYSTEM

OFFICE OF APPROPRIATE TECHNOLOGY
OAT
.A.T.

SITE 1A



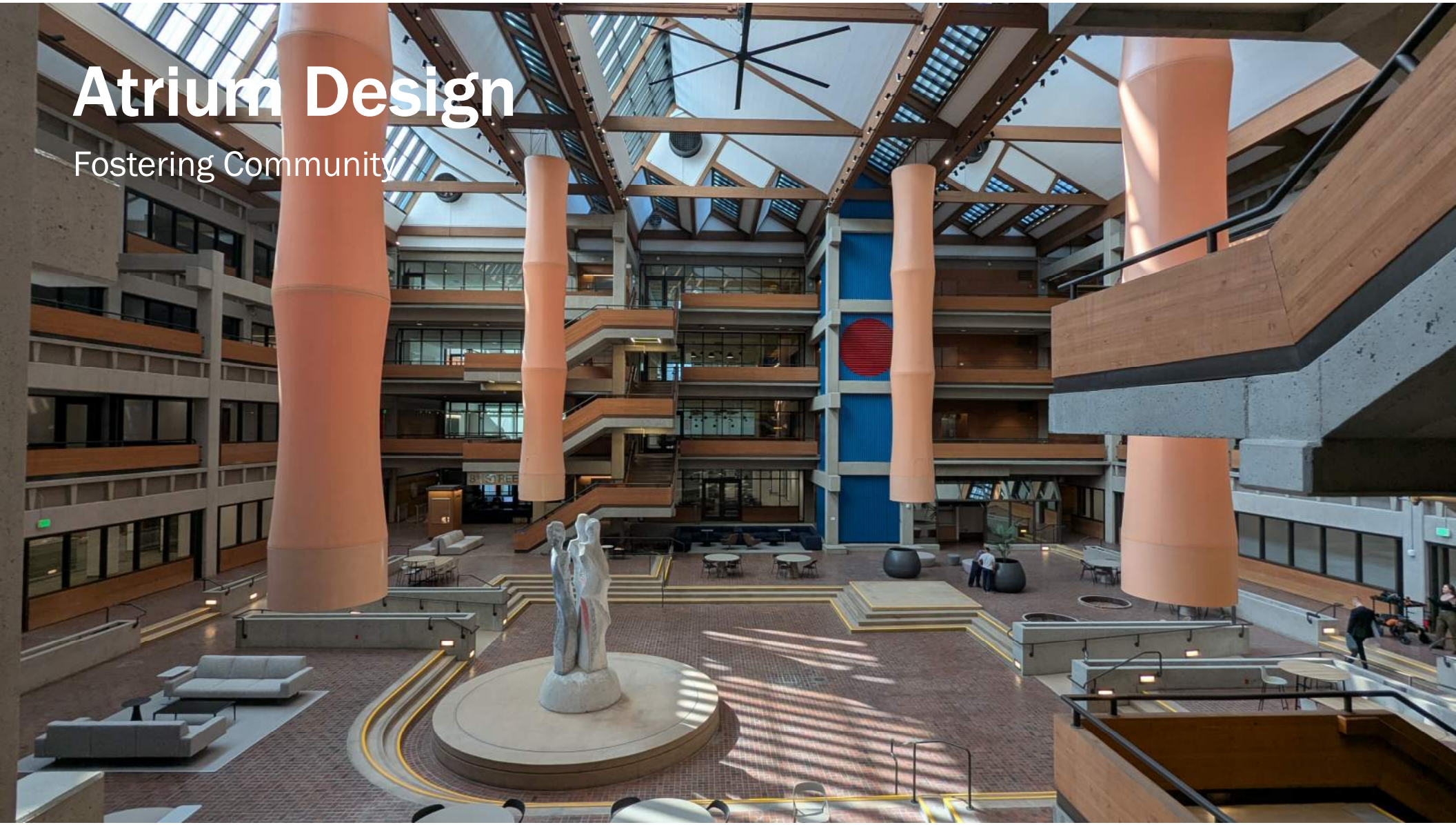
NEW STATE OFFICE BUILDING
DEPARTMENT OF GENERAL SERVICES
STATE OF CALIFORNIA



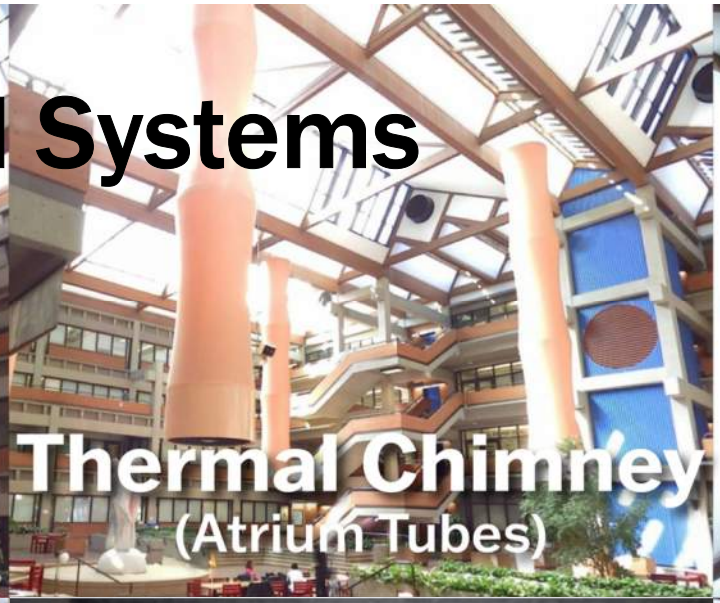
State Architects Sim Van der Ryn (l) & Barry Wasserman (r) w/ DGS director David Janssen (standing) reviewing construction documents for the Gregory Bateson Building, Sacramento, 1978.

