



LightHAUS

UNIVERSITY OF MISSOURI
COLUMBIA | MISSOURI S&T



MEET THE TEAM!

Hello, everyone! We are the **LightHAUS Team** from the University of Missouri Columbia and Missouri S&T. We are proud to have come this far with LightHAUS and are very excited to present our project at NREL!



Team Lead
Turma Asokan – Senior Interior Design



Member
Sam Gandhi – Senior Architectural Studies



Member
Sydney Flowers – Senior Architectural Studies



Member
Asha Saifullah – Senior Architectural Studies



Member
Milena Fischer – Junior Architectural Studies



Member
Grant Jenkins – Junior Architectural Studies



Member
Ben Hendricks – Junior Architectural Studies



Member
Tyler Hatten – Junior Architectural Studies



Member
Cam Weiler – Junior Architectural Studies



Member
Gail Bray – Junior Architectural Studies



S&T Member
Carson Sinnard – Junior Architectural Eng.



S&T Member
Kayla Walters – Junior Architectural Eng.



S&T Member
Owen Green – Junior Architectural Eng.



S&T Member
Will Lanfersieck – Junior Architectural Eng.



Faculty Lead
Lyria Bartlett
Department Chair

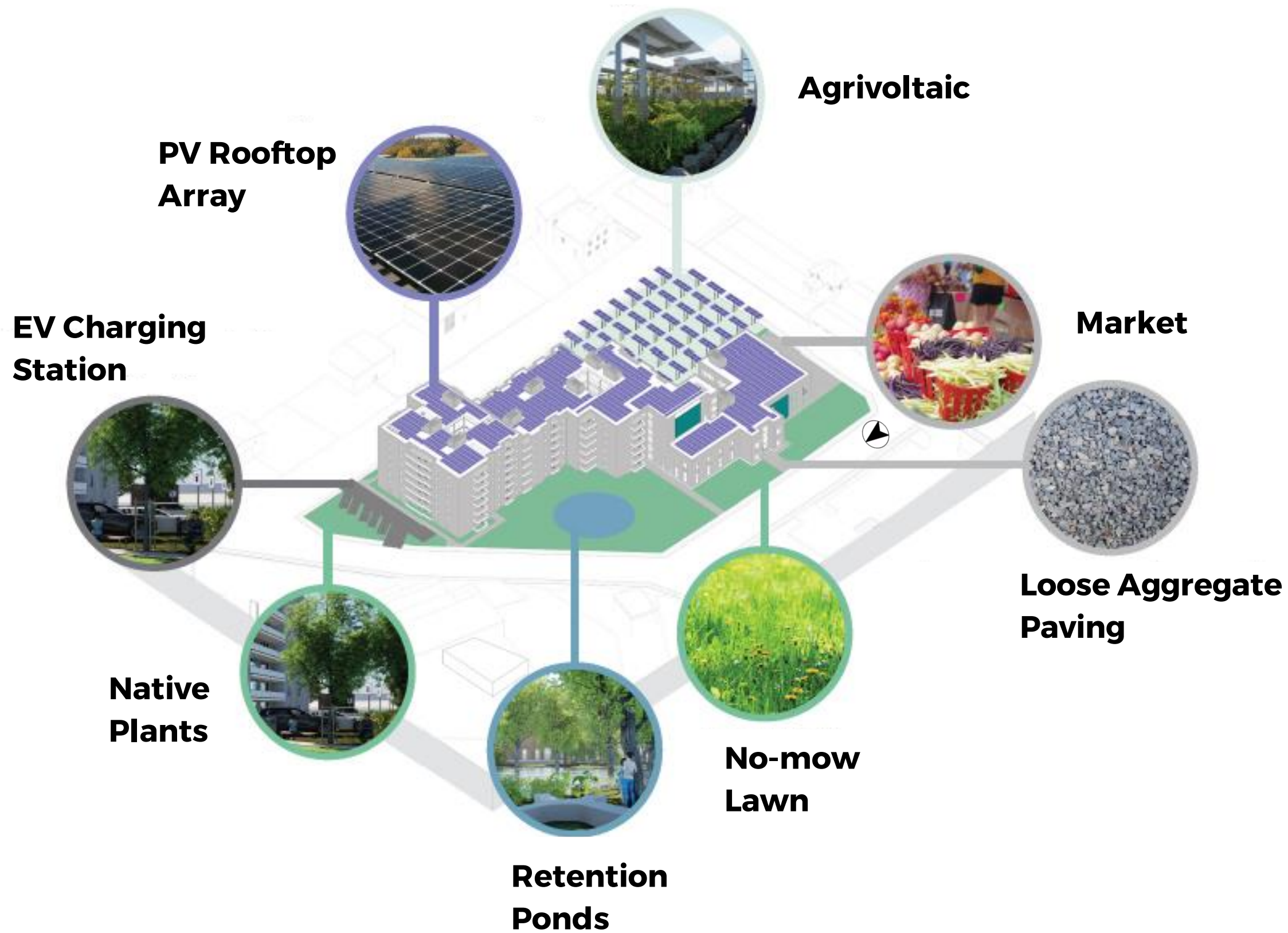


S&T Faculty
Dr. Stuart Baur
Professor



S&T Faculty
Heath Pickerill
Professor

PROPOSAL



Convert a currently vacant, former brownfield into mixed use affordable housing and market for international students, a learning center for early care educators, and their families.

Key Details :

Central location

Community Resources

Walkable

Currently underutilized site

Net positive building

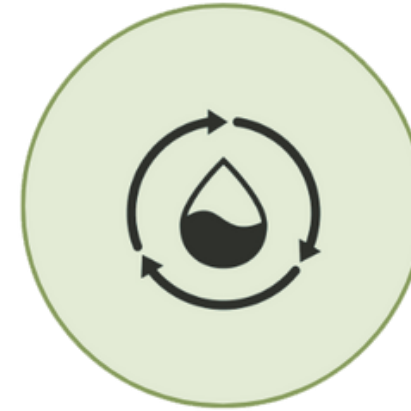
Health positive

DESIGN GOALS



Goal 1 : Environmental

Create sustainable, resilient, and livable spaces that benefit both people and the planet.



WATER
COLLECTION



BUILDING
ENVELOPE



COMMUNITY
GARDENS



AIR QUALITY

Goal 2 : Social

Make decisions that incorporate and facilitate mental health whilst being accessible to all people.



MENTAL
HEALTH



ACCESSIBILITY



SMART
TECHNOLOGY



COMMUNITY
ENGAGEMENT

Goal 3 : Economic

Balance financial objectives with project requirements, sustainability goals, and user needs.



AFFORDABLE
RENT



SOLAR GRID



PASSIVE
VENTILATION



LOW UTILITY
BILL



WHO ARE THEY?

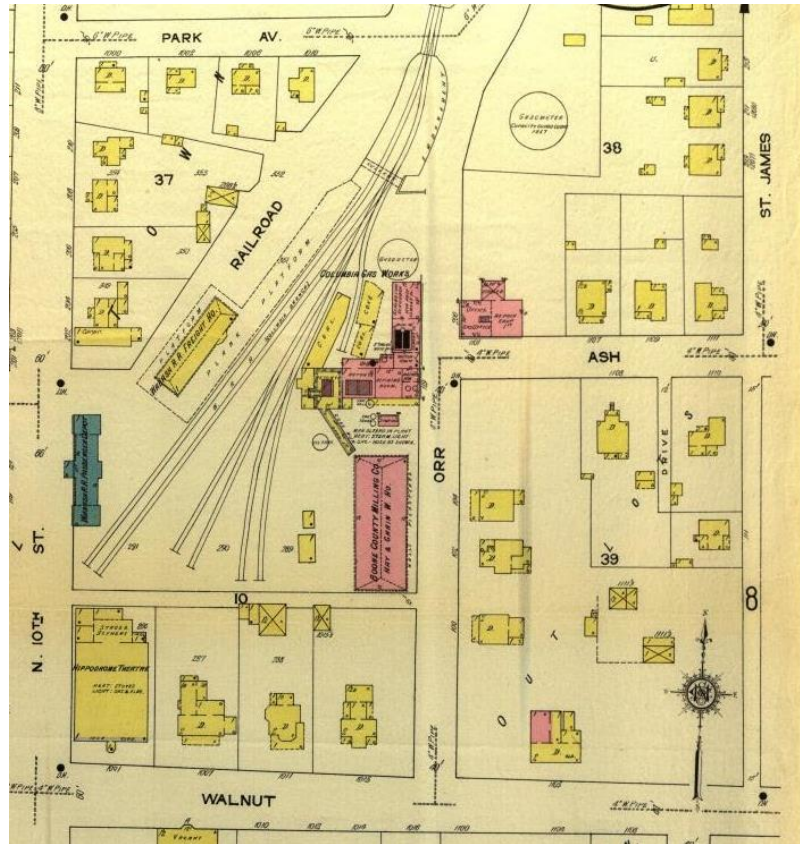
INTERNATIONAL STUDENTS & EARLY- CARE EDUCATORS

- Population: 126,853 people
- 37,800 are students from three major collegiate institutions :1,800 of this population are international students.
- Columbia's international students and early care educators are experiencing resource deserts; struggling to obtain affordable resources.
- International students are also not eligible to majority of scholarships & ineligible for instate tuition.
- Affordable housing options international students tend to settle for are approx. 40-50 minutes walking distance from campuses.
- Creates isolation from resources due to the lack of transportation.
- Most apartments provide shuttle systems, but they operate within a certain time frame, restricting student activities on campus.

	University of Missouri	Stephen's College	Columbia College	International student fee's
Tuition (yearly)	\$14,122 - \$34,322	\$25,586	\$24,806	\$34,640 - \$38,240
Housing	\$13,550	\$11000	\$8,500	\$11,050
Total cost of living	\$18,142	\$18,000	\$13,524	\$18,196
Total Estimated cost	\$32,264 - \$52,464	\$43,586	\$38,330	\$55,336 - \$58,936

Total estimated yearly costs for Columbia students





“IT IS THE SITE THAT TURNED ON THE FIRST LIGHTS IN COLUMBIA.”

COMO Manufactured gas plant - 1875-1932

The Orr Street site was once the biggest energy source in Columbia – the beginning point of electric lighting.

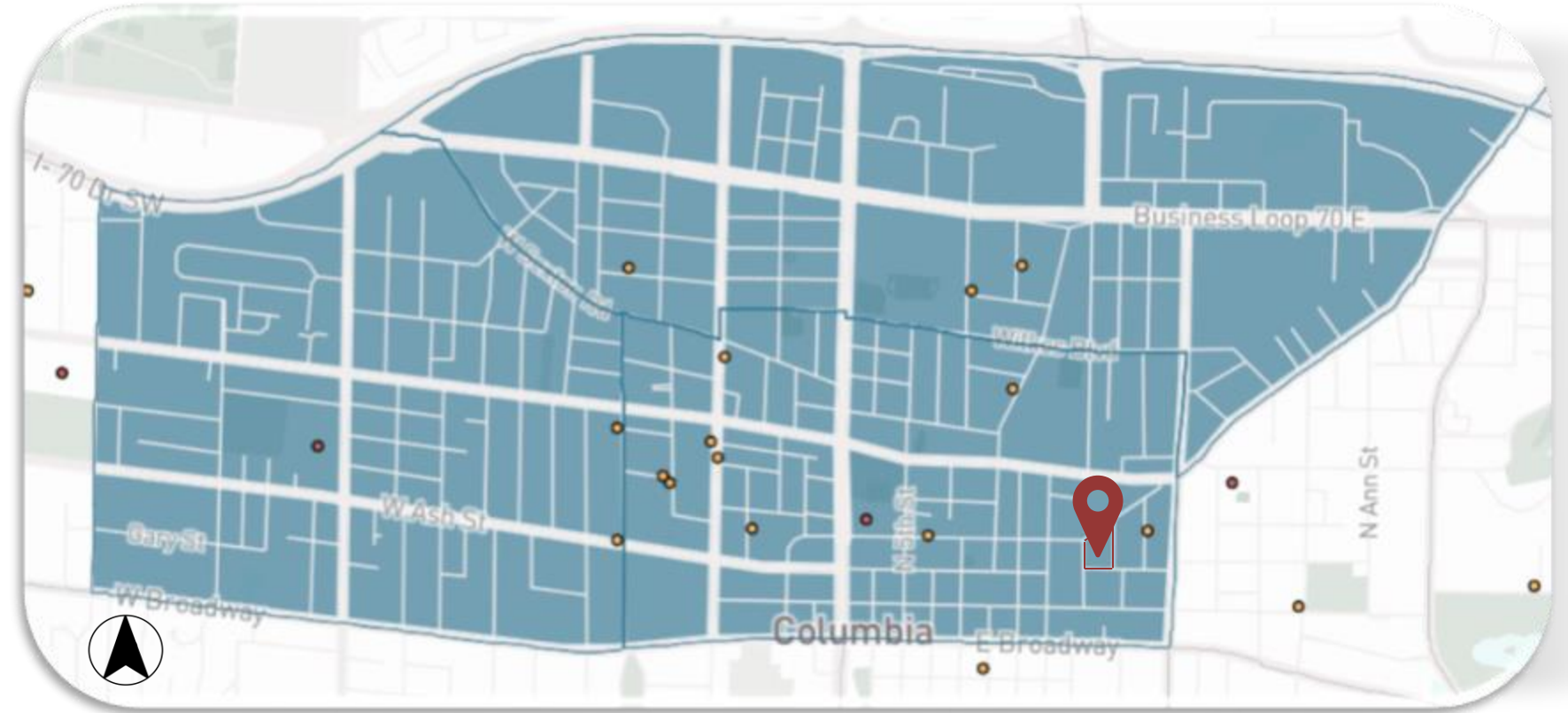
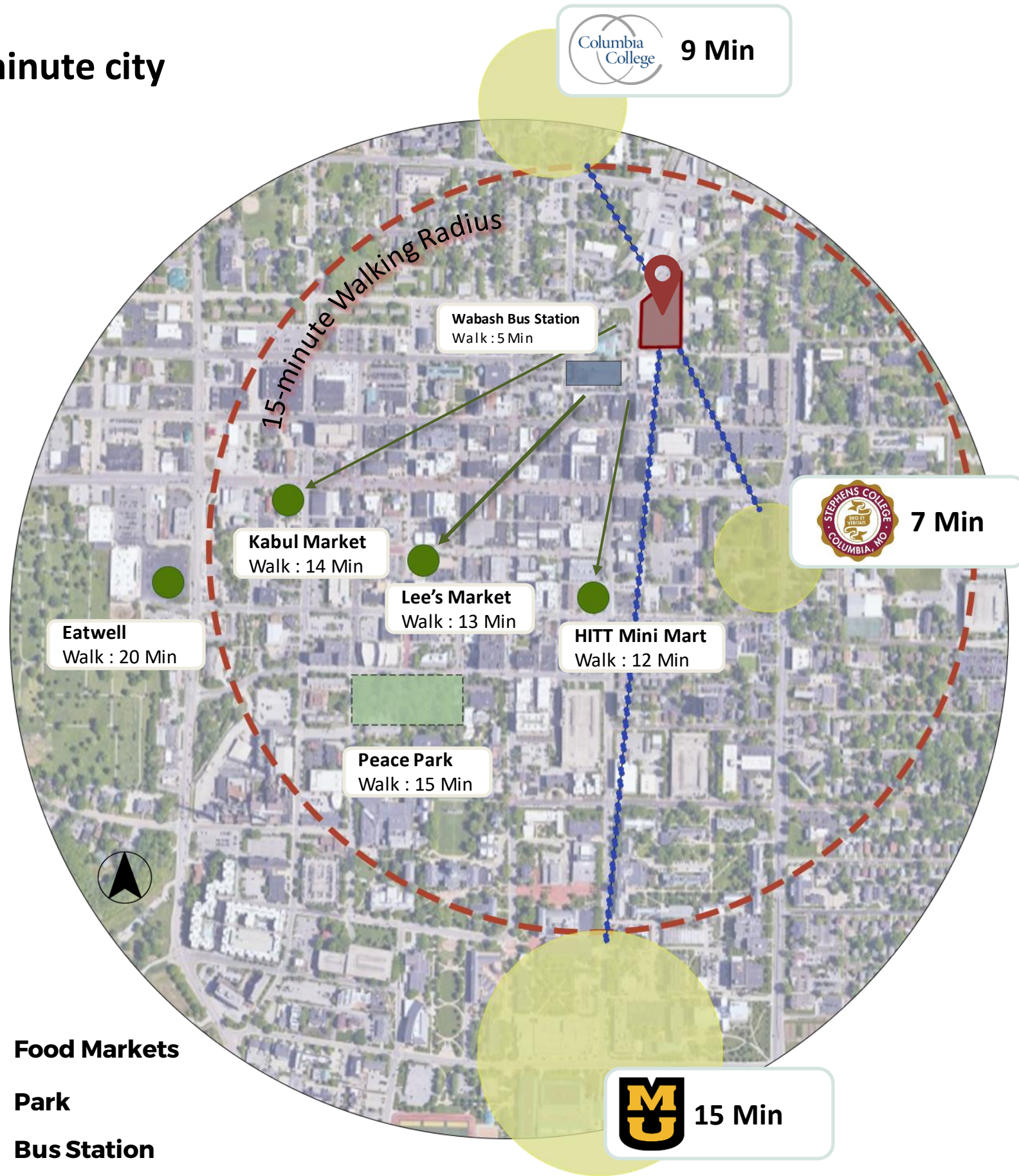
Brownfield Site

- Site was polluted for years by raw tar (byproduct of gasification)
- Leaks into ground water + into buildings (coal tar is heavier than water)
- **1994 Soil Remediation began**
- 31,612 tons of soil were cleaned up
- Is now clean to occupy





15-minute city



LightHAUS is located within the Climate and Environmental Justice Screening Tool and is recognized as a Disadvantaged community.