Atrium Design

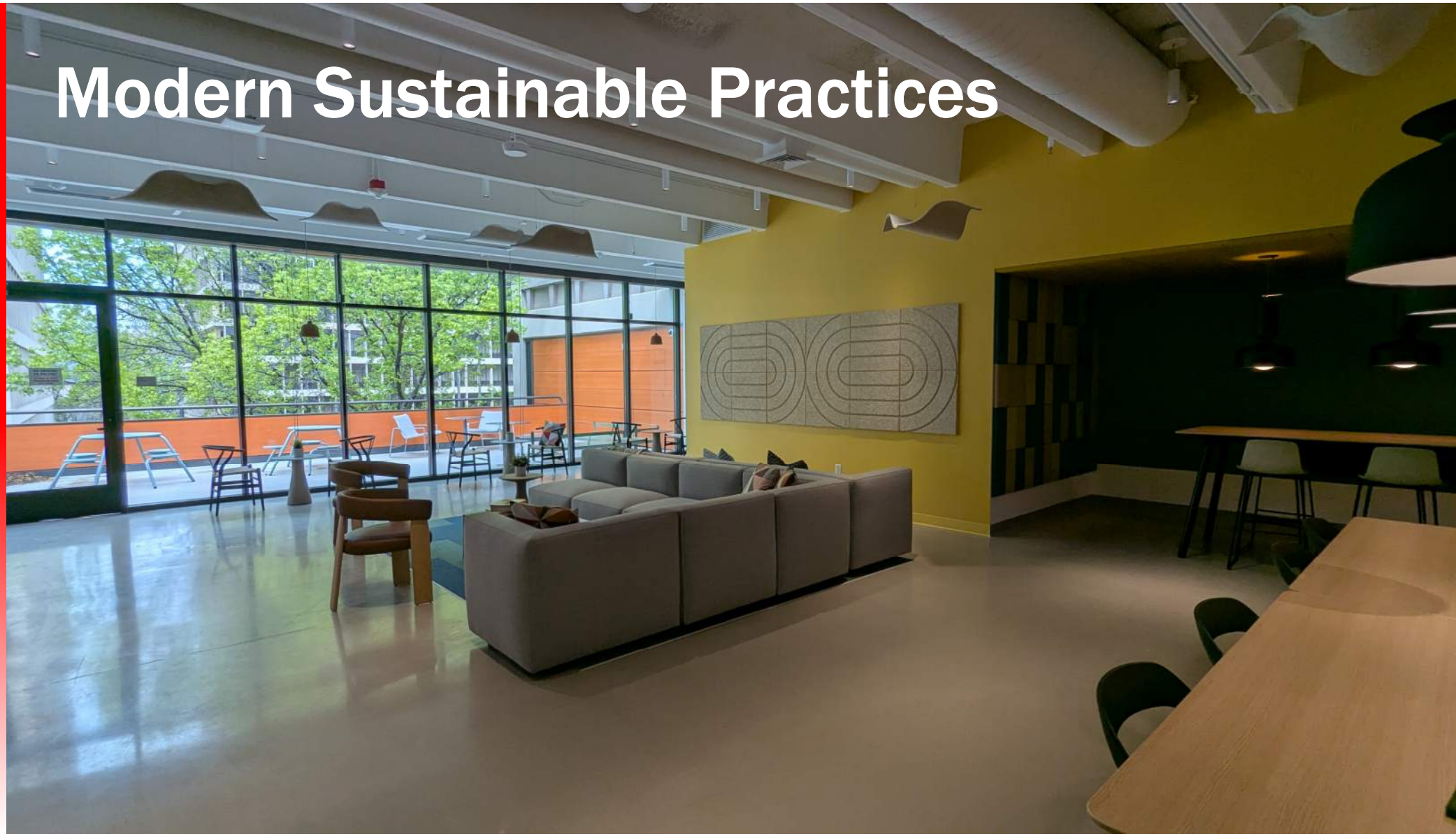
Fostering Community

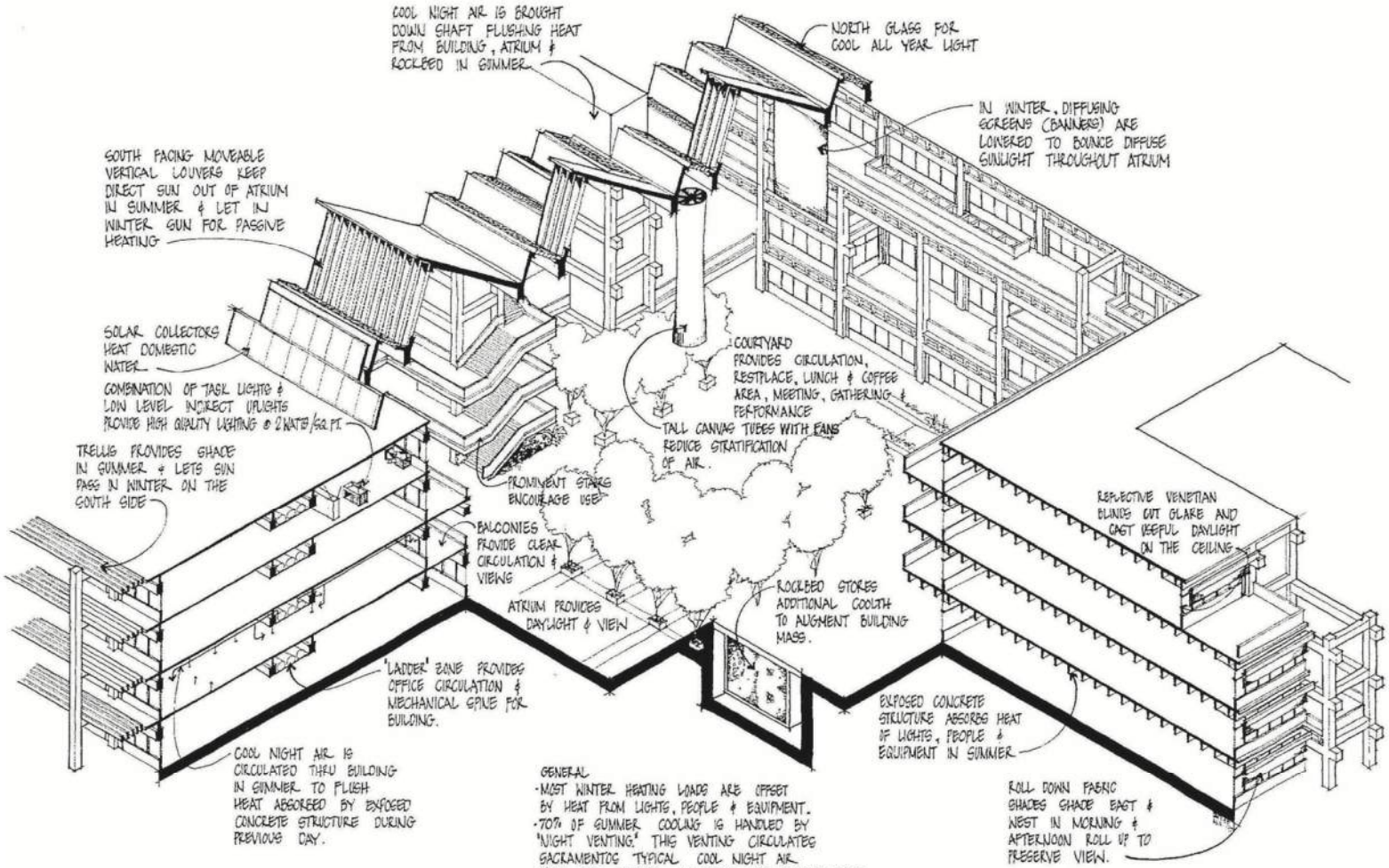


Experimental Systems



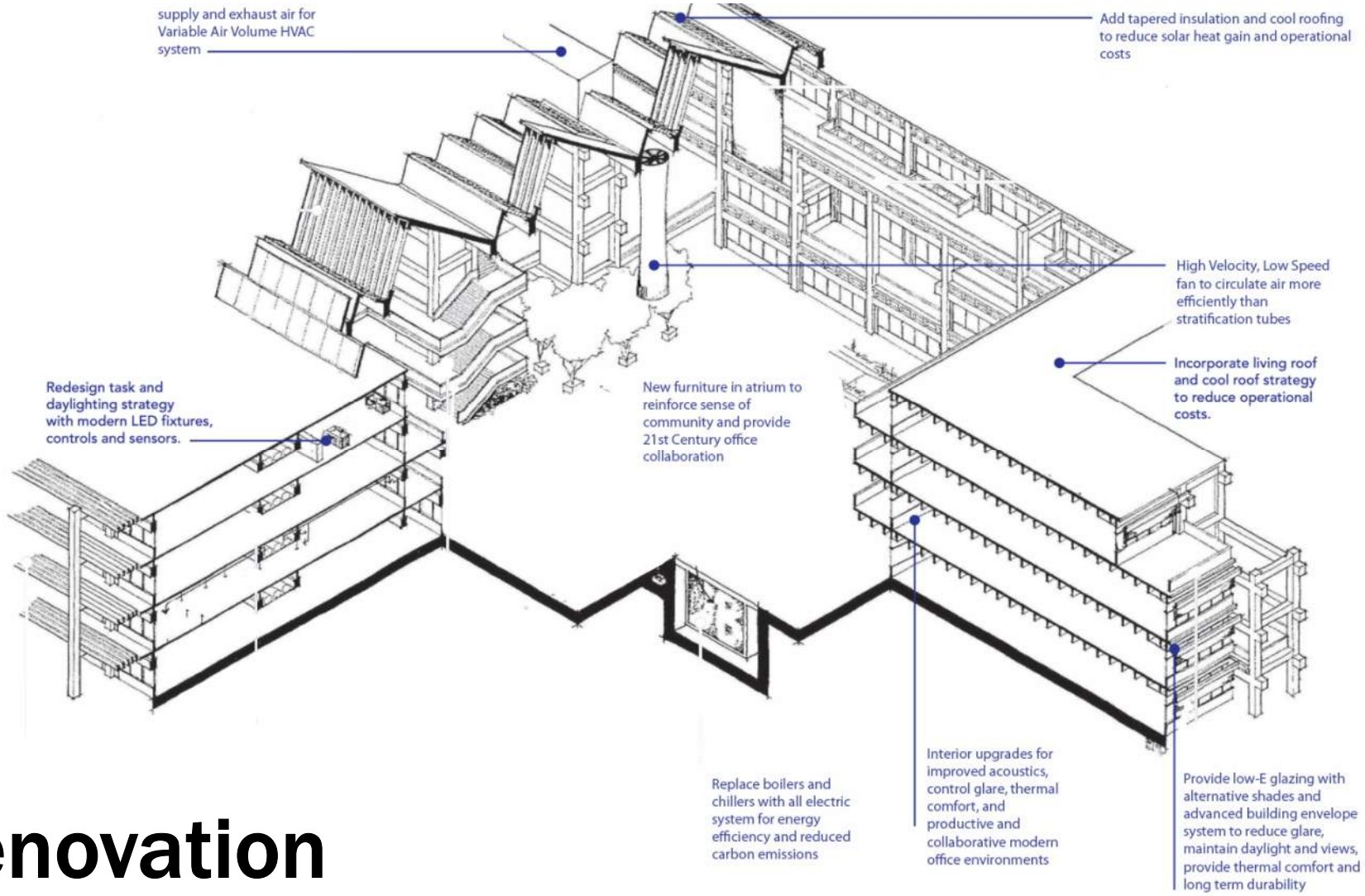
Modern Sustainable Practices





Project Vision

Renovation


supply and exhaust air for Variable Air Volume HVAC system
Add tapered insulation and cool roofing to reduce solar heat gain and operational costs
High Velocity, Low Speed fan to circulate air more efficiently than stratification tubes
Incorporate living roof and cool roof strategy to reduce operational costs.
Redesign task and daylighting strategy with modern LED fixtures, controls and sensors.
New furniture in atrium to reinforce sense of community and provide 21st Century office collaboration
Replace boilers and chillers with all electric system for energy efficiency and reduced carbon emissions
Interior upgrades for improved acoustics, control glare, thermal comfort, and productive and collaborative modern office environments
Provide low-E glazing with alternative shades and advanced building envelope system to reduce glare, maintain daylight and views, provide thermal comfort and long term durability

Conversion of Existing Infrastructure

Central Plant Cutoff

Removed steam

Use of air shafts

Atrium Stratification

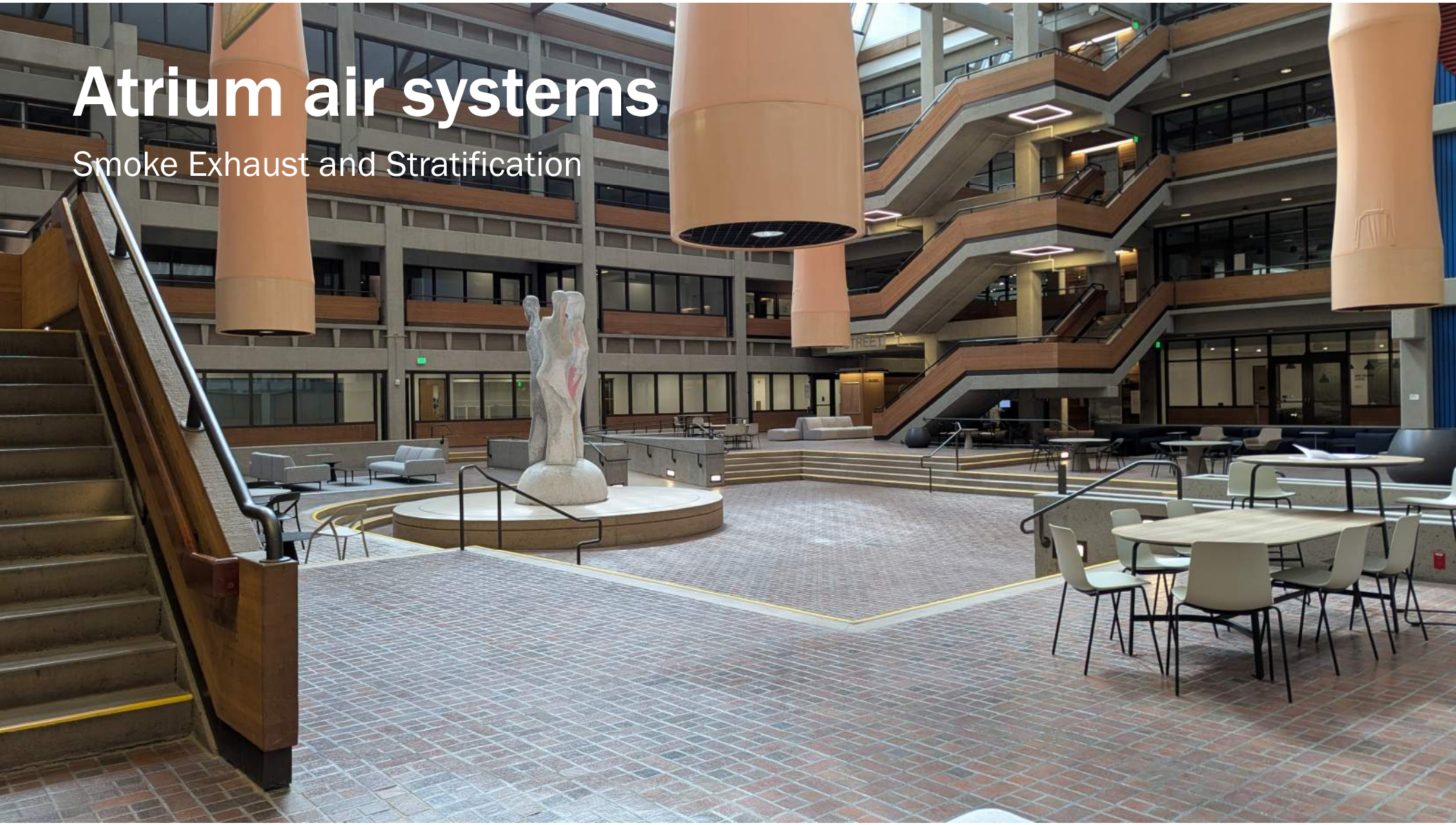
Electrification

Honoring the historic legacy

Electric boilers

Water heat pumps

VAV system



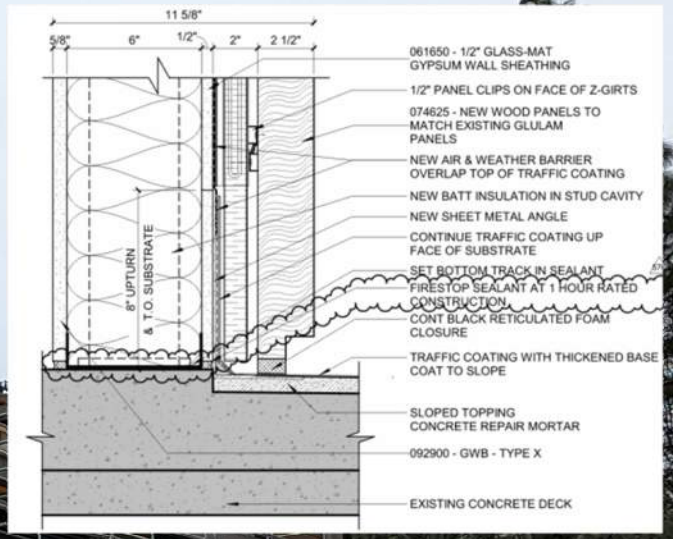
Atrium air systems

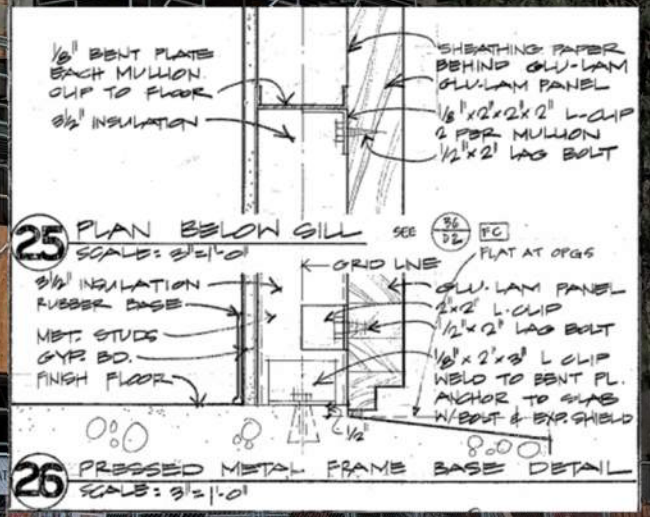
Smoke Exhaust and Stratification

Exterior Envelope System

Conversion from direct attached to rainscreen

Conversion from curtain wall to storefront





Atrium Daylight Analysis

METRICS

The two annual metrics used to measure performance are spatial daylight autonomy (sDA) and annual sunlight exposure (ASE). These metrics are defined in IES standard LM-83-12 and used as the basis for LEED daylight credit referencing LEED v4.1.