CLIMATE



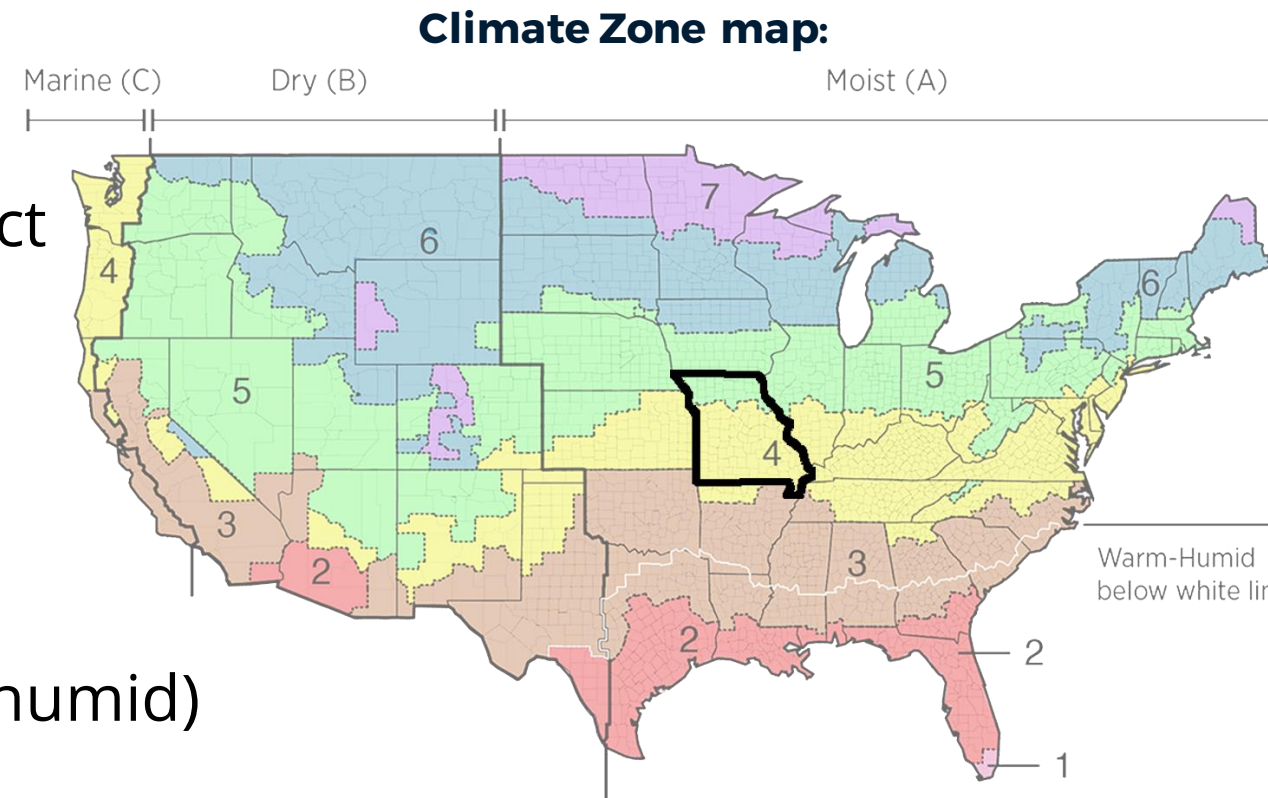
Location: 208 Orr St, Columbia, MO

Lot Size: 2.1 acres

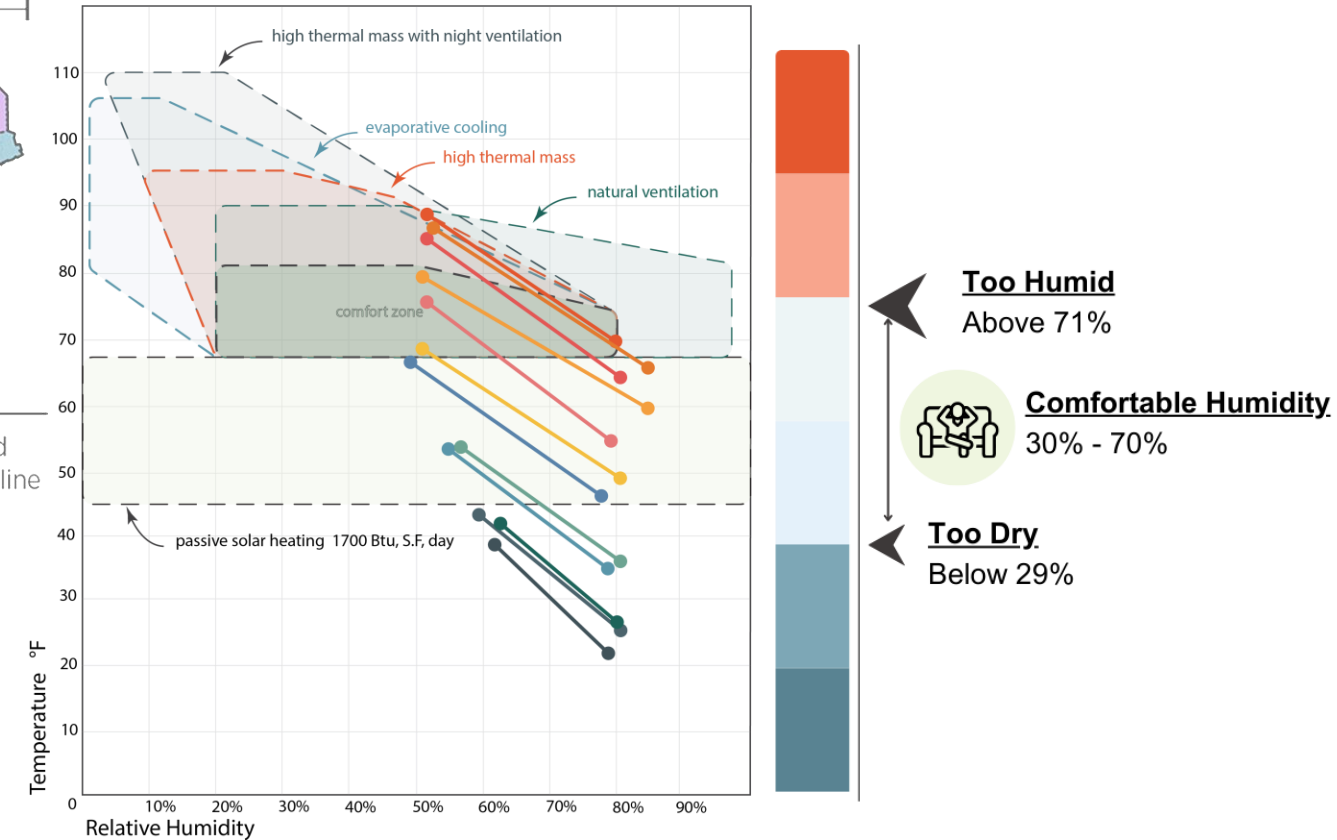
Neighborhood: North Village Arts District

Climate Zone: 4A & 3A

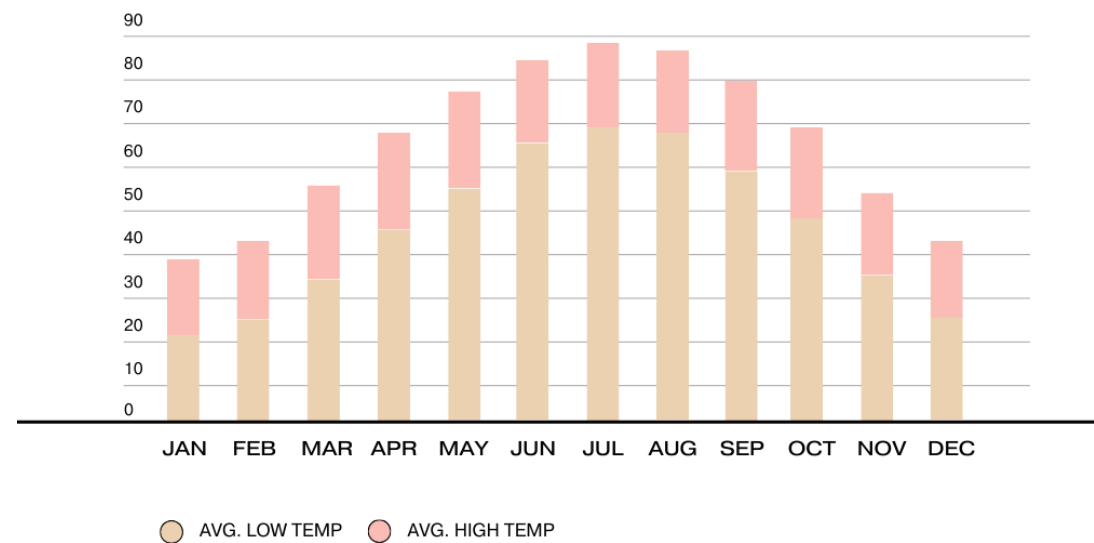
- Columbia falls under the 4A (Mixed-humid) climate zone.
- Columbia is centrally located in the Midwest of the United States, it experiences extreme changes in temperature.
- Summers are hot and humid, while the winters are frigid, snowy, and windy.
- Over the year, the temperatures vary from 21°F to 89 °F.



Psychrometric Chart :



Monthly high/low temperatures :



Humidity

The practice for managing humidity levels in a 4A climate zone is to pull air through the spaces with fans (mechanical assisted ventilation).



- We used the climate positive app to calculate the impact of our landscape design.
- 8500 sf of loose aggregate paving is pedestrian walkways.
- 3400 sf of stabilized crushed stone is vehicular paving.
- The total impact of site materials will add to approximately 26,000 kg CO₂.
- We are balancing this impact through a series of carbon sink strategies.



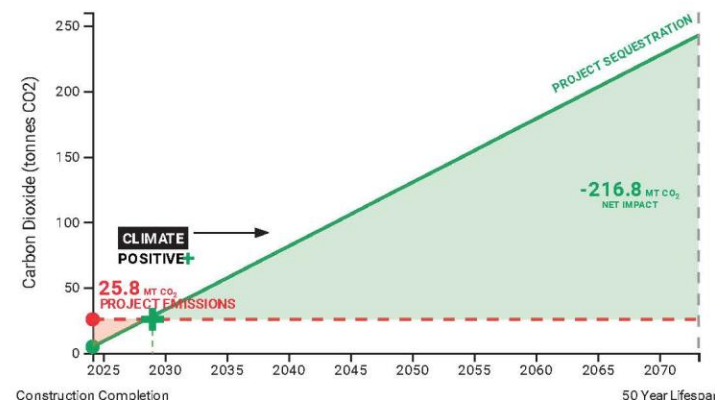
5
years to positive

Climate Positive Design Scorecard

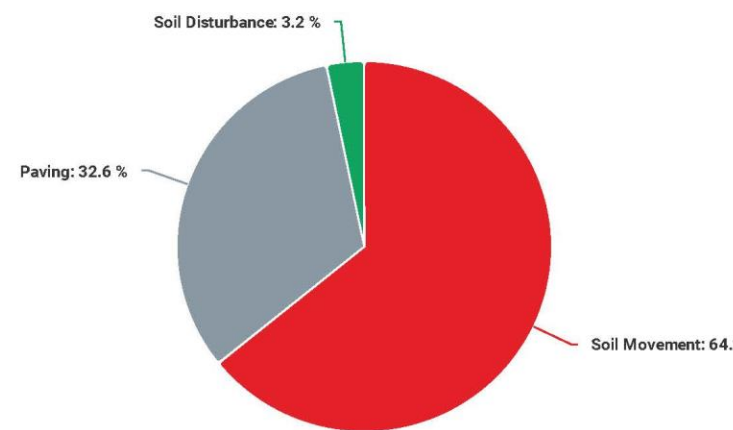
Project Name **Multifamily Housing Solar Decathlon 2024**
Type of project **Mixed Development**

Net Impact over 50 years	-217 Metric Tons	Total Area	106,184 sq feet	2 acres
Total Material Emissions (Embodied Carbon)	8,399 kg CO ₂ -eq	Planted area	60,000 sq feet	57% of total area
Total Plant Sequestration	242,630 kg CO ₂ -eq	Emissions per area	0.2 kg per sf	
Total Operational Emissions	17,386 kg CO ₂ -eq	Sequestration per area	2.3 kg per sf	

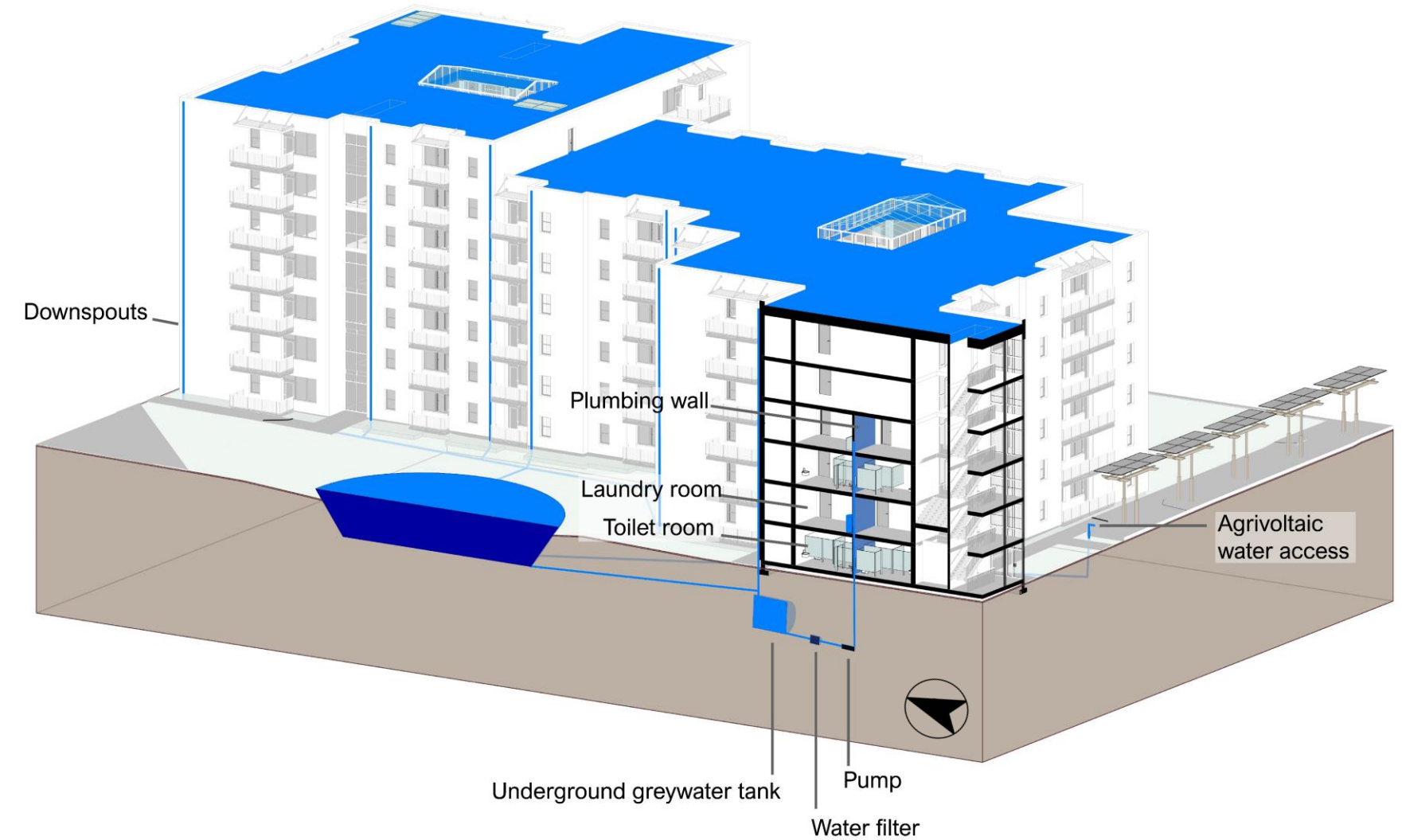
Net Project Impact



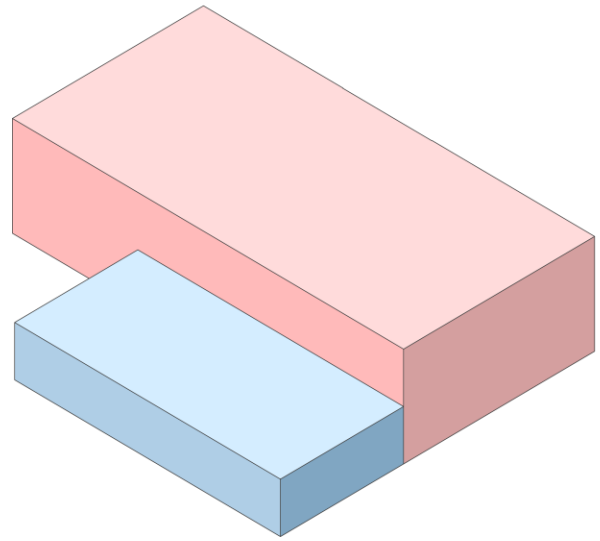
Project Emissions



Water Collection:

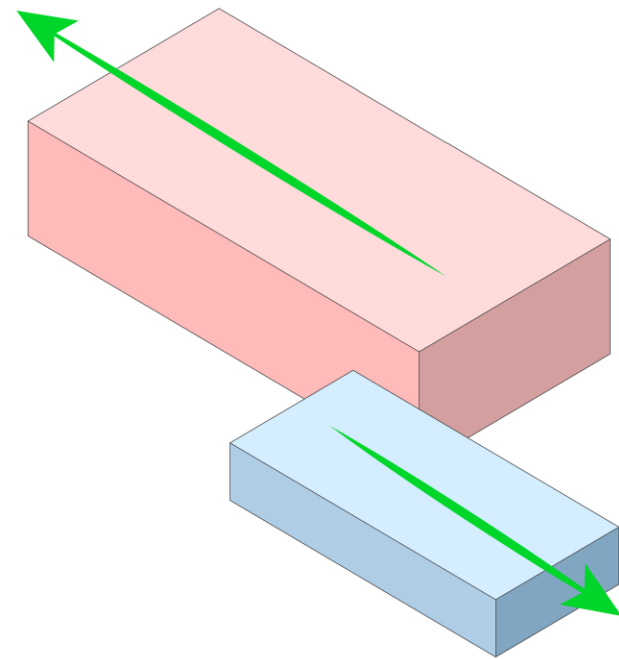


- The two on-site greywater retention ponds will serve as wetlands.
- Excess space on site will be mostly covered in no-mow lawn.
- This will sequester 217 tons more carbon than it emits in its estimated lifespan.
- **Therefore, the site is expected to reach climate-positive within 5 years of its construction.**