1) Spatial Daylight Autonomy (sDA)

The sDA refers to the percentage of all regularly occupied building floor area where an illuminance value of 300 lux or greater is achieved for at least 50 percent of annual hours (between 8 AM and 6 PM).

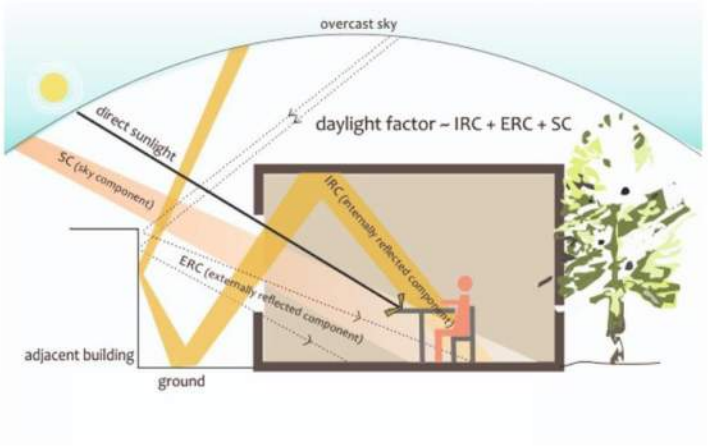
A minimum of 40% of the floor area should meet the $sDA_{300/50\%}$ goal, which will provide one LEED point. Two LEED points can be earned for achieving $sDA_{300/50\%}$ for 55% of the floor area, and three LEED points can be earned for achieving it for 75% of the floor area.

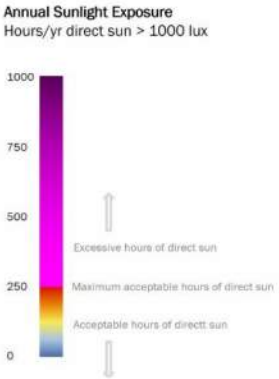
2) Annual Sunlight Exposure

The $ASE_{1000/250}$ is percentage of regularly occupied floor area that experiences direct sunlight of an intensity of 1000 lux or greater for 250 hours a year or more (between 8 AM and 6 PM). While not technically a glare metric, ASE is used as a proxy for glare in the space since direct sun is one potential cause of visual discomfort.

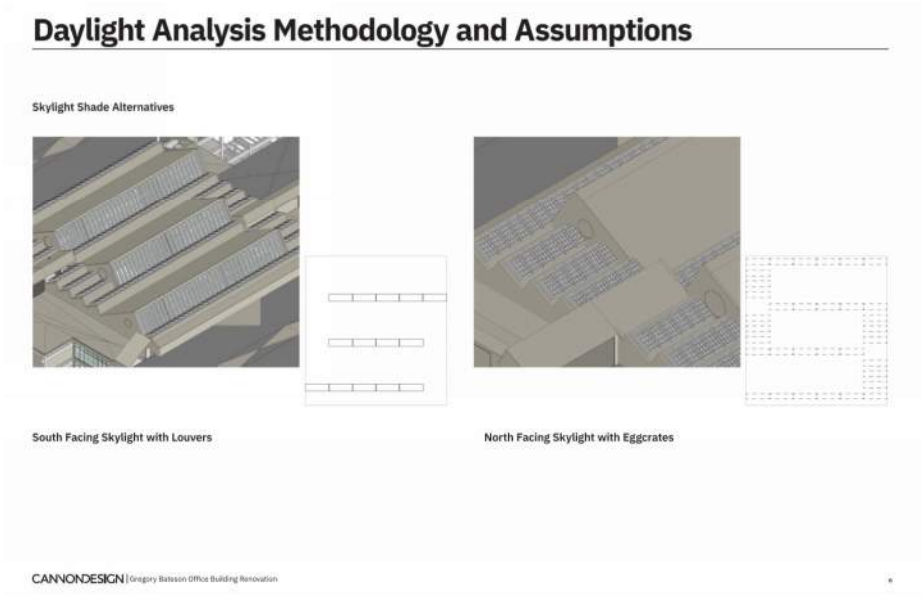
The target for $ASE_{1000/250}$ is to have less than 10% of the regularly occupied floor area. Exceeding the threshold will not preclude a project from achieving the credit, but will require the project team to include a narrative of how glare is being mitigated.

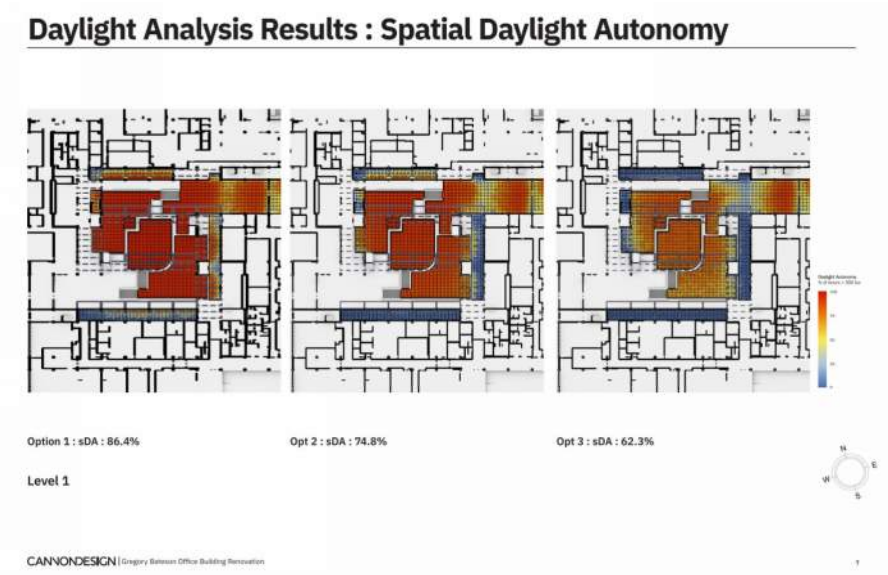
The coupling of the two metrics is intended to provide daylight to the spaces but without direct sun which may impact cooling loads or create glare.



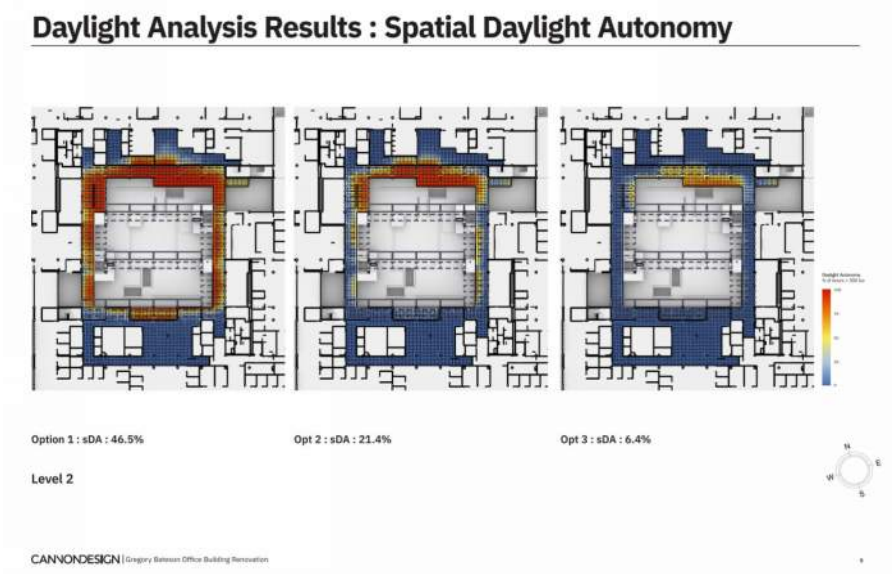


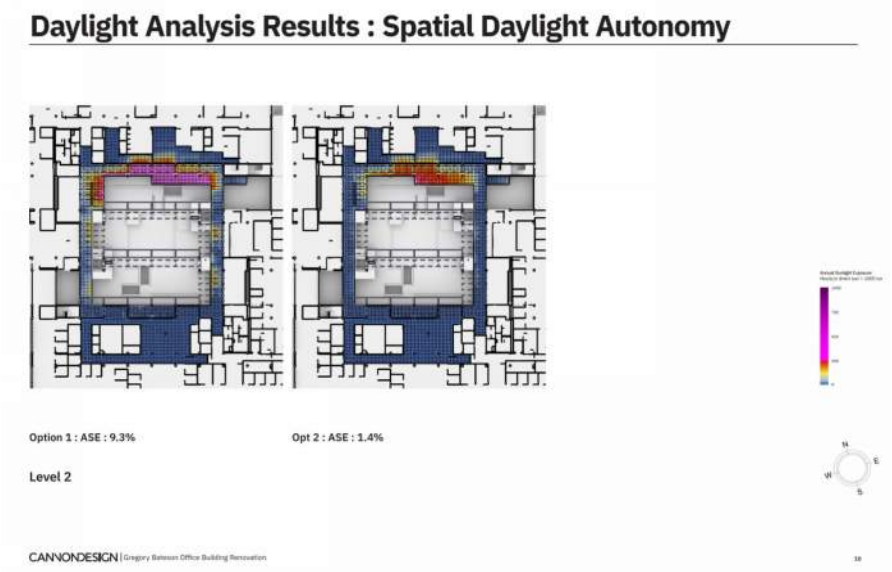
Atrium Daylight Analysis





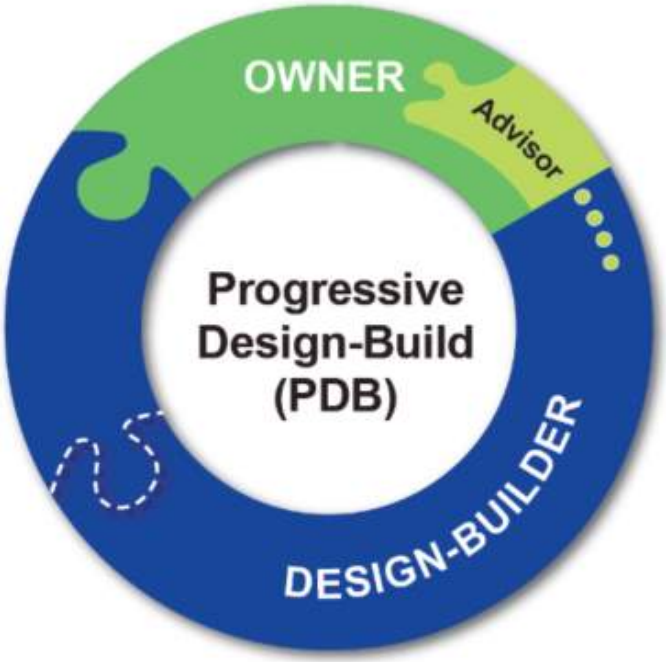
Atrium Daylight Analysis





Delivery Method: Progressive Design-Build

- Fosters Collaboration
- Team Members & Relationships
- Communication
- Flexibility, Innovation, & Creativity
- Decision Making
- Budget

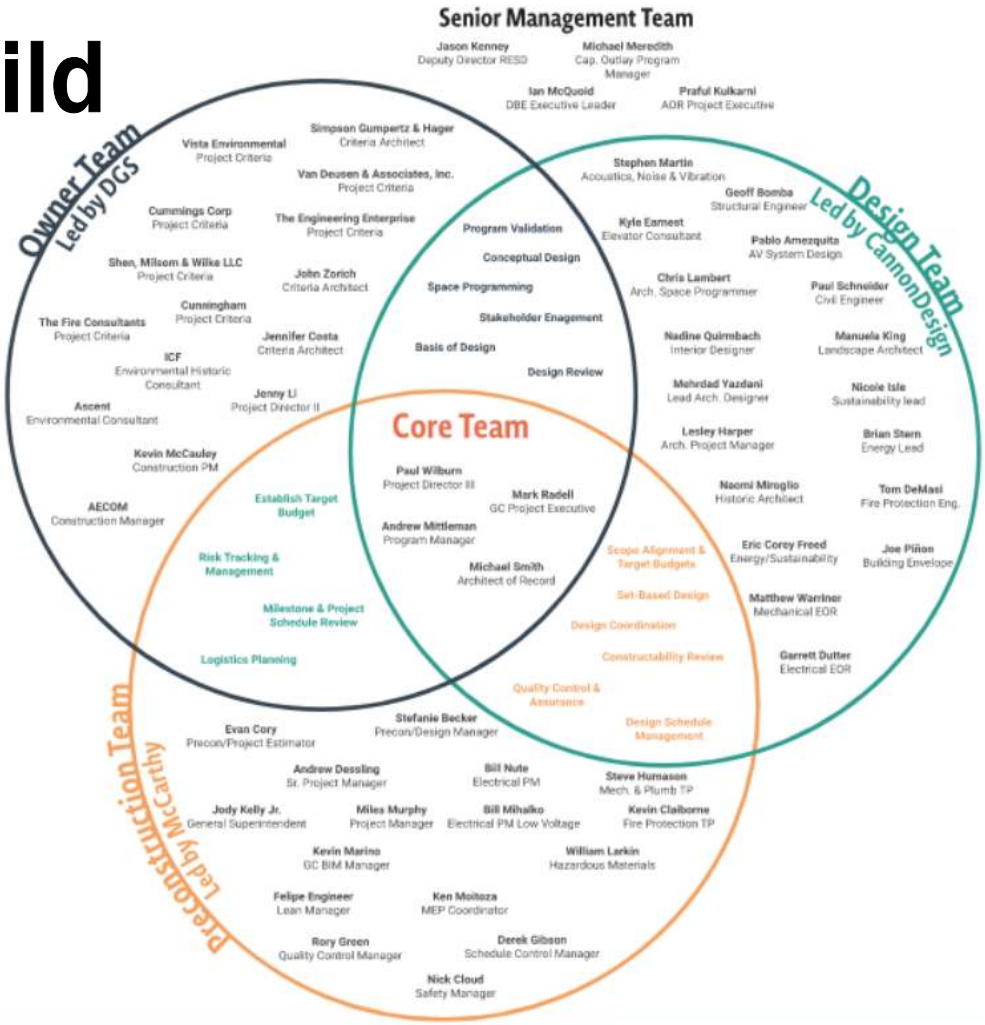


Delivery Method: Progressive Design-Build

- Fosters Collaboration
- Team Members & Relationships
- Communication
- Flexibility, Innovation, & Creativity
- Decision Making
- Budget

Delivery Method: Progressive Design-Build

- Fosters Collaboration
- Team Members & Relationships
- Communication
- Flexibility, Innovation, & Creativity
- Decision Making
- Budget



Delivery Method: Progressive Design-Build

- Fosters Collaboration
- Team Members & Relationships
- Communication
- Flexibility, Innovation, & Creativity
- Decision Making
- Budget

Team Mission

Revitalize the Bateson Building to be a sustainable workplace for the next 50 years

Delivery Method: Progressive Design-Build

- Fosters Collaboration
- Team Members & Relationships
- Communication
- Flexibility, Innovation, & Creativity
- Decision Making
- Budget

A. Using Router - Route front face down 1 1/4"

B. Using Router - Route back face in 1"

C. Transfer beam to profiling station

Delivery Method:
Progressive Design-Build

- Fosters Collaboration
- Team Members & Relationships
- Communication
- Flexibility, Innovation, & Creativity
- Decision Making
- Budget