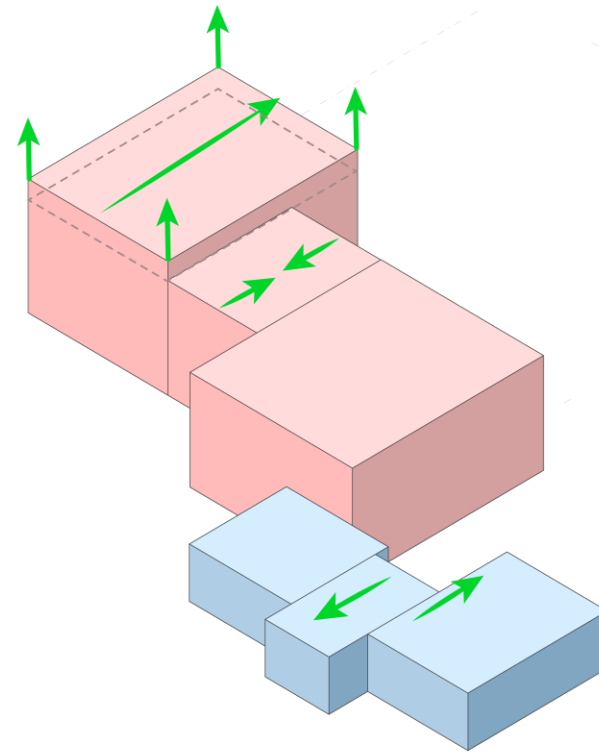
1. Begin With Two Volumes

- Larger Volume for Residential towers (Red)
- Smaller Volume for Commercial spaces (Blue)



2. Shear Volumes in Opposite Directions

- Commercial volume closer to street for pedestrian Interaction
- Residential volume is setback from street
- Public and Private Spaces

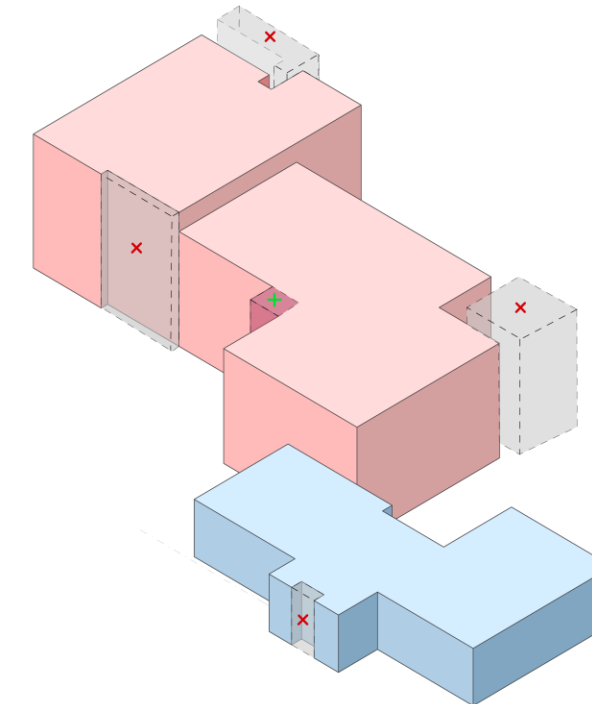


3. Shear Commercial into Three Volumes

- Extenuates Main Entrance and Cultural Market
- Creates partially hidden space

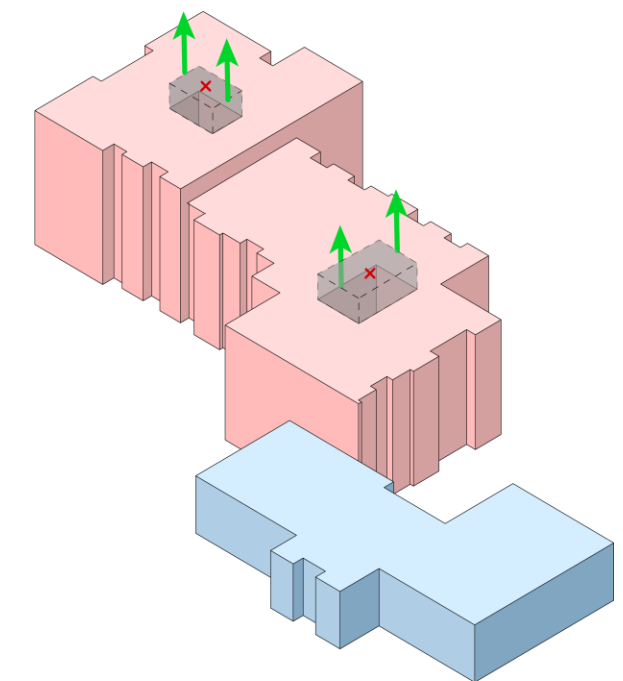
Stretch & Pinch Residential into Three Volumes

- Creates street setback
- Increases privacy and reduces proximity to noise



4. Carve & Add Small Portions to Each Section

- Increases light permeation and curtain wall ventilation



5. Carve Two Volumes From Center of Residential

- Creates semi-conditioned atriums
- Increases light permeation

Carve Detailed Footprint of Residential

- Creates space for private balconies
- Ensure natural lighting in each bedroom and living room

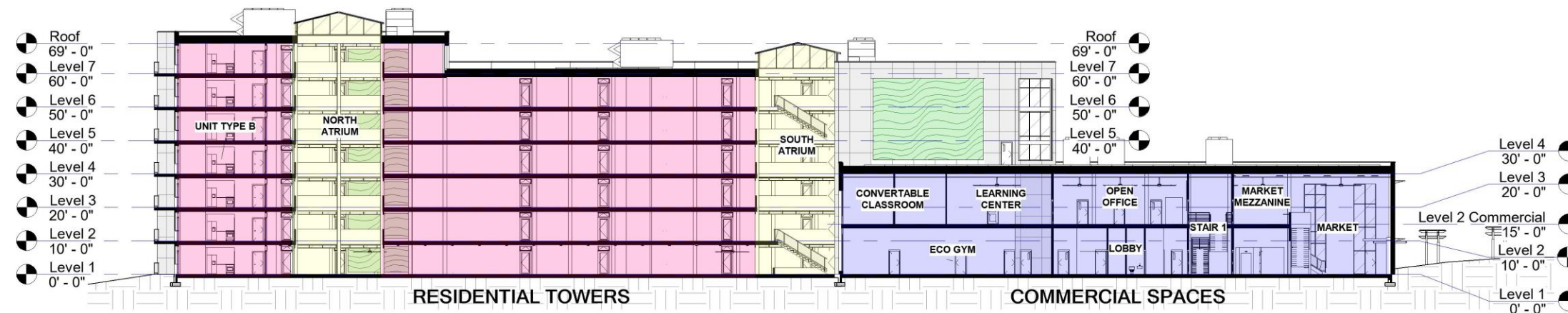
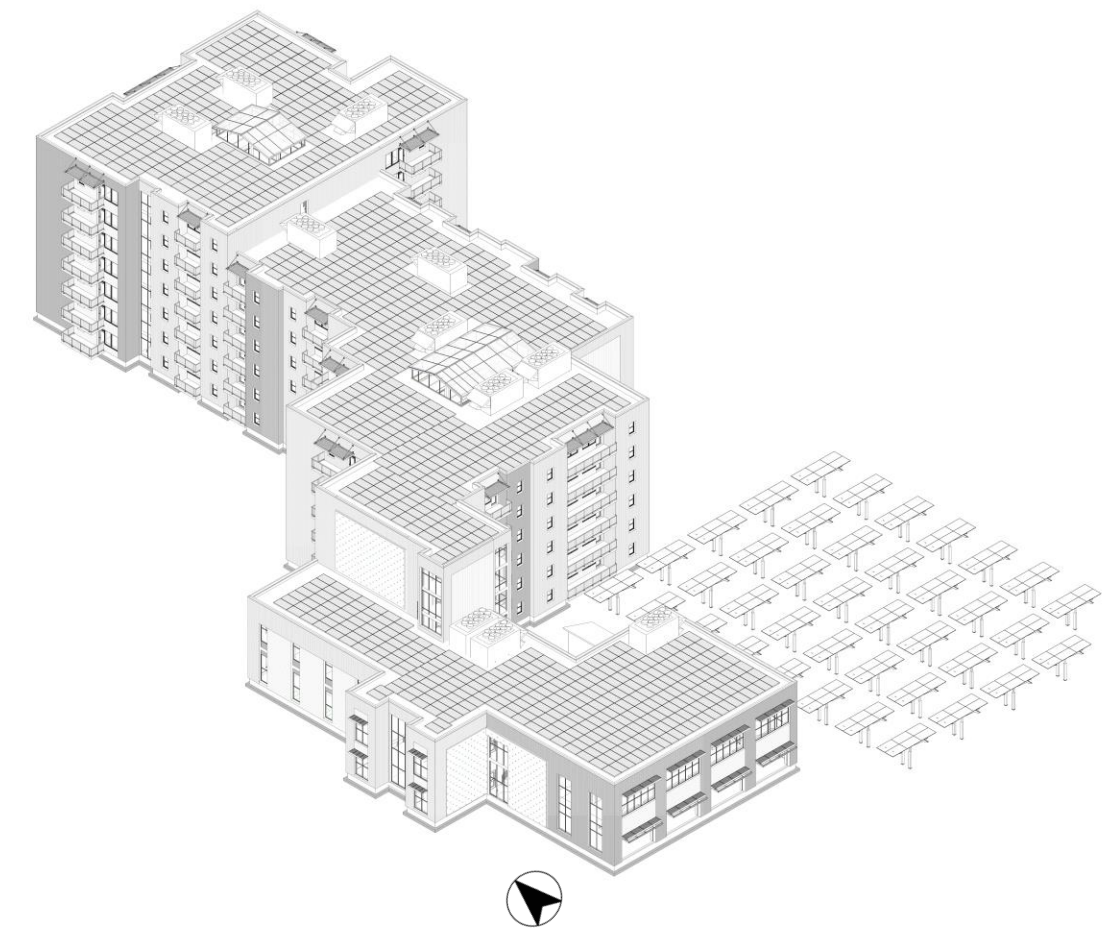
PLANS



GROUND FLOOR



- The building is 179,483 SF in total
- 7 Floors of Residential Units
- 2 Floors Commercial and Community Spaces
- Includes a mixture of conditioned and semi-conditioned spaces.



Architecture

Engineering

Envelope

Efficiency

Grid Interactivity

Life Cycle

Health

Market

Community



MARKET



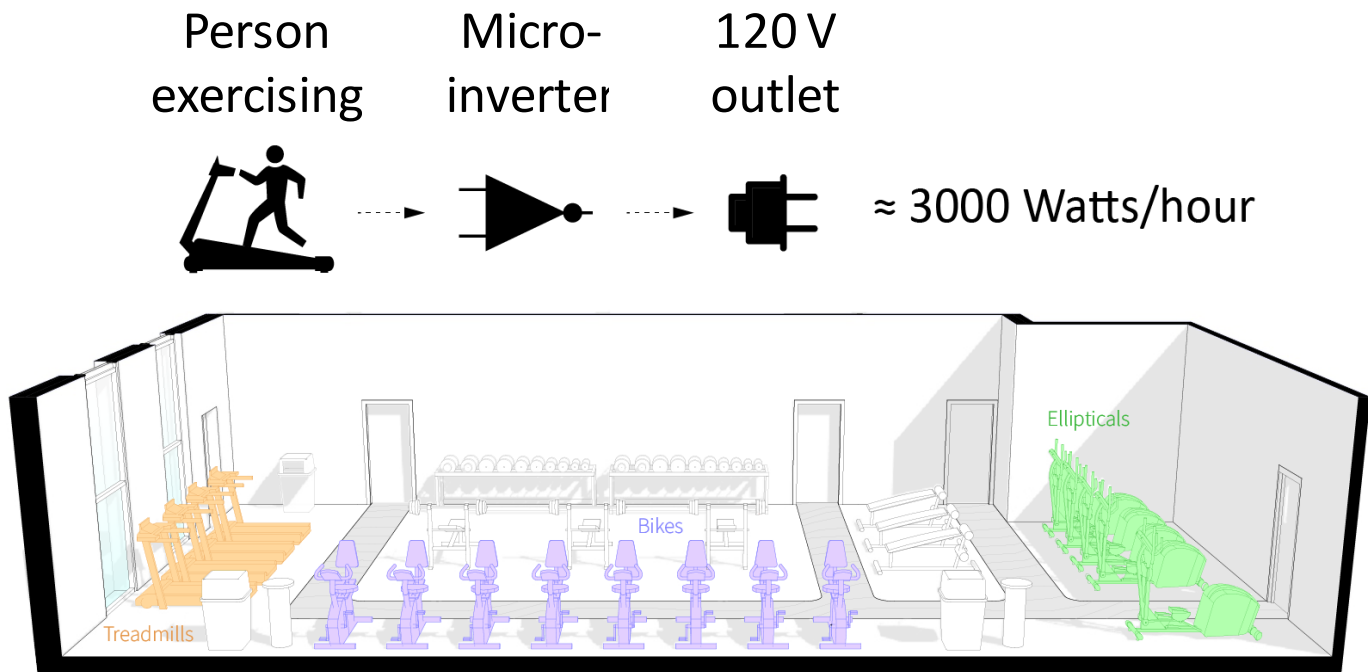
Ground Floor

- Semi-conditioned space
- Local foods and vegetables
- Produce from the agrivoltaic gardens
- Overhead doors on south walls
- Operable windows throughout

Mezzanine

- Rentable space for gatherings and events

ECOGYM



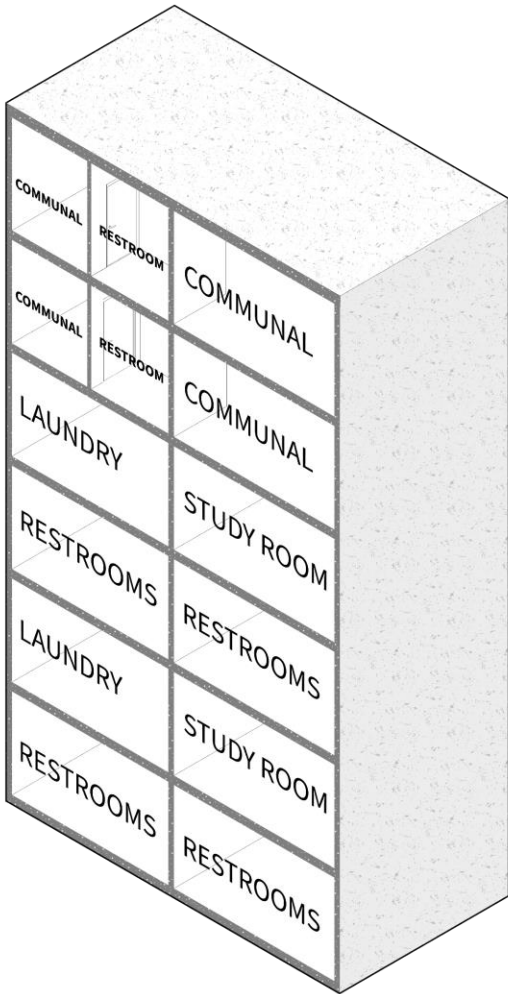
- 17 cardio machines
- 3000 watts of energy per hour
- Powers lights in gym

1. G660 TREADMILL
2. G876 ELLIPTICAL
3. G516 INDOOR CYCLE



RESILIENT CORE

Resilient Core
3275 sq. ft (545 sq. ft./ floor)



Details :

- 545 sqft per floor
- Min. 5 sqft per occupant

RESIDENTIAL UNIT TYPES



**Unit Type A - 1318 Sqft
3 Bedroom**



**Unit Type B - 418 Sqft
Studio**



**Unit Type C - 935 Sqft
2 Bedroom**



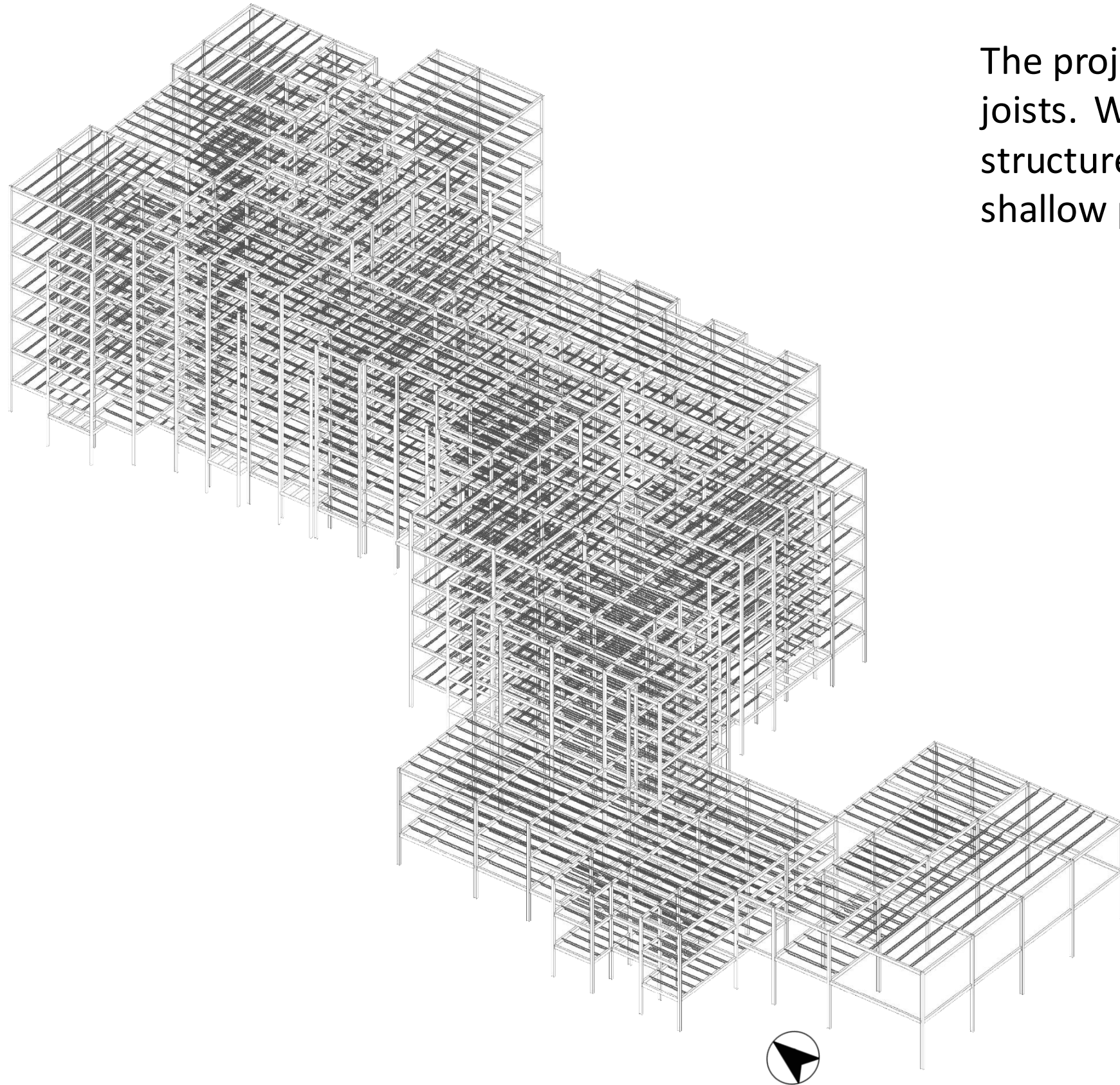
**Unit Type D - 726 Sqft
1 Bedroom**



**Unit Type E -
Accessible Unit**

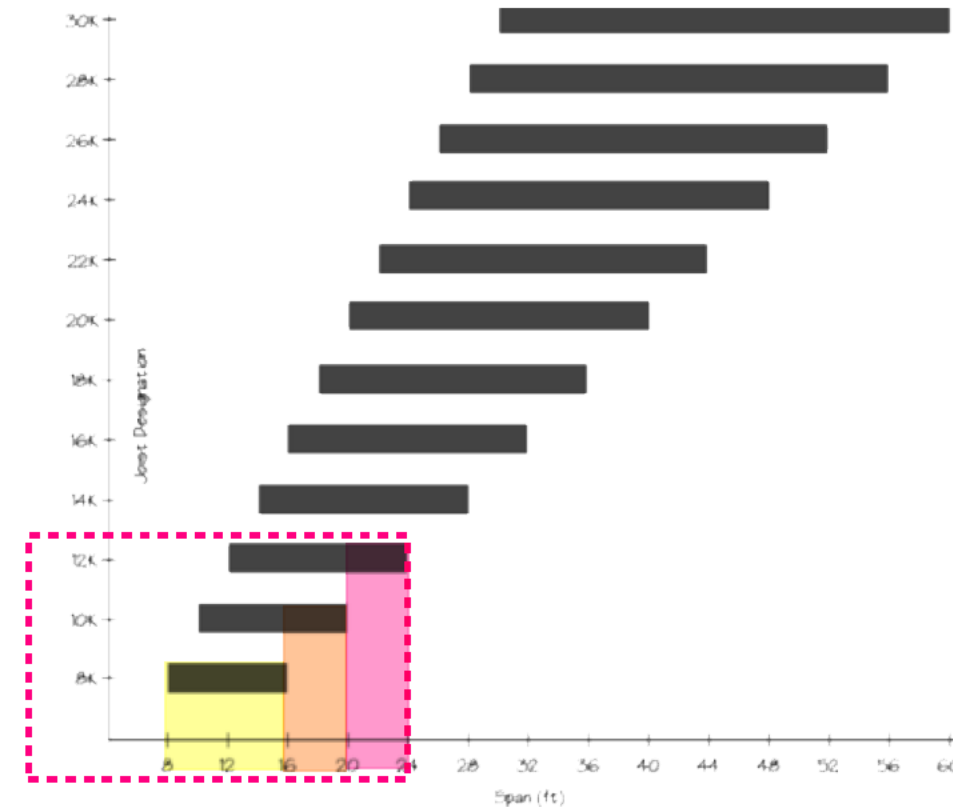
A total of 5-unit types

30 one-bedroom units, **31** two-bedroom units, **27** three-bedroom units and **14** studio units.
For every bedroom and living room, one ceiling fan and one sprinkler head is included .

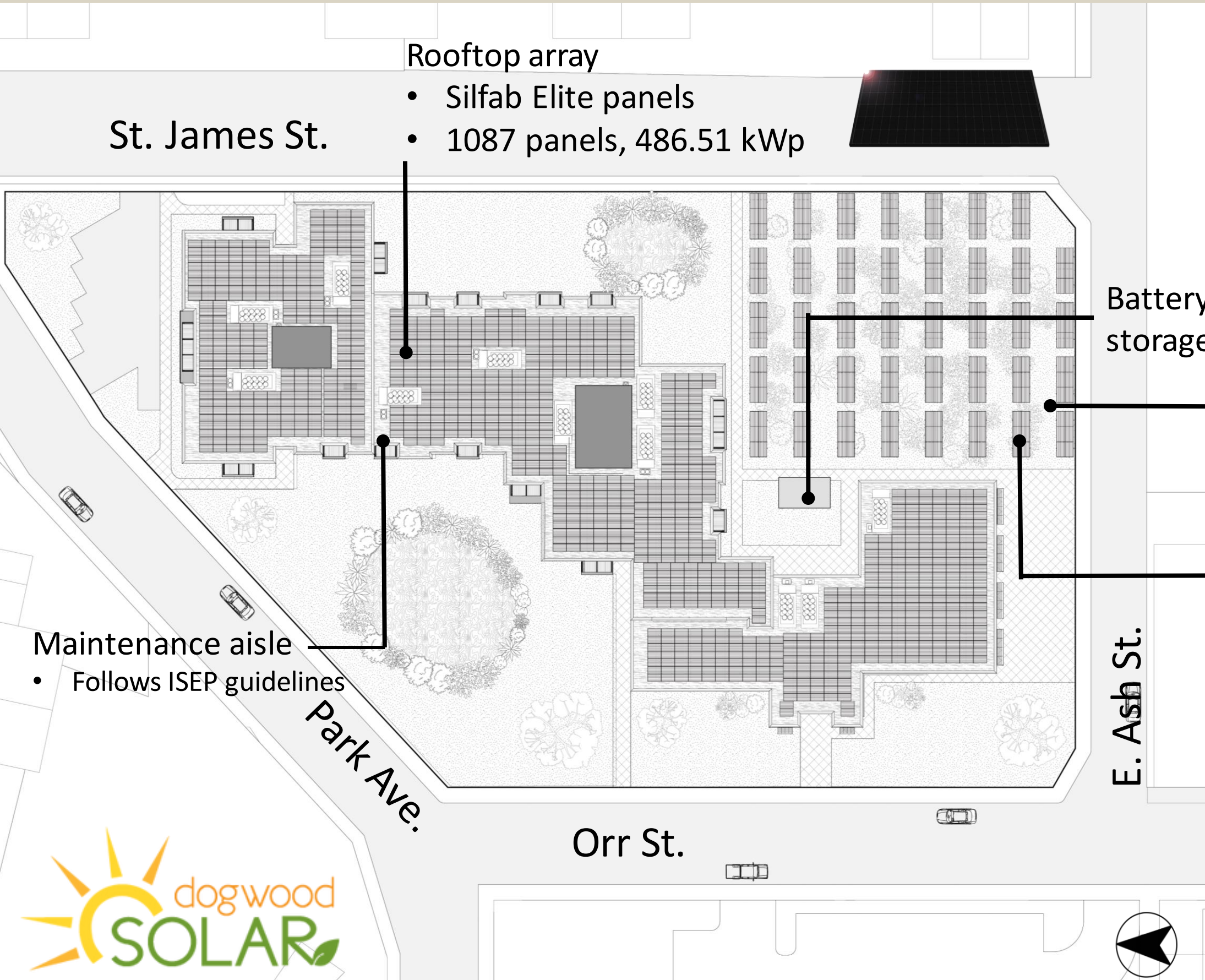


The project's structural system contains steel columns and beams with bar joists. W sections were used for all columns and 98% of beams on the structure's interior. The spans were kept to a minimum to maintain a shallow plenum space for electrical, lighting, and HVAC.

Span Chart:



PVs & AGRIVOLTAICS



Rooftop array

- Silfab Elite panels
- 1087 panels, 486.51 kWp

St. James St.

Maintenance aisle

- Follows ISEP guidelines

Park Ave.

Orr St.

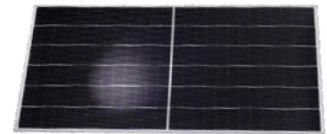
E. Ash St.

Battery storage shed



Agrivoltaic garden walls

- QCELL Q.PEAK DUO panels
- 204 panels, 108.33 kWp array)



Sunny Tripower inverter



- AV Lot spans approximately **17,037 sqft**
- Set on an east-west tracker, 4 meters above ground
- We worked with Dogwood Solar a local consultant to select panels, converters, and onsite battery storage for both rooftop array and the agrivoltaics.



Architecture

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Envelope

Efficiency

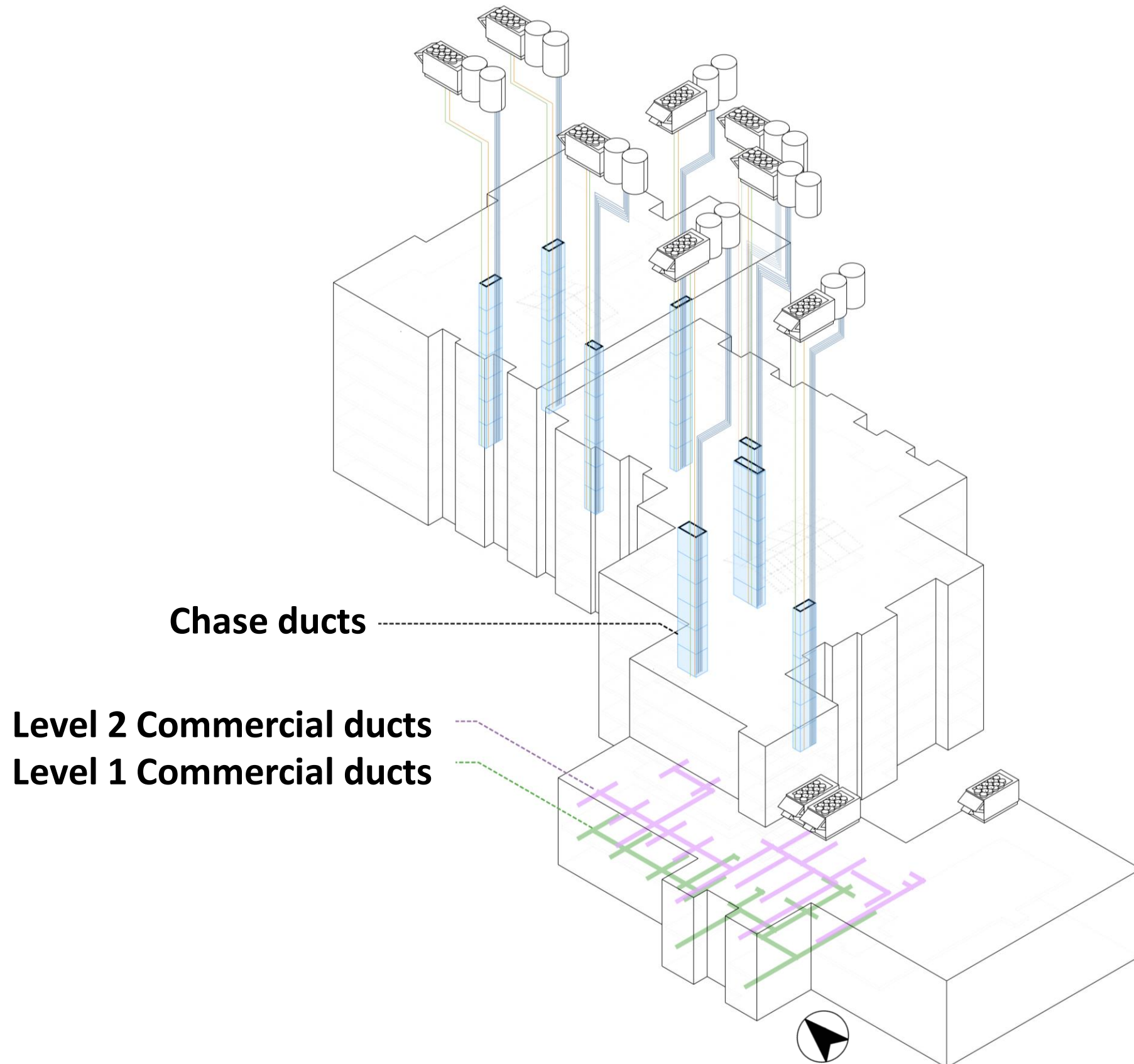
Grid Interactivity

Life Cycle

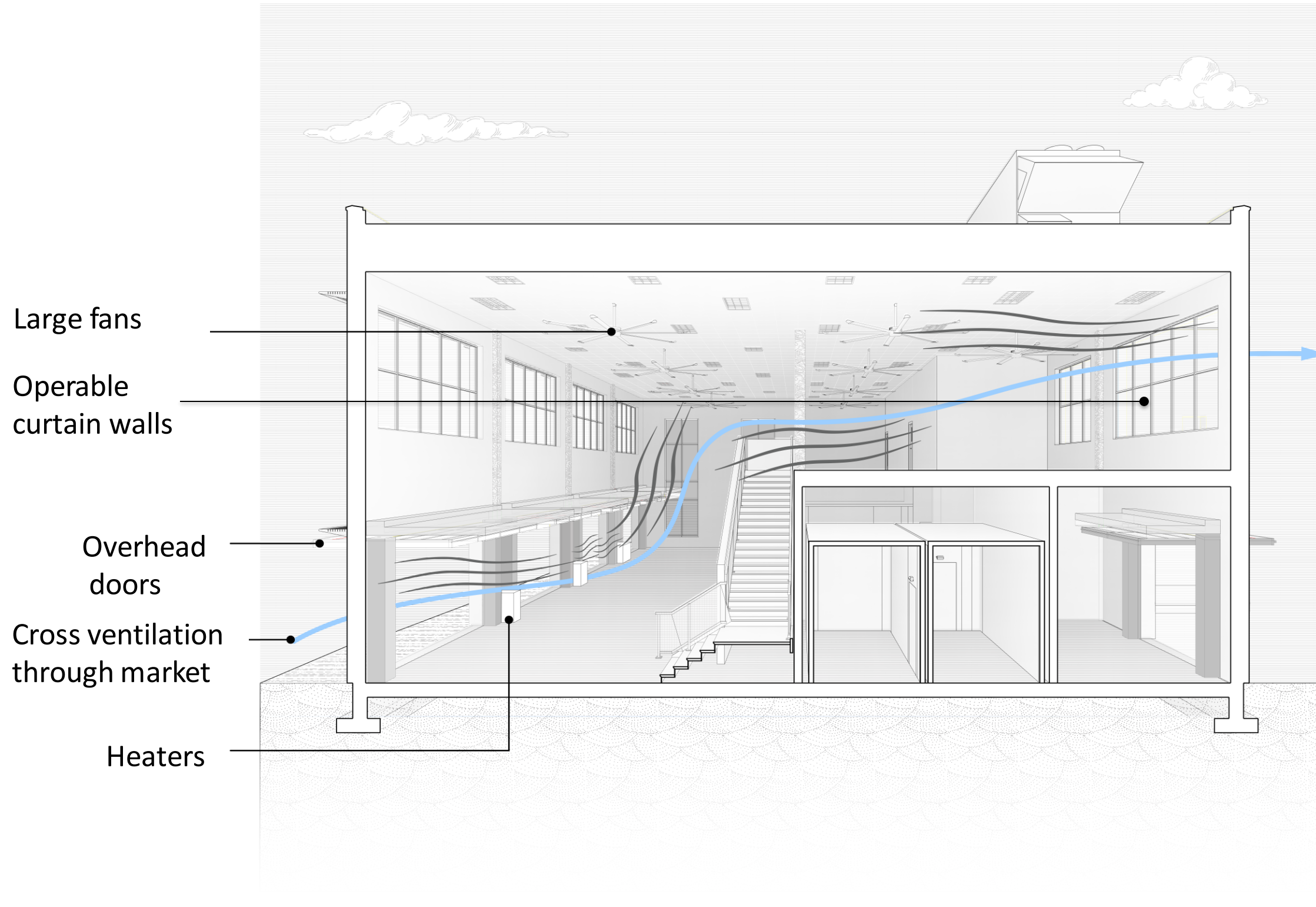
Health

Market

Community



- 8 Trane Mitsubishi Air-Source hybrid VRF systems.
- 8 Trane Horizon Dedicated Outdoor Air Systems (DOAS) with Energy Recovery Ventilators (ERV).
- Heat and cool 8 or 16 zones with high efficiency.
- Using a VRF conduit instead of ductwork reduces energy loss and material cost for excess MEP space.
- The hybrid branch controller (HBC) lowers the use of refrigerant and keeps the piping in the indoor space refrigerant-free.
- The HBC exchanges heat between refrigerant and water via 8/16 ports connecting to indoor units.
- Introducing interior water lines, HVRF reduces the amount of refrigerant in the overall system by up to 30% compared to conventional VRF.



The southernmost portion of the commercial space is a semi-conditioned market with overhead doors on the north and south walls that would remain open during business hours.