Heat Source - CBA

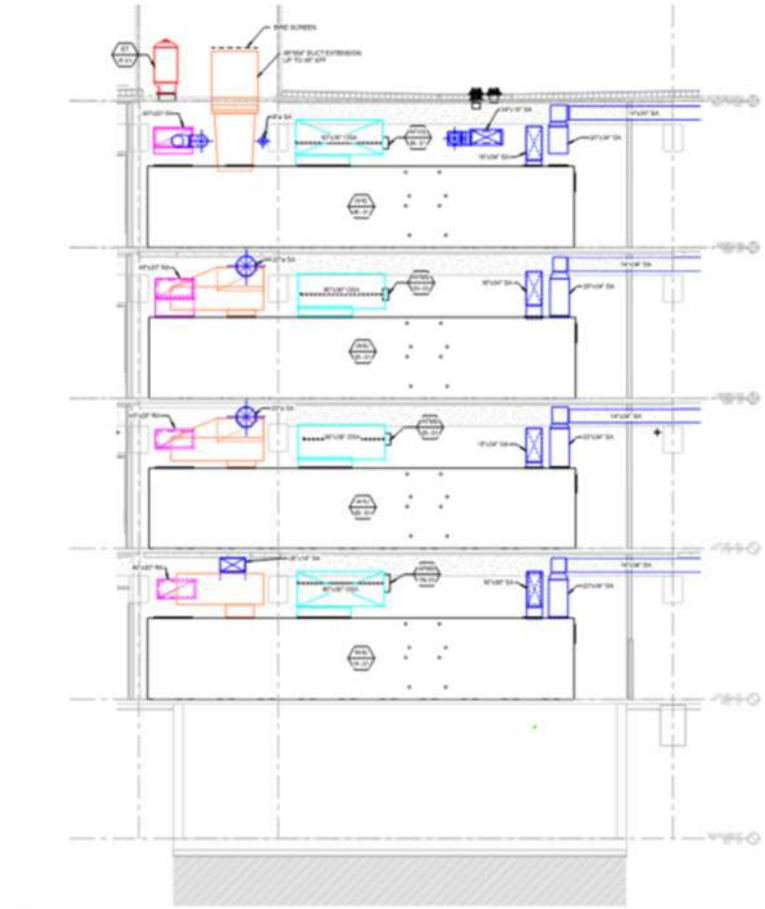
	Air-Source Heat Pump (Roof)		Water-Source Heat Pump w/ Electric Boiler (Indoors)		Steam from CUP	
Design	No interface with CUP	9	X - New interface with CUP	5	Standard interface with CUP	7
Maintenance	Newer maintenance requirements	7	X - Newest maintenance requirements	5	Known maintenance requirements	8
Standard	Current standard equipment and design	8	Future standard equipment and design	7	X - Outdated equipment and design	1
Life Cycle Cost Analysis	Average initial cost, average operating cost	8	Highest initial cost, lowest operating cost	7	X - Lowest initial cost, highest operating cost	6
Architectural Impact	X - Seen by neighbors	5	Not seen by neighbors	10	Not seen by neighbors	10
EUI (Energy Use Intensity)	Average EUI	5	Lowest EUI	10	X - Highest EUI	1
Carbon Emissions	Less carbon emissions	7	Least carbon emissions	9	X - Most Carbon Emissions	1
Acoustics	Highest noise	5	Least noise	10	Less noise	7
Structural Impact	X - Structural modification required	4	No structural impact	8	No structural impact	10
Total Importance	**ALTERNATIVE 1:**	**58**	**ALTERNATIVE 2:**	**71**	**ALTERNATIVE 3:**	**51**

Water Source Heat Pump with Boilers

Air Handling Units - CBA

	FLOOR BY FLOOR		CENTRALIZED AT ROOF (Penthouse Optional)		HYBRID (LEVELS 2 AND 4)	
Design	No Modification Required	10	X - Structural Modification Required	5	Minimal Modification Required	7
Usable Space	X - Less usable space provided to occupant	4	Most usable space provided to occupants	10	Some usable space provided to occupant	7
Maintenance	X - Equipment in 8 different locations	4	Equipment in centralized location	7	Equipment in 4 different locations	7
Life Cycle Cost Analysis	X - High first cost, indoor equipment	4	Small first cost, outdoor equipment	10	Medium first cost, indoor equipment	7
Acoustics	X - Most noise throughout building	4	No AHU fan noise near occupied spaces	10	Noise restricted to two levels	7
Structural Impact	Least structural work needed	10	X - Most structural work needed	2	Some structural work needed	9
Total Importance	ALTERNATIVE 1:	36	ALTERNATIVE 2:	44	ALTERNATIVE 3:	44

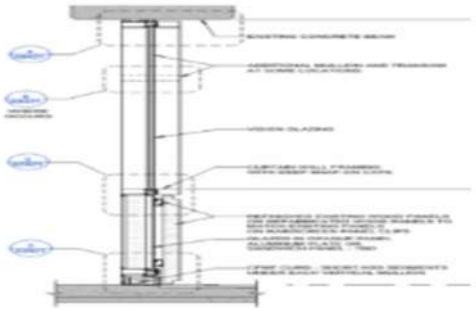
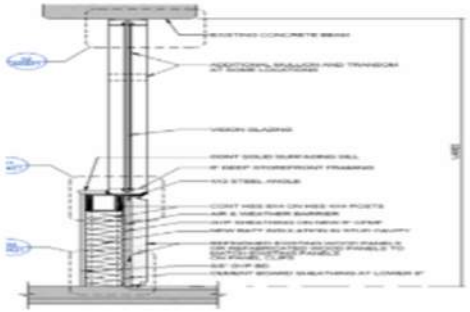
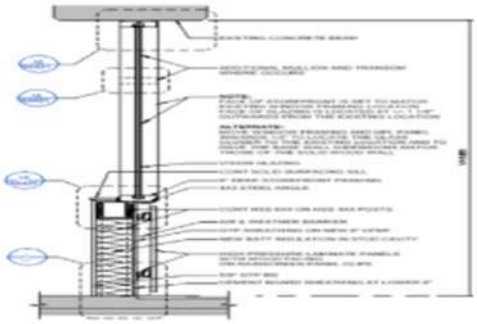
Decentralized Air Handlers



2 M401-2 MECHANICAL SECTION (NORTH AHU MECHANICAL ROOMS)
1/4" = 1'-0"

1 M401-1 MECHANICAL SECTION (NORTH AHU MECHANICAL ROOMS)
1/4" = 1'-0"

Façade - CBA

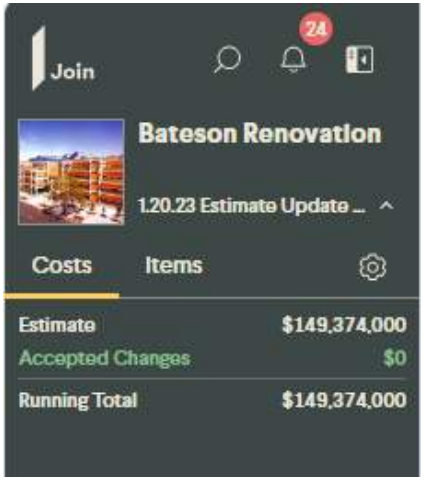
	ALTERNATIVE 1		ALTERNATIVE 2		ALTERNATIVE 3		
	Curtain wall w/glulam panels		**Storefront w/steel support to support glulam's**		**Storefront w/ steel support a Wood Veneer Metal Panel (Trespa, or sim.)**		**Cur**
							
veals	Like for like replacement of some or all of the existing (E) glulam panels		Like for like replacement of some or all of the existing (E) glulam panels		Metal Panel with a wood veneer would share some similarities with the glulam, but lack current reveals.		Metal Pan
ntage	**Most Historically Similar to (E) Glulam**	100	**Most Historically Similar to (E) Glulam**	100	**Some Historic Similarity to (E) Glulam**	20	
isting	Curtain wall system would provide 2.5" x 8.5" mullions matching the (E) glazing		Storefront system would provide 2"x6" mullions not matching (E) glazing		Storefront system would provide 2"x6" mullions not matching (E) glazing		Curtain
ntage	**Most Historically Similar to (E) Glazing**	84	X	0	X	0	
	Manufacturer's recommendation is maintenance of 12-24mos, we have assumed an 18mos maintenance cycle.		Manufacturer's recommendation is maintenance of 12-24mos, we have assumed an 18mos maintenance cycle.		Metal panel would require maintenance as often as the building is cleaned, we have assumed a 2-3 yr maintenance cycle.		Metal pa
ntage	X	0	X	0	**Less Siding Maintenance**	76	