The emphasis on managing humidity levels in a 4A and 3A climate zone is to pull air through the spaces with fans (mechanical assisted ventilation). Creating flexibility to adapt to our climatic temperature extremes in winter and summer.

SEMI-CONDITIONED SPACES:

- Cross-Ventilation
- Mechanically Assisted Air Movement
- Shading Devices on South & West Facades
- Operable Windows in Curtain Systems
- Heaters for Thermal Comfort



Exterior Lighting:

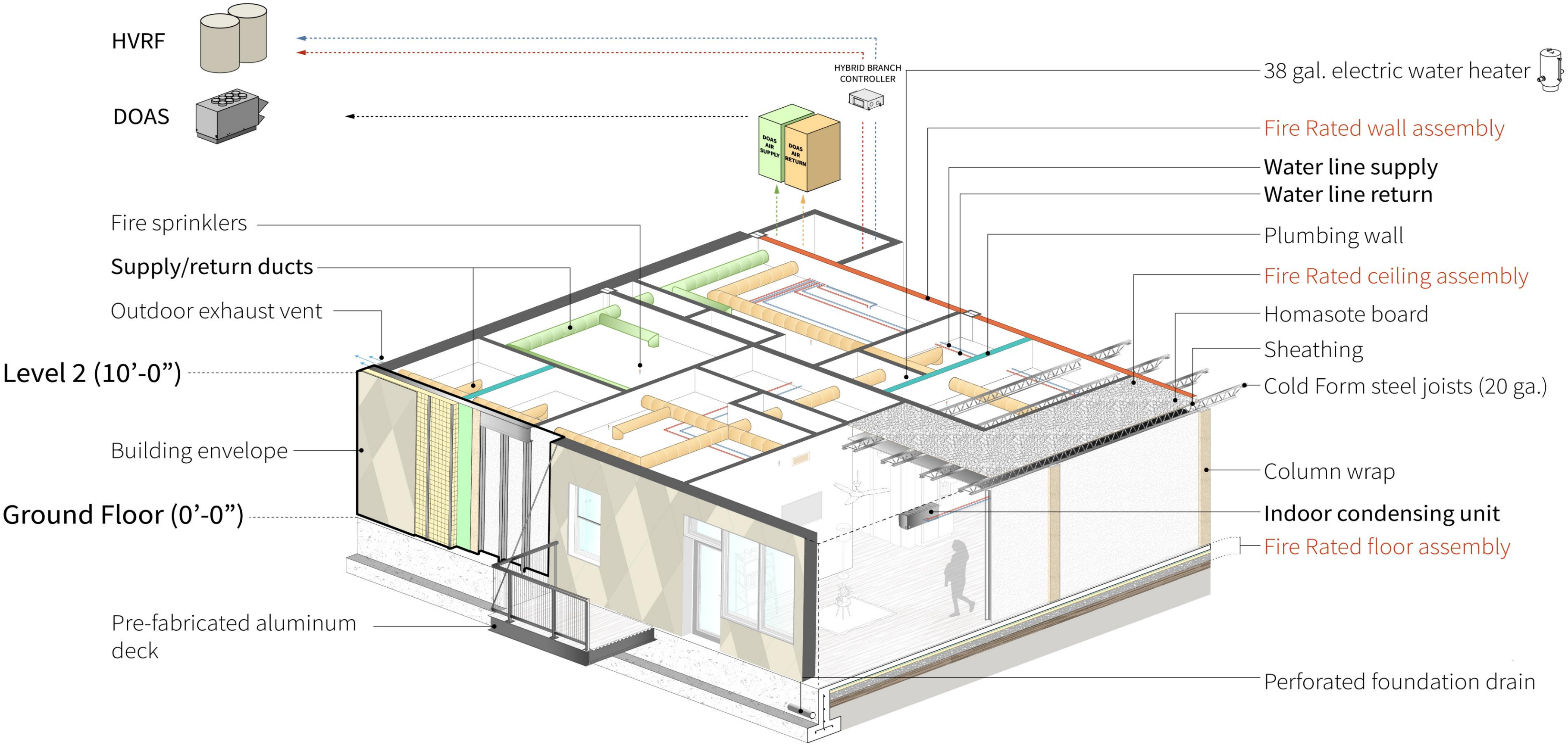
- With Interact Retail Lighting management software, automated schedules ensure light levels match opening hours or can be adjusted to harvest available daylight.
- Areas of the store that are used very little, can remain unlit when not in use, resulting in energy savings and cost reduction.



RCP & HVAC:



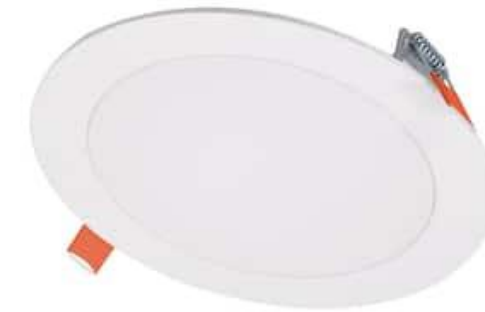
SYSTEMS - RESIDENTIAL





Interior :

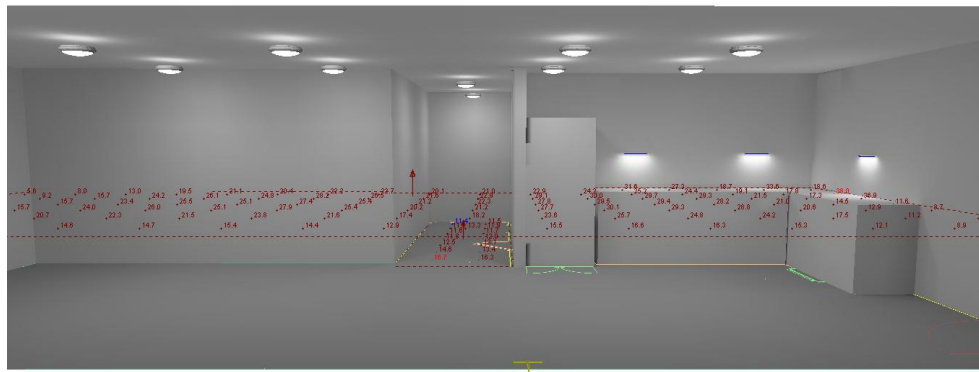
- **Visual Lighting Design software was used** to create these plans.
- The floor plan layouts show the FC (footcandles) value throughout each room, and the layout of the chosen lights.
- The goal is to create a lighting layout that is within the allowable light power density (LPD) for increased efficiency and meets all standards outlined in the IBC.



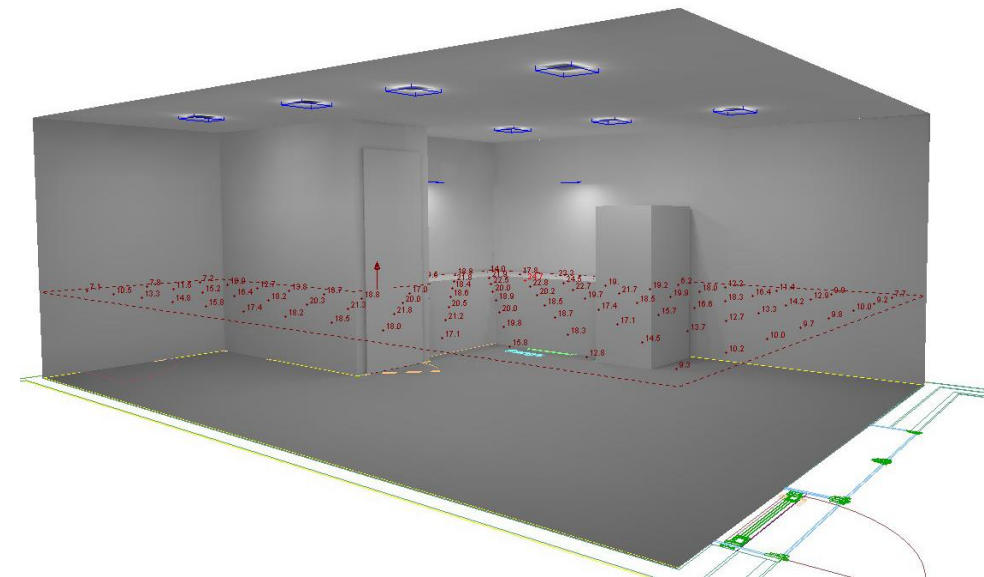
Halo led downlights



The Haiku Gen 4 52"



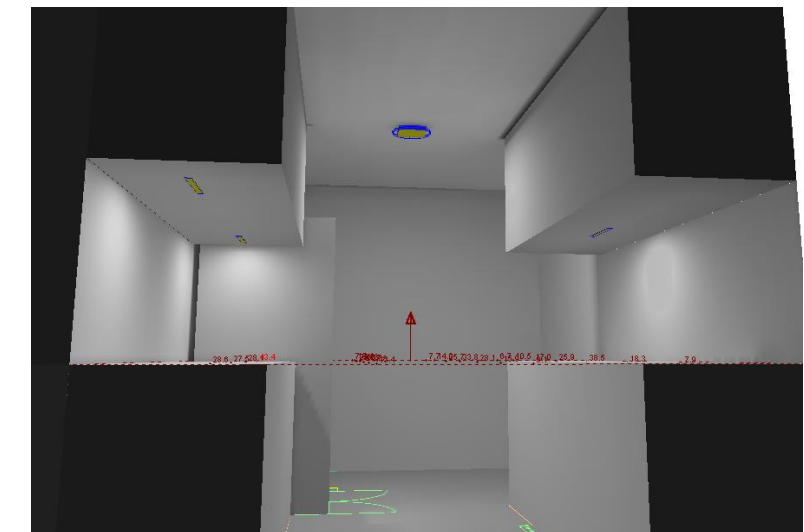
Unit Type A



Unit Type B



Unit Type C



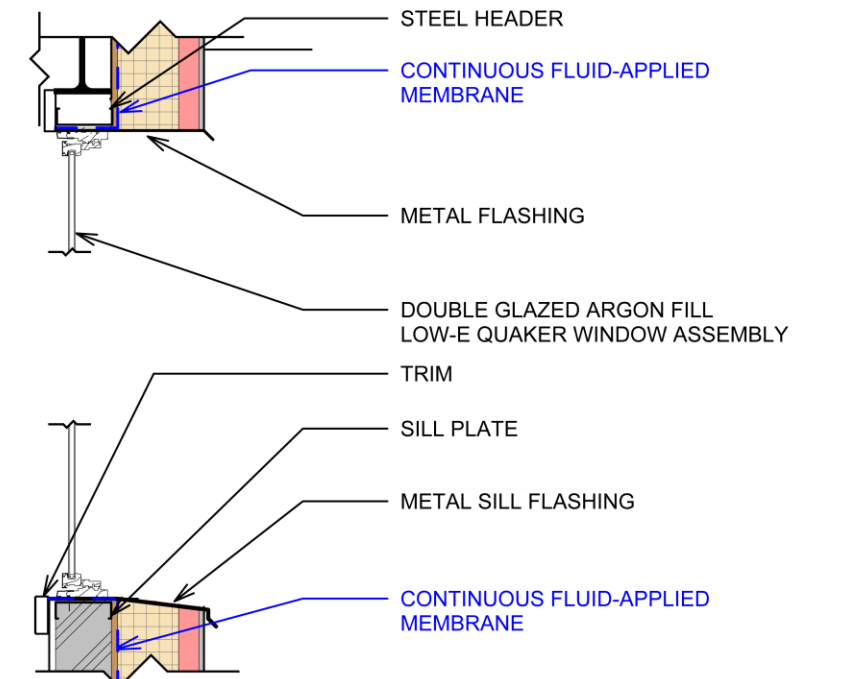
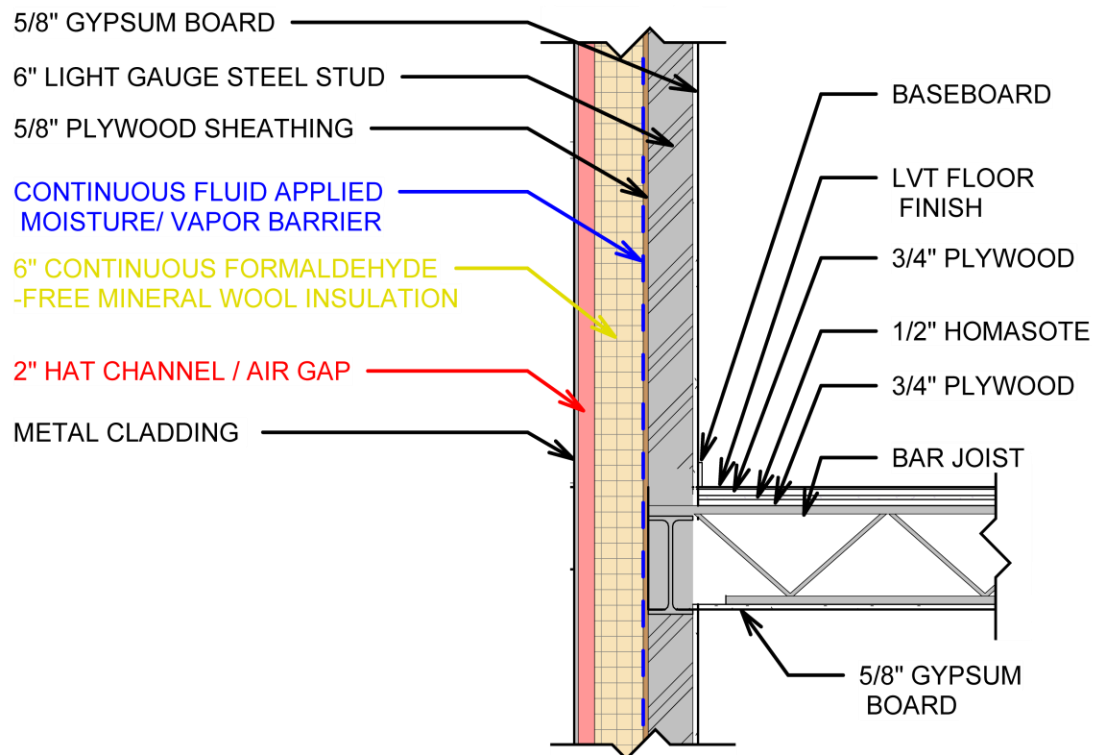
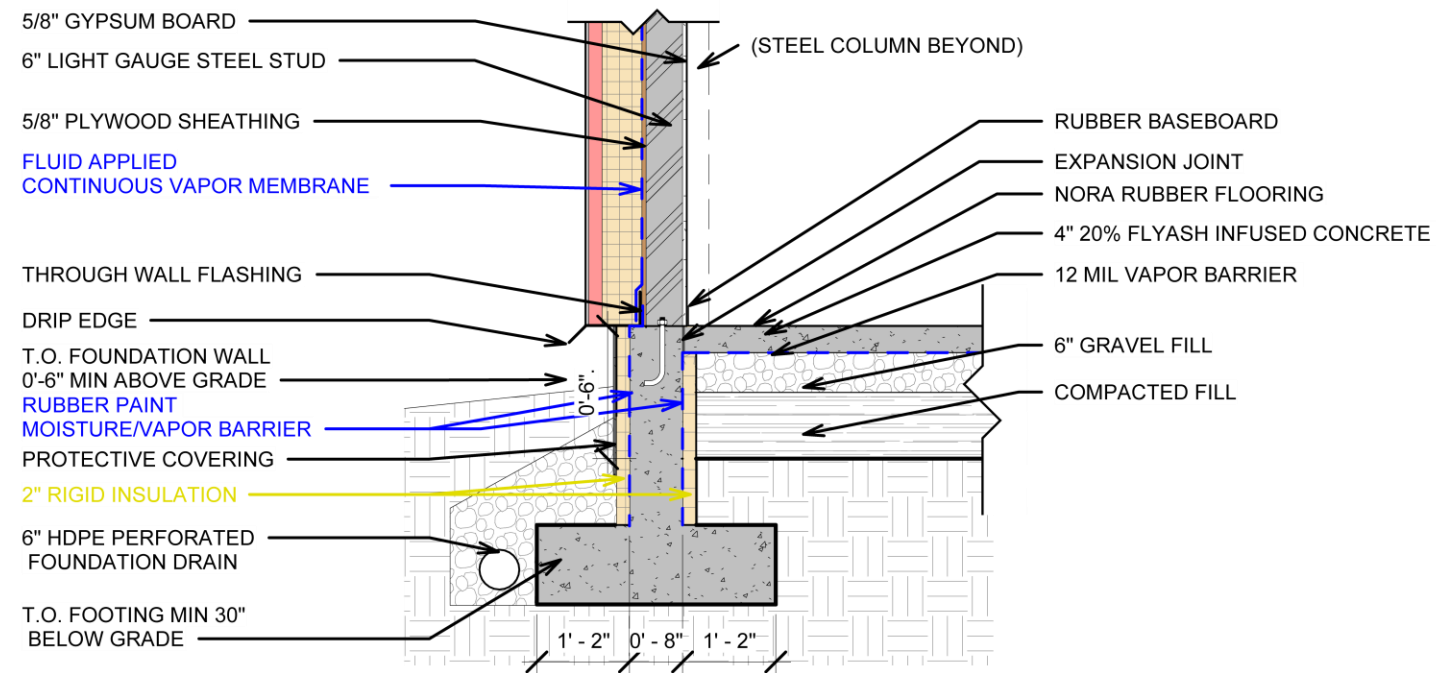
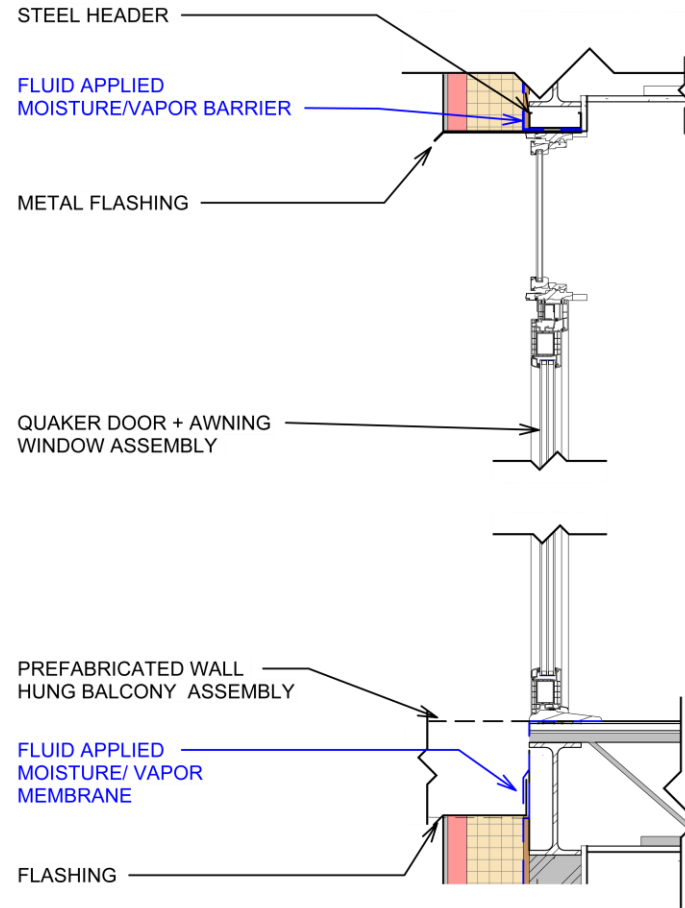
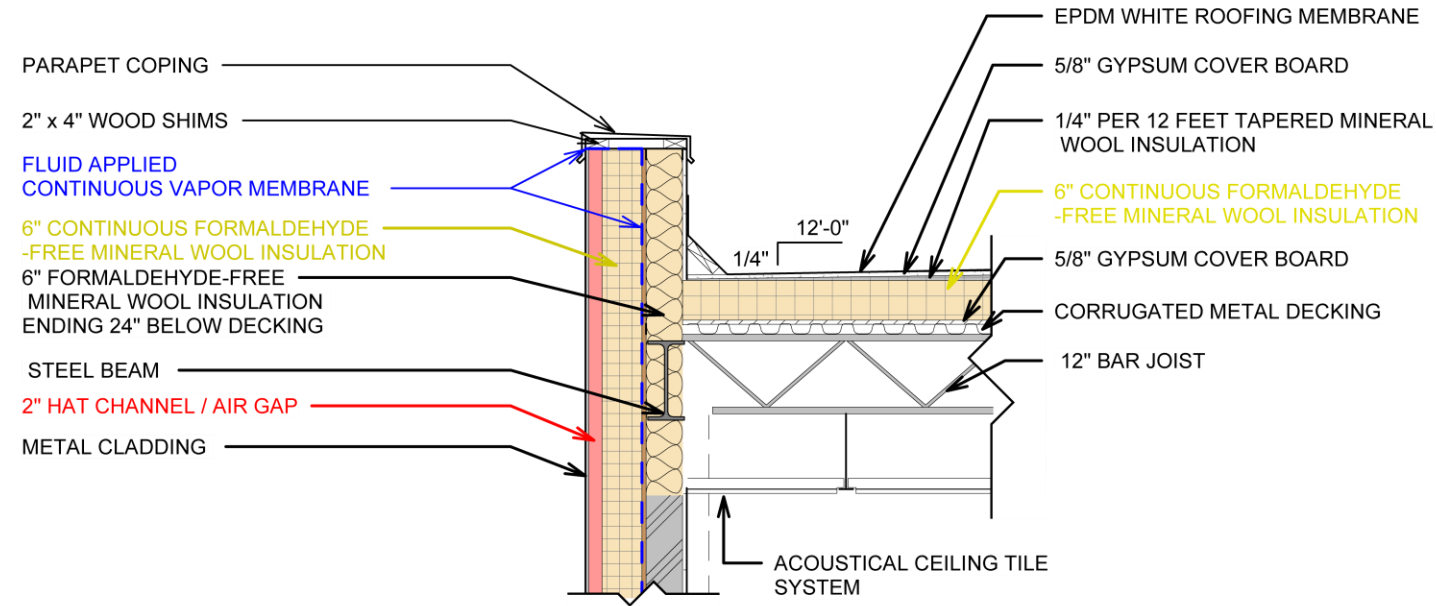
Unit Type D

ENVELOPE DETAILS



CONTROL LAYER KEY:

- Moisture/Vapor/Air Barrier
- Thermal Control
- Air Gap/ Drainage Layer



Architecture

Engineering

Envelope

Efficiency

Grid Interactivity

Life Cycle

Health

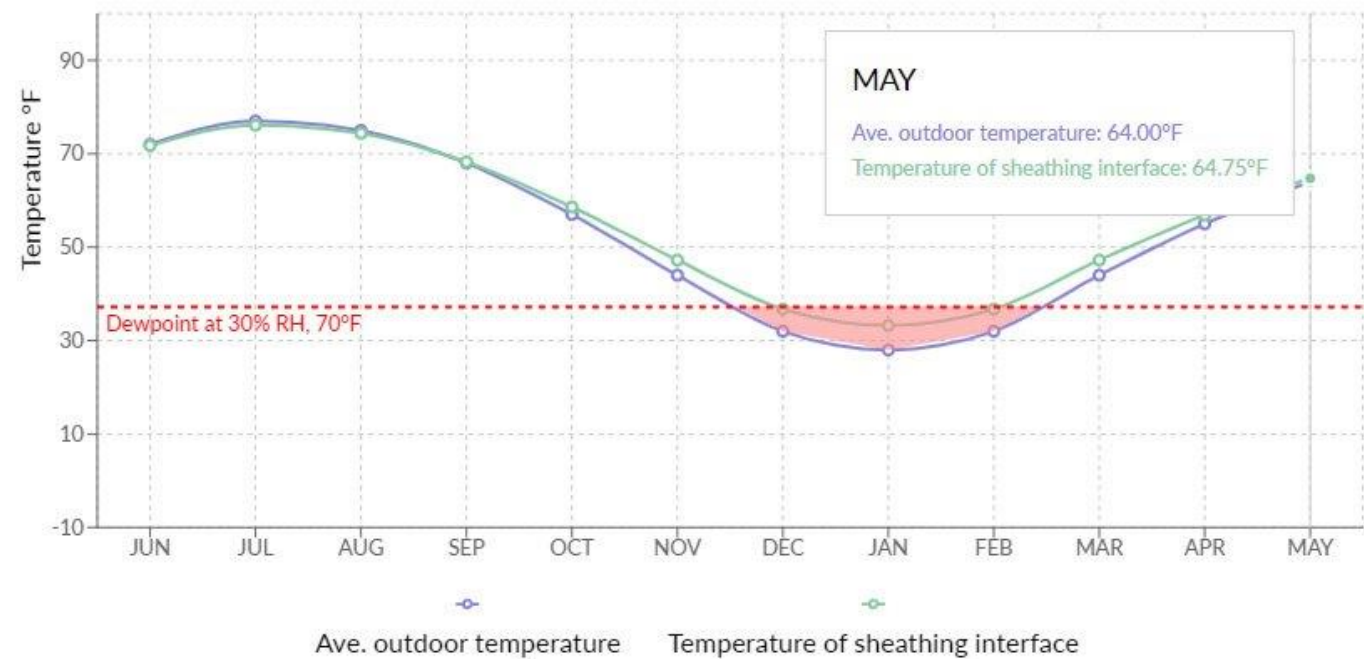
Market

Community



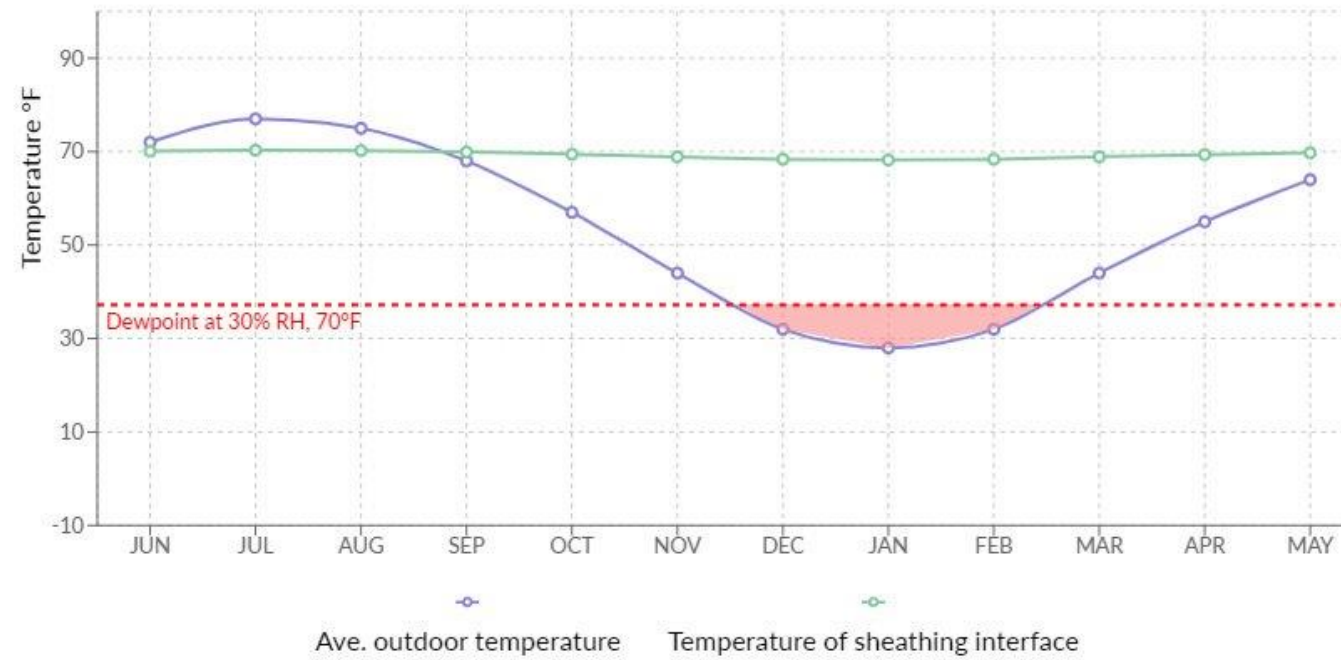
Dew Point Analysis:

Increase the exterior insulation value, reduce the cavity insulation value or a combination of both to achieve an optimal condition.



Green line is well above the red dashed line
 With R-20.5 (5.5 inches thick) insulation outside of the wall cavity, then the fluid applied product then sheathing then wall stud.

Acceptable insulation approach.



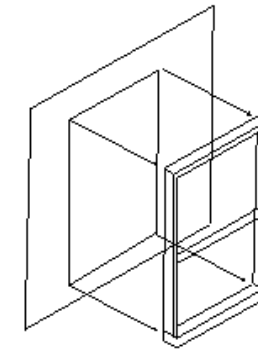
Green line - Condensation IN the wall from December to February
 With R-20.5 (5.5 inches thick) insulation inside of the wall cavity.

Window Flashing Sequence

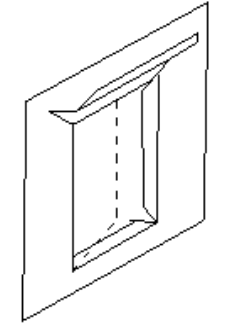
Remove Existing Window

Cut Modified "F" into housewrap

1.



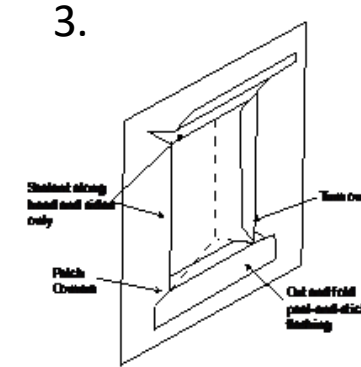
2.



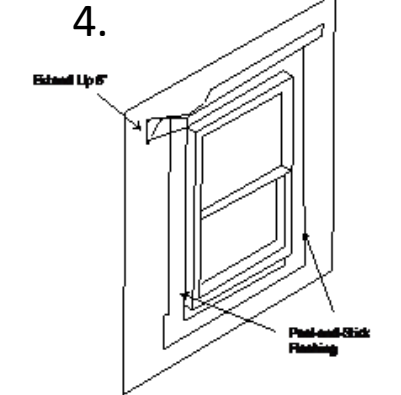
Apply Sill Flashing and Sealant

Install Window and side flashing

3.



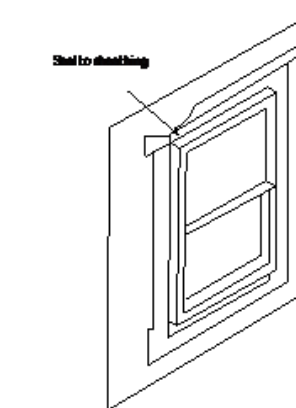
4.



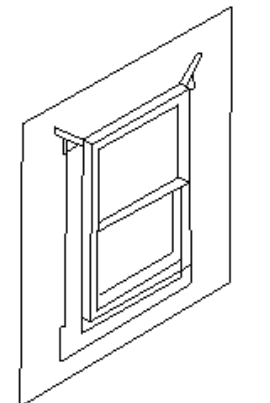
Apply Head Flashing

Tape Cuts Over Head Flashing

5.



6.



ENVELOPE MATERIALS



USG fire rated Sheetrock

- Meets 2030 ASHRAE standards
- 75% recycled material, 100% biobased
- Low energy/carbon emissions in manufacturing



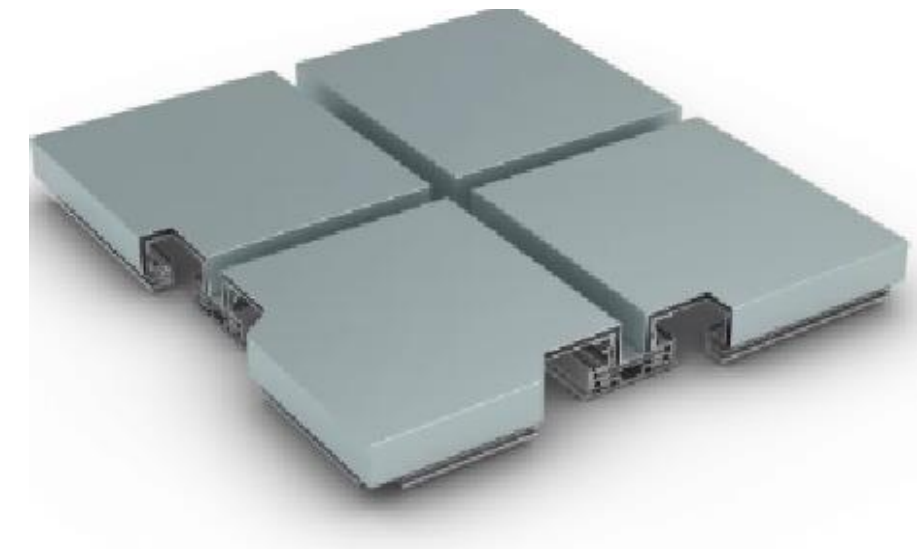
Thermafiber

- Biobased, mineral wool
- Formaldehyde free
- Water resistant (maximizes envelope efficiency)



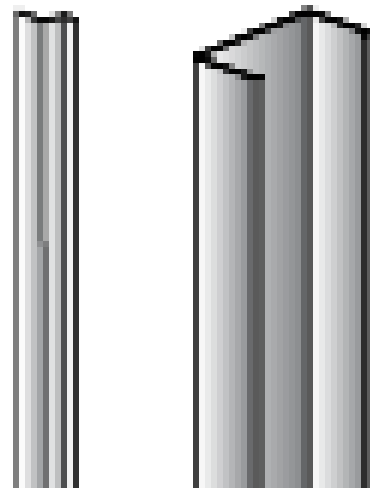
PAC-clad composite façade panels

- Made with 96% recycled aluminum



PAC-clad composite façade panels

- Made with 96% recycled aluminum



WR Meadows fluid applied membrane

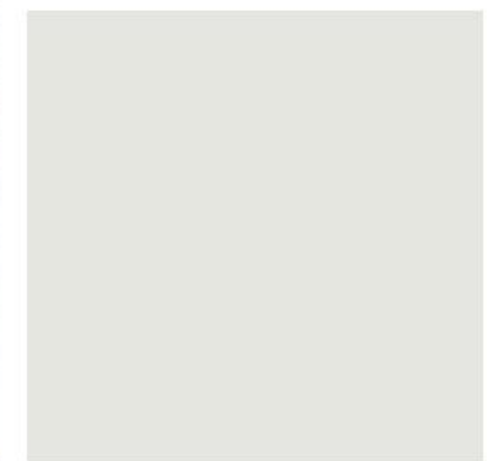
- Quick installation
- Protects from moisture, air, and vapor



Fiber Cement by Nichiha Panel System (Custom Color: Moroccan Red by Benjamin Moore)



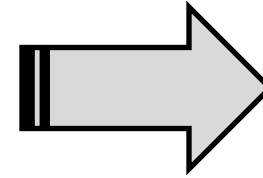
Fiber Cement by Nichiha Panel System (Tuffblock Taupe)



Steel Panel by PAC-Clad (Stone White)



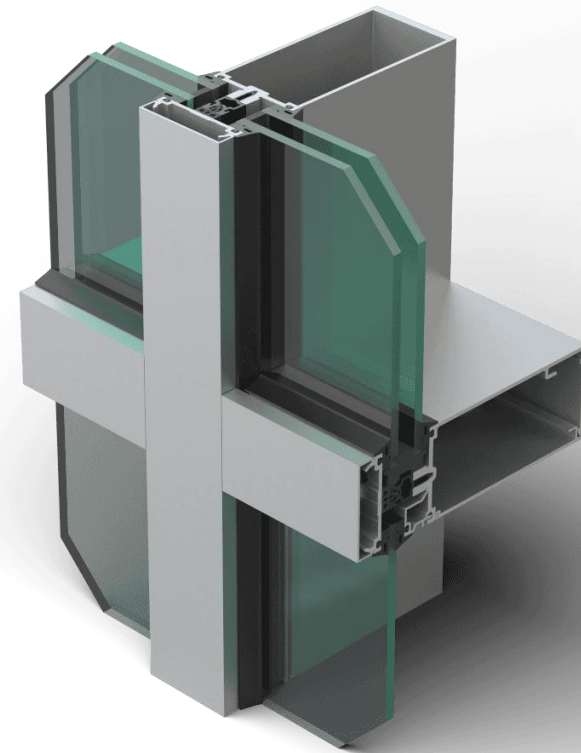
- Quaker's products are locally made.
- Manufacturer of residential and commercial products.
- Provides increased thermal, structural, and sound transmission performance properties.