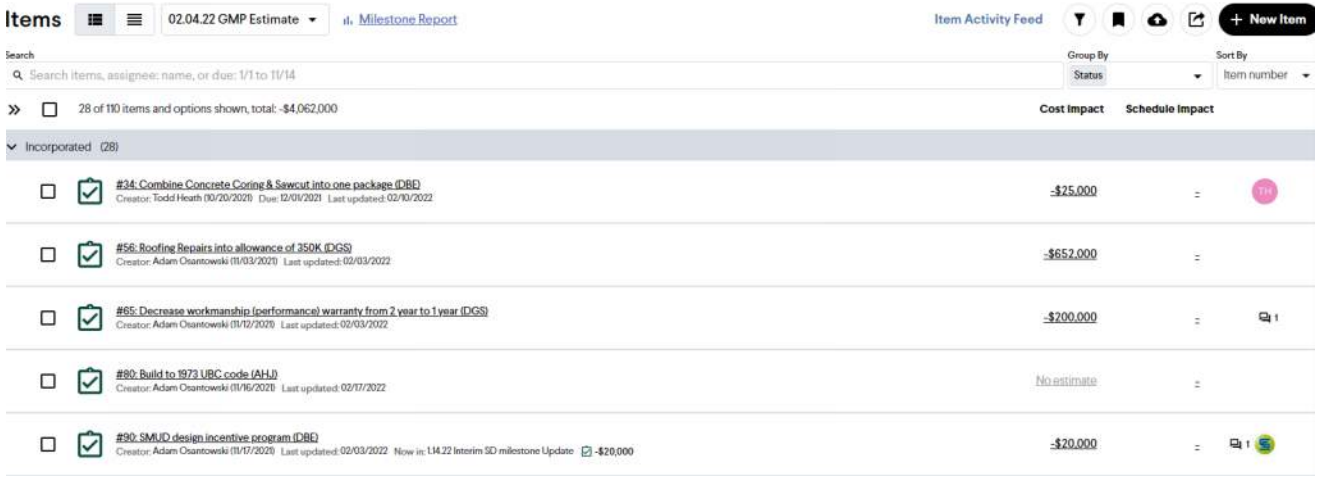

Glulam Façade

Delivery Method:
Progressive Design-Build

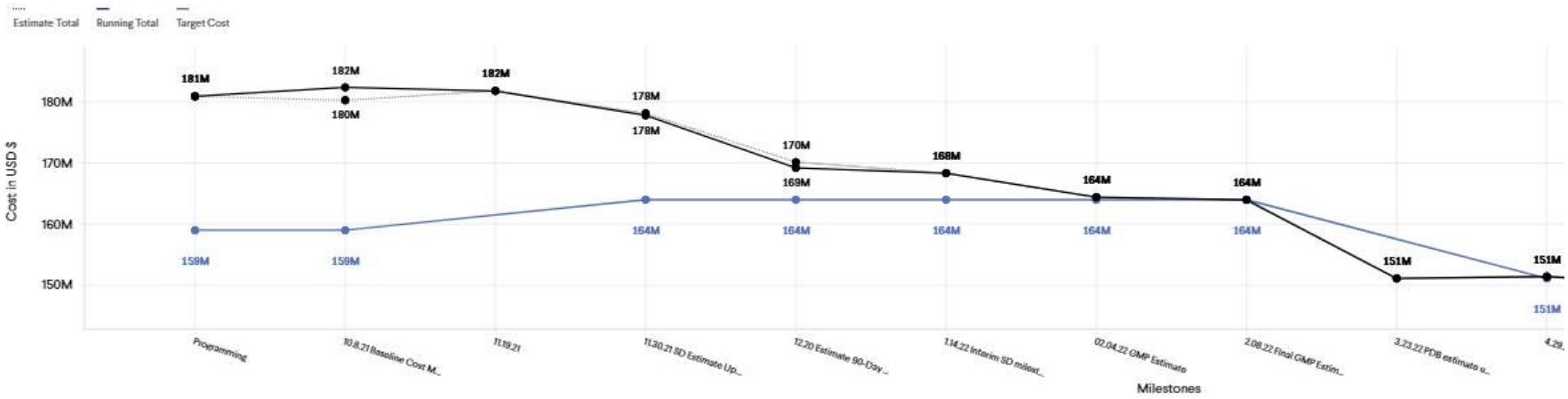
- Fosters Collaboration
- Team Members & Relationships
- Communication
- Flexibility, Innovation, & Creativity
- Decision Making
- Budget

JOIN

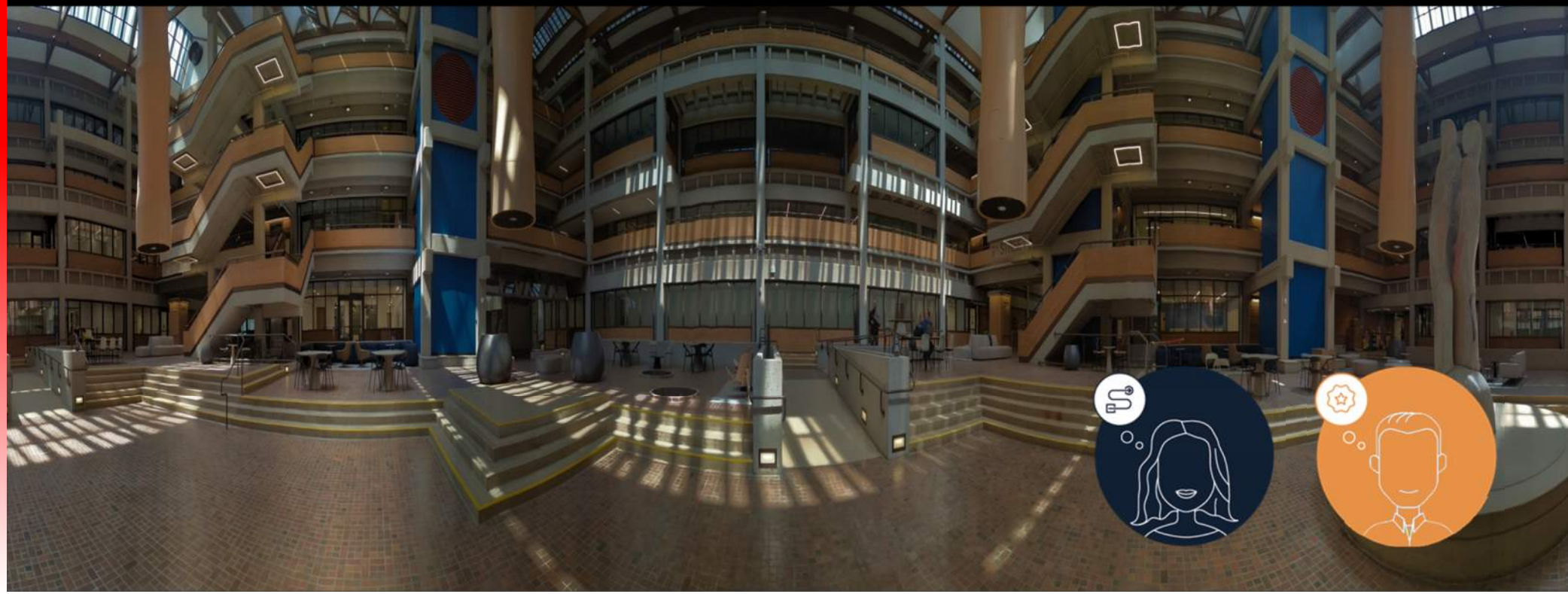




Cost Trendline



Achieving LEED Platinum



Leadership in Energy and Environmental Design (LEED)