Team Site Visit to Quaker



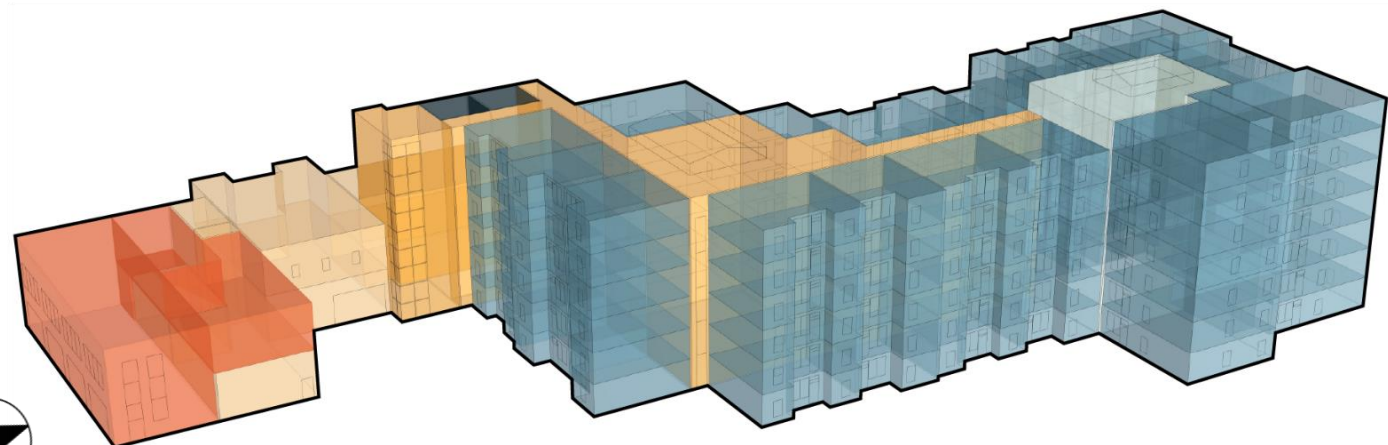
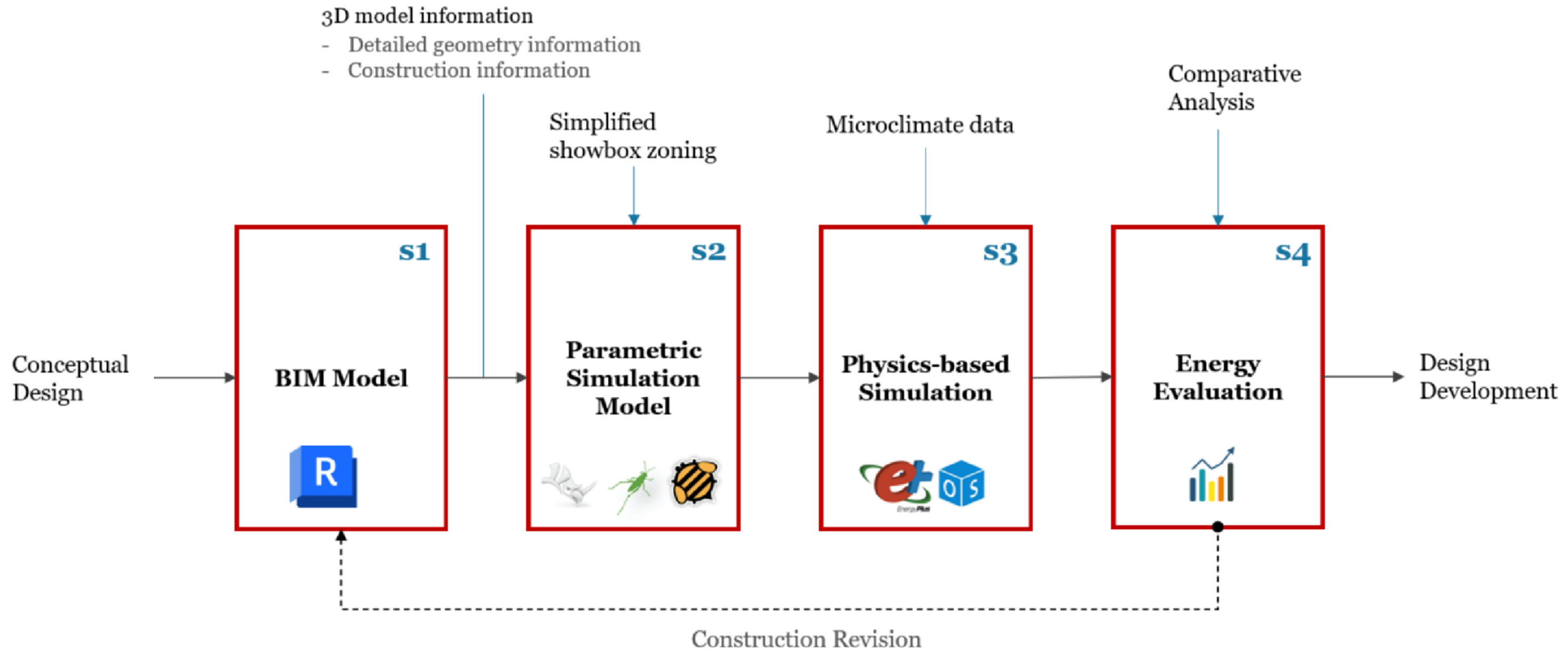
- Adaptable to needed specifications.
- Ideal for low- to mid-rise applications.
- Utilizes thermal barrier technology to address extreme climactic conditions.



1600OUT SYSTEM™ 1 CURTAIN WALL

- The curtain walls provide cross ventilation in the building.
- In all areas of egress.
- Integration of GLASSvent window system allows for operable windows.
- The glass is fritted to prevent bird collisions.

ENERGY MODELING



- We created a parametric script on grasshopper.
- Using construction materials, quantities, window aperture, shading, and local climate data.
- **Achieved a baseline EUI of 32 without any photovoltaic systems.**

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Life Cycle

Health

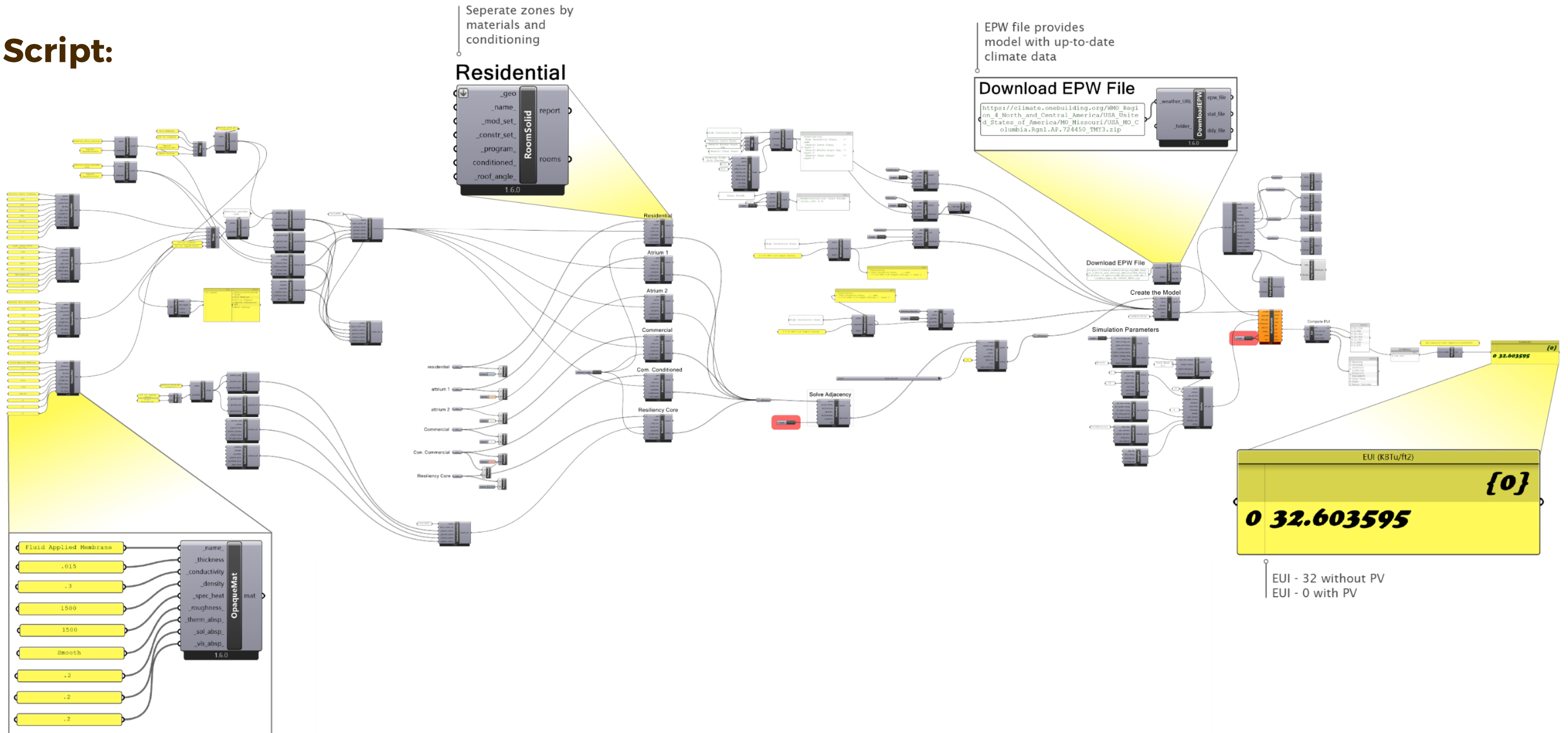
Market

Community

ENERGY MODELING



Script:



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HOME ENERGY RATING SCORE



We calculated our HERS score by unit layout with RemRate using the black box method, in which we isolated each apartment unit and modeled the exterior walls to mimic their adiabatic nature.

To accurately model the efficiency of our Trane HVRF system, we customized a Ground Source Heat Pump to match our system's tonnage, COP, EER, and capacity. Our largest and smallest apartment unit models obtained an average HERS score of 38 without PV and 0 with PV.

Home Energy Rating Certificate

Property
Sam Gandhi
210 Orr Street
Columbia, MO 65201

HERS
Rating Type: Projected Rating
Rating Date: 2024-02-15
Registry ID:

Certified Energy Rater:
Rating Number:

HERS Index: 36

General Information			
Conditioned Area	421 sq. ft.	House Type	Single-family detached
Conditioned Volume	3789 cubic ft.	Foundation	Slab
Bedrooms	2		

Mechanical Systems Features

Water Heating:	Instant water heater, Natural gas, 0.80 EF, 0.0 Gal.		
Ground-source heat pump:	Electric, Htg: 3.4 COP, Clg: 11.5 EER, w/DSH.		
Duct Leakage to Outside	0.51 CFM25		
Ventilation System	Balanced: ERV, 150 cfm, 105.0 watts.		
Programmable Thermostat	Heat=Yes; Cool=Yes		

Building Shell Features

Ceiling Flat	R-50.0 w/RB I	Slab	R-10.0 Edge, R-10.0 Under
Sealed Attic	NA	Exposed Floor	NA
Vaulted Ceiling	NA	Window Type	U-Value: 0.170, SHGC: 0.200
Above Grade Walls	R-42.0	Infiltration Rate	0.80 ACH50
Foundation Walls	R-10.0	Method	Blower door

Lights and Appliance Features

Interior Fluor Lighting (%)	0.0	Range/Oven Fuel	Natural gas
Interior LED Lighting (%)	100.0	Clothes Dryer Fuel	Natural gas
Refrigerator (kWh/yr)	313	Clothes Dryer CEF	3.30
Dishwasher (kWh/yr)	467	Ceiling Fan (cfm/Watt)	0.00

Estimated Annual Energy Cost			
Use	MMBtu	Cost	Percent
Heating	2.3	\$59	8%
Cooling	1.4	\$37	5%
Hot Water	6.6	\$25	3%
Lights/Appliances	11.2	\$186	25%
Photovoltaics	0.0	\$0	0%
Service Charges		\$444	59%
Total	21.5	\$752	100%

Criteria

This home meets or exceeds the minimum criteria for the following:

TITLE
Company
Address
City, State, Zip
Phone #
Fax #

REM/Rate - Residential Energy Analysis and Rating Software v16.3.4.1019

This information does not constitute any warranty of energy costs or savings. © 1985-2022 NORESOCO, Boulder, Colorado. The Home Energy Rating Standard Disclosure for this home is available from the rating provider.

Home Energy Rating Certificate

Property
Sam Gandhi
210 Orr Street
Columbia, MO 65201

HERS
Rating Type: Projected Rating
Rating Date: 2024-02-15
Registry ID:

Certified Energy Rater:
Rating Number:

HERS Index: -0

General Information			
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Bedrooms	2		

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Refrigerator (kWh/yr)	313	Clothes Dryer CEF	3.30
Dishwasher (kWh/yr)	467	Ceiling Fan (cfm/Watt)	0.00

Estimated Annual Energy Cost			
Use	MMBtu	Cost	Percent
Heating	2.3	\$59	16%
Cooling	1.4	\$37	10%
Hot Water	6.6	\$25	7%
Lights/Appliances	11.2	\$186	51%
Photovoltaics	-15.0	-\$390	-108%
Service Charges		\$444	123%
Total	6.6	\$361	100%