Decarbonization by 2035
California Climate Commitment

Zero Net Energy / Zero Net Carbon Targets
Electrification and energy efficiency

Selection of LEED CI
Renovation scope of work

Site
Density and diverse uses
Quality Transit and Cycling

Water Use
Over 40% reduction

Energy Performance
123.5% savings, SMUD solar shares
Enhanced commissioning

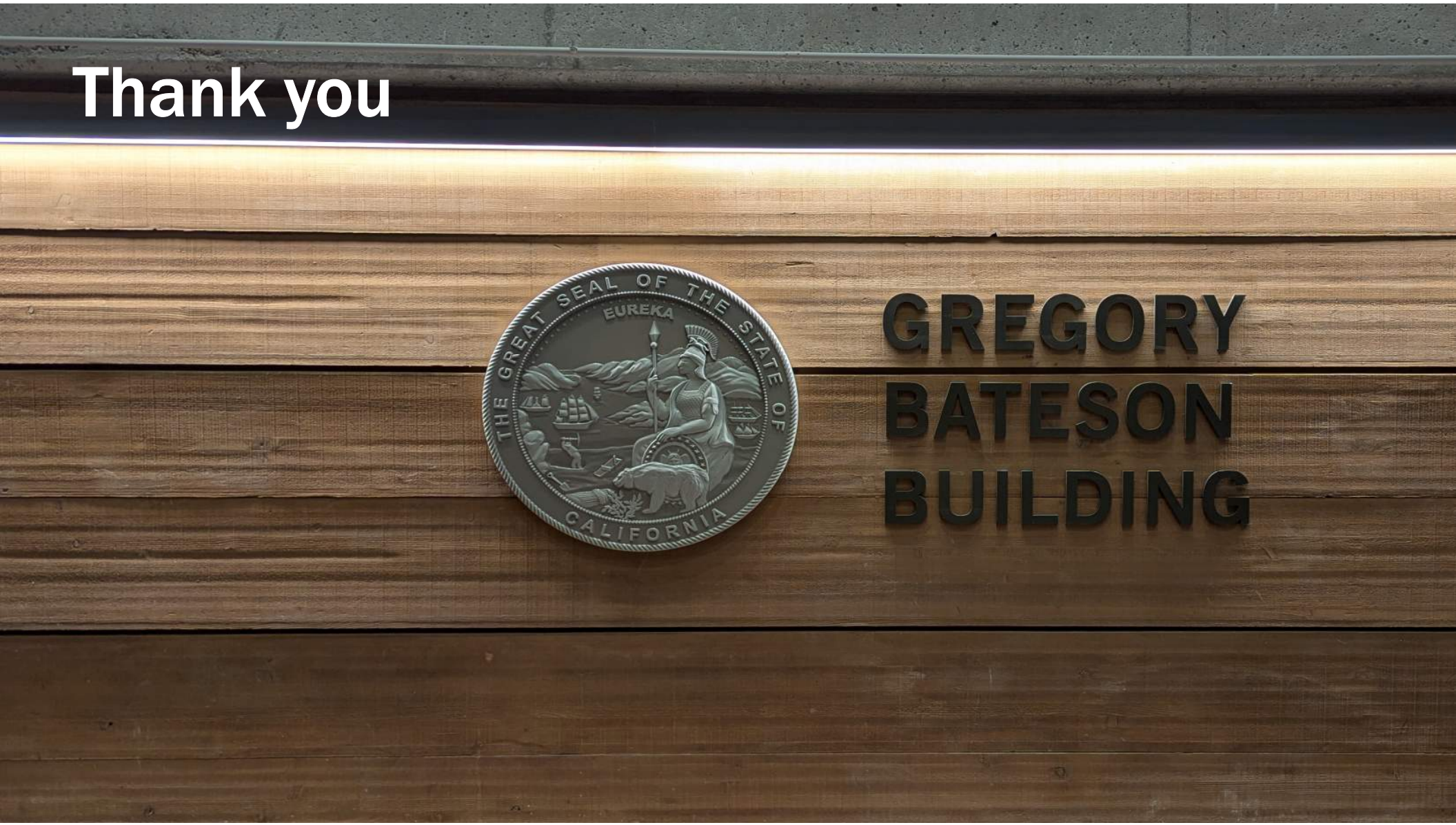
Indoor Environment
Quality views
Lighting controls
Air zones, contamination prevention and filtration

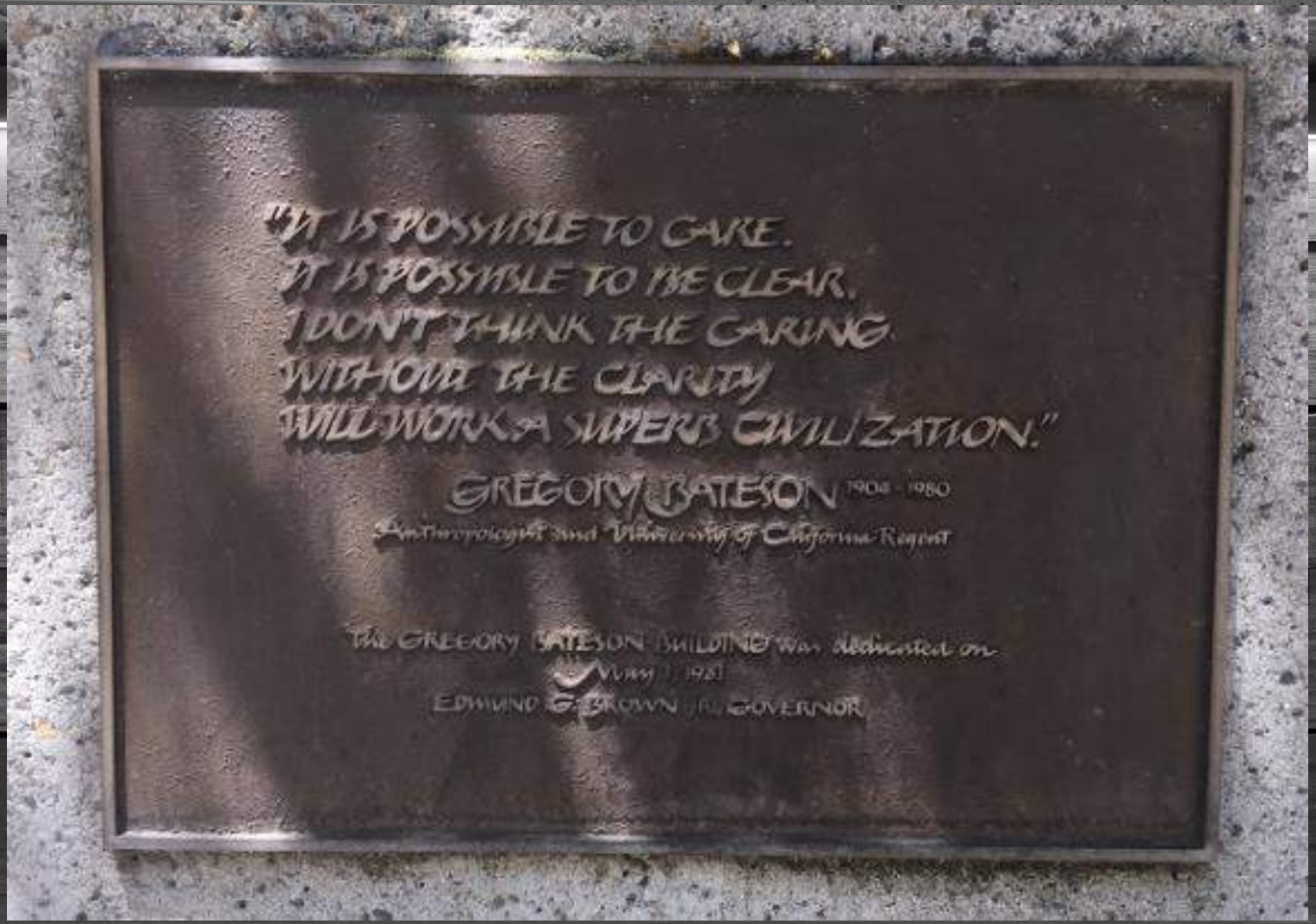
84 points
Platinum level

25
Points for energy efficiency
SMUD funding earned

Energy Efficiency

Thank you


THE GREAT SEAL OF THE STATE OF
EUREKA
CALIFORNIA
GREGORY
BATESON
BUILDING


"IT IS POSSIBLE TO CARE.
IT IS POSSIBLE TO BE CLEAR.
I DON'T THINK THE CARING
WITHOUT THE CLARITY
WILL WORK A SUPERB CIVILIZATION."
GREGORY BATESON 1904 - 1980
Anthropologist and University of California Regent
THE GREGORY BATESON BUILDING was dedicated on
EDMUND G. BROWN JR. GOVERNOR