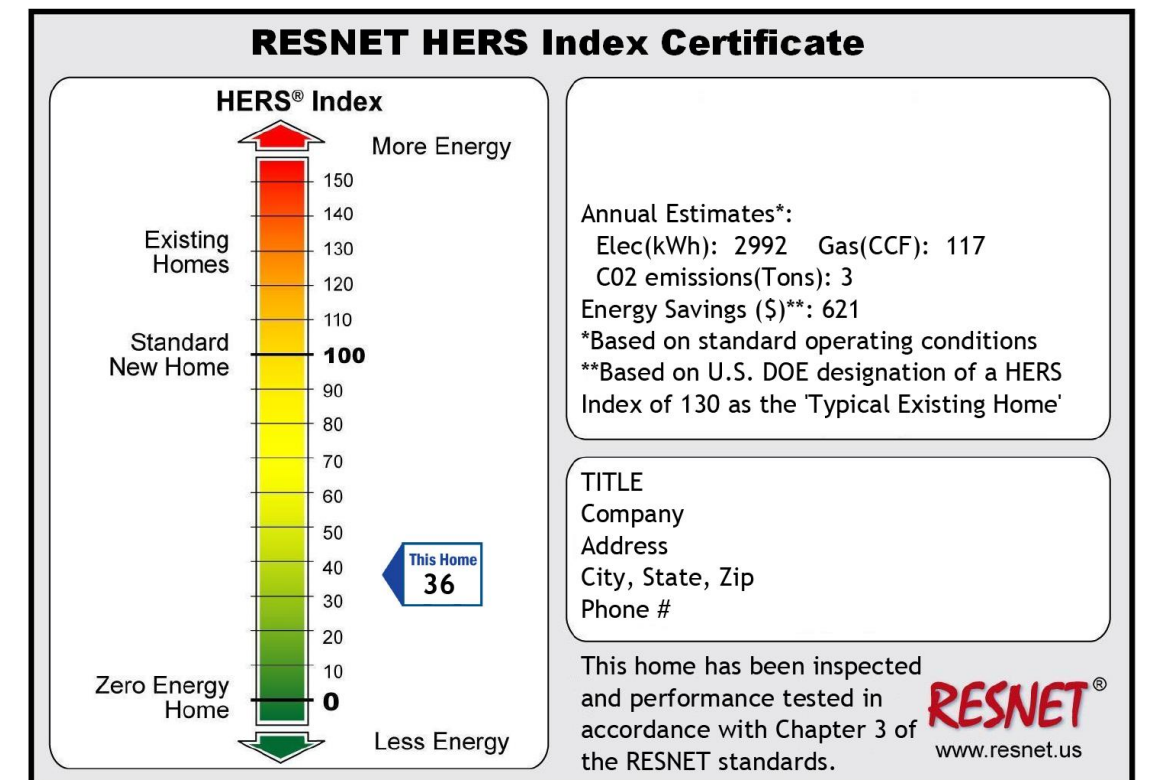
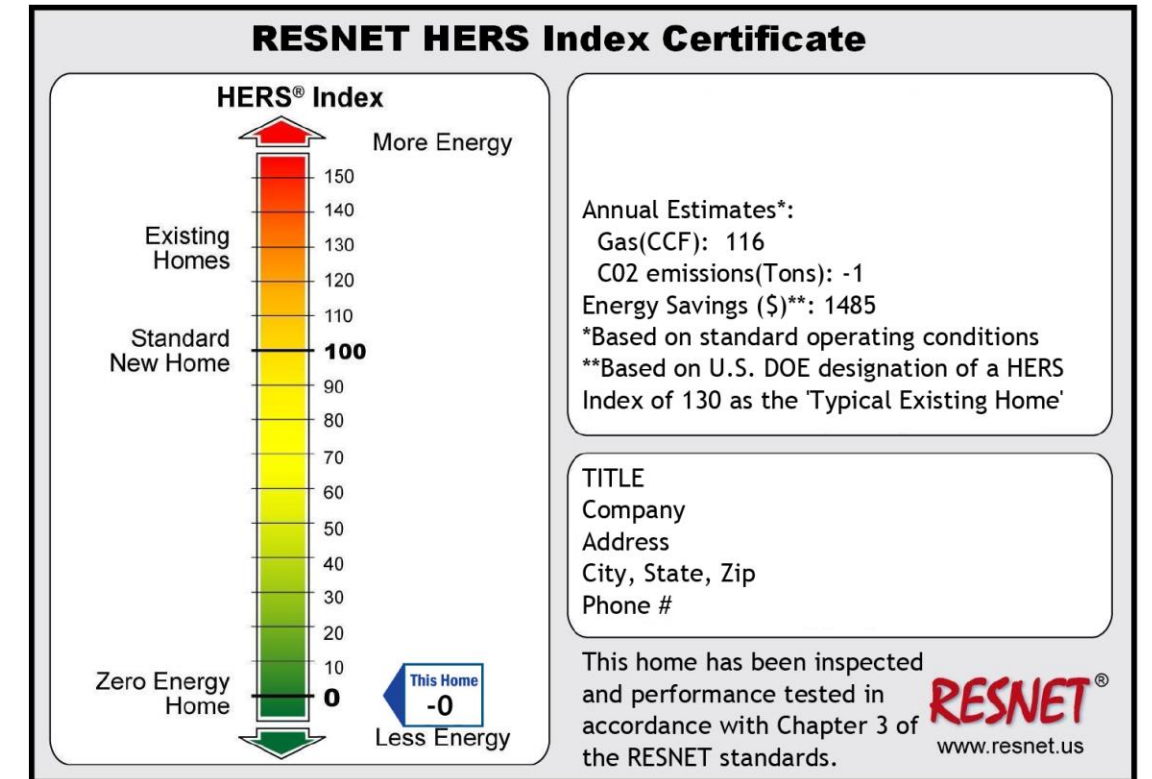
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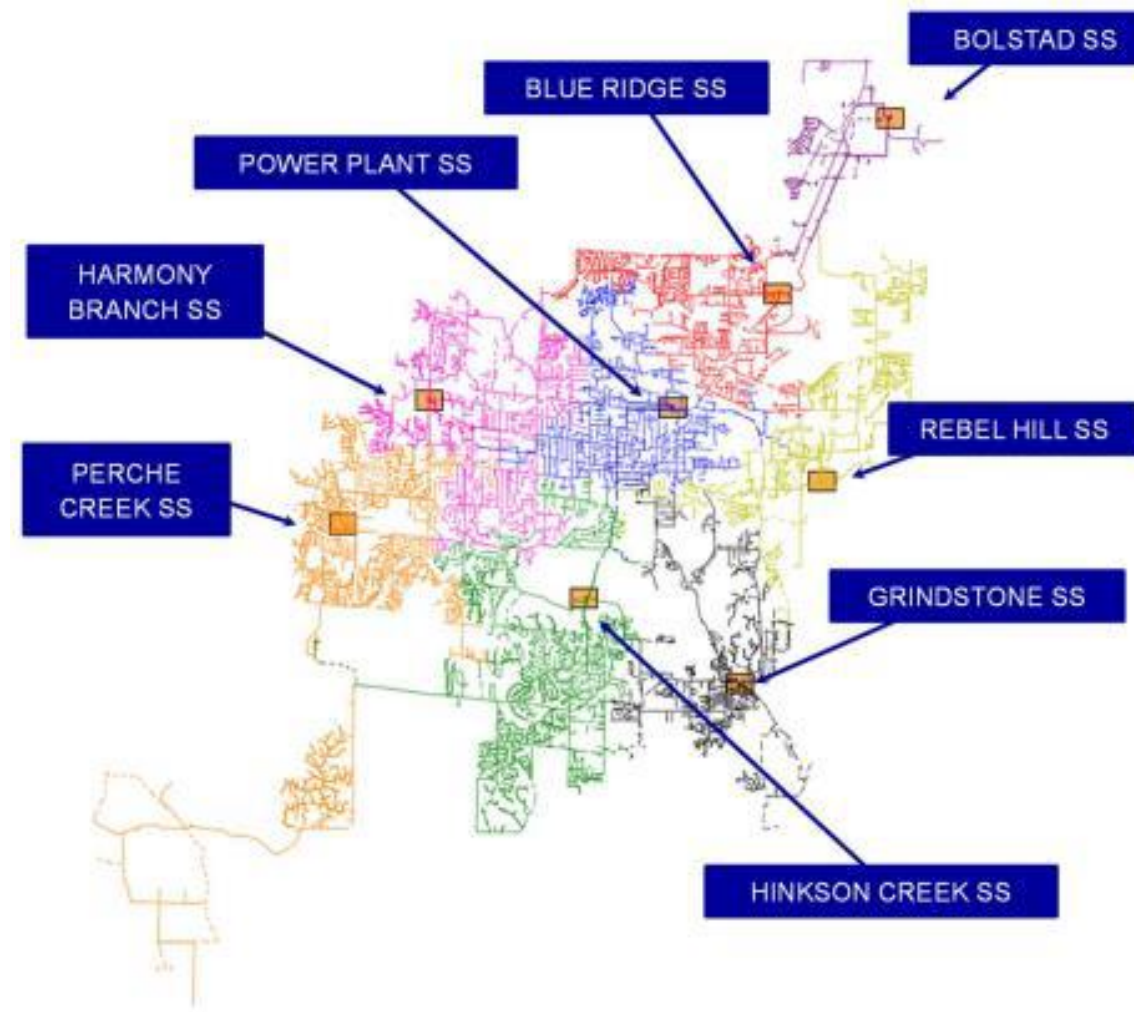
Battery Backup:

- The battery backup facility is a 10 feet by 20 feet
- Highly ventilated, concrete room
- Located 20 feet from the building outside due to the possibility of explosions
- Two-way entry
- Signs with advice on safety guidelines and work procedures in battery room

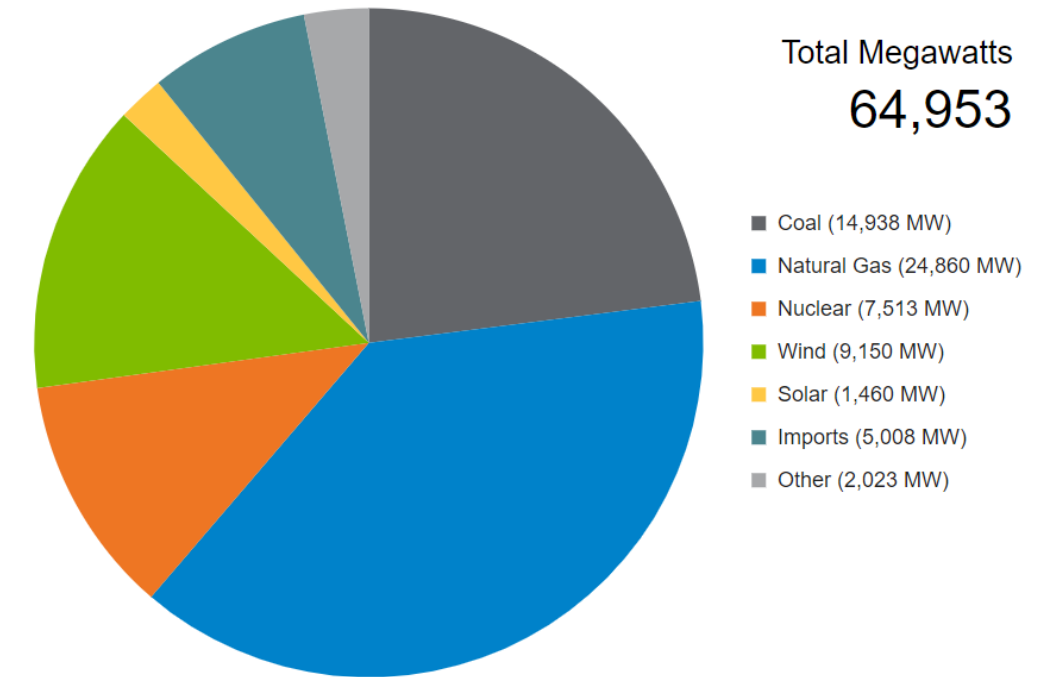


- **LightHAUS will be considered a microgrid** that acts as a single controllable entity relative to the central grid.
- In case of interruptions during natural disasters and extreme weather conditions designing.

Power Grid:



Fuel Mix:



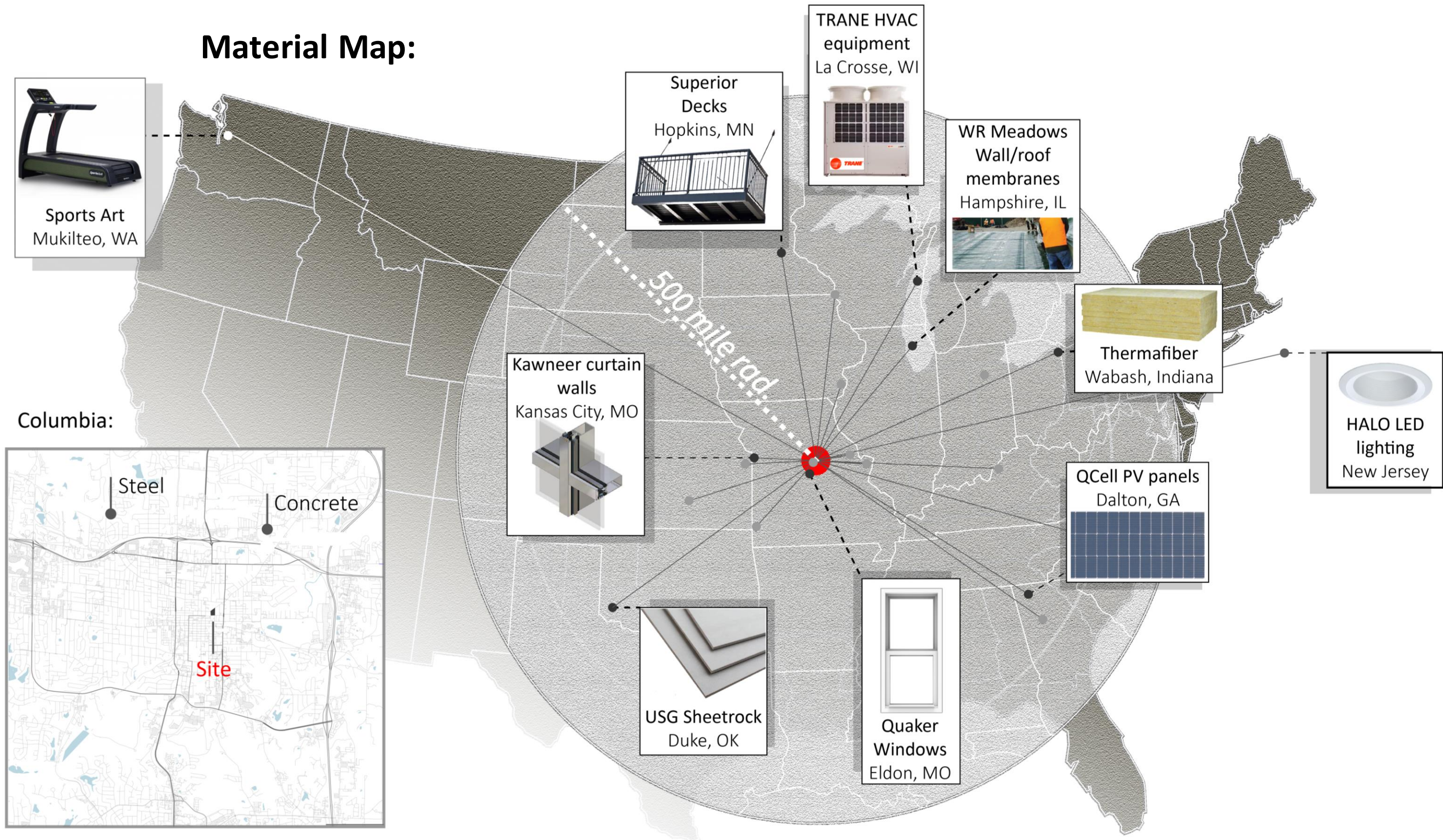
Implementing Strategies :

- Avoid Peak Grid Usage.
- Providing battery back-up on site for grid interruptions and managing peak loads.
- Install meters that allow for rate structures incentivizing lower electricity use at peak hours.
- Preheating water throughout the day to avoid peak usage.

LIFECYCLE ANALYSIS



Material Map:



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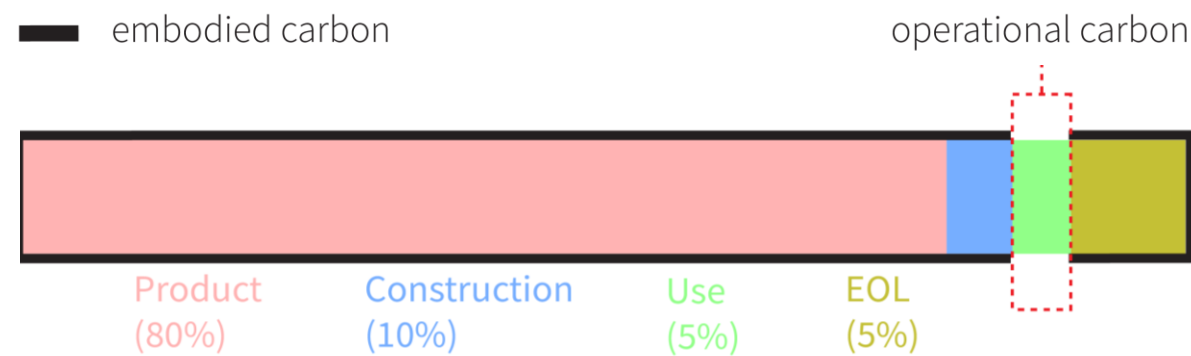
Market

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CRADLE TO GRAVE

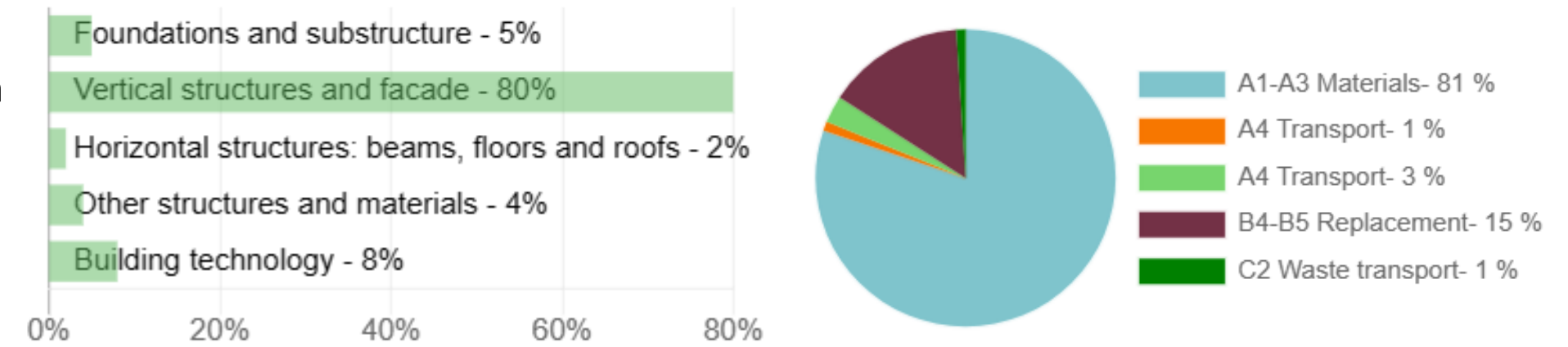


- Embodied & operational carbon
- Passive strategies
- Cost vs. Quality



Steel:

Largest carbon contributor:



Sustainable process:

Local recycled steel scrapyards

- Obtain grade C steel

Electric Arc Furnace (collaborate with local fabricator)

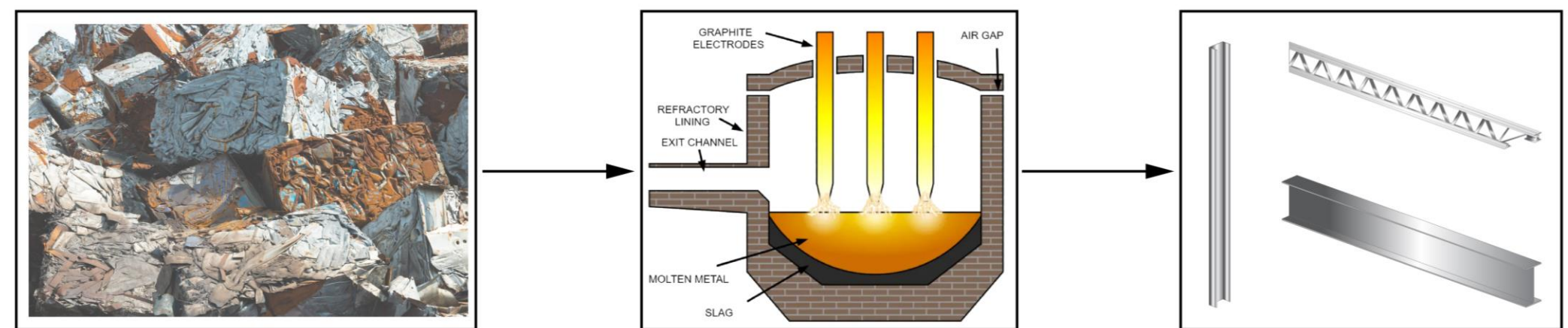
- Saves 90% of steel dust typically lost
- 88% less carbon emissions than traditional Blast Air Furnace

Custom columns, beams, and joists

- 100% recycled material
- Fully recyclable at EOL

Cradle to grave (A1-A4, B4-B5, C1-C4)	kg CO ₂ e/m ²
< 140 A	
(140-230) B	
(230-320) C	254
(320-410) D	
(410-500) E	
(500-590) F	
> 590 G	

One Click LCA



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1' Glass smoke curtain

Green wall

Irresistible Stair



Green Walls

- SemperGreenwall systems in the atriums.
- Connects its users with nature and the environment.

Irresistible Stair

- To promote a healthy behavior within the building we have designed an irresistible stair in the residential atrium.
- Modeled after Bullitt Center.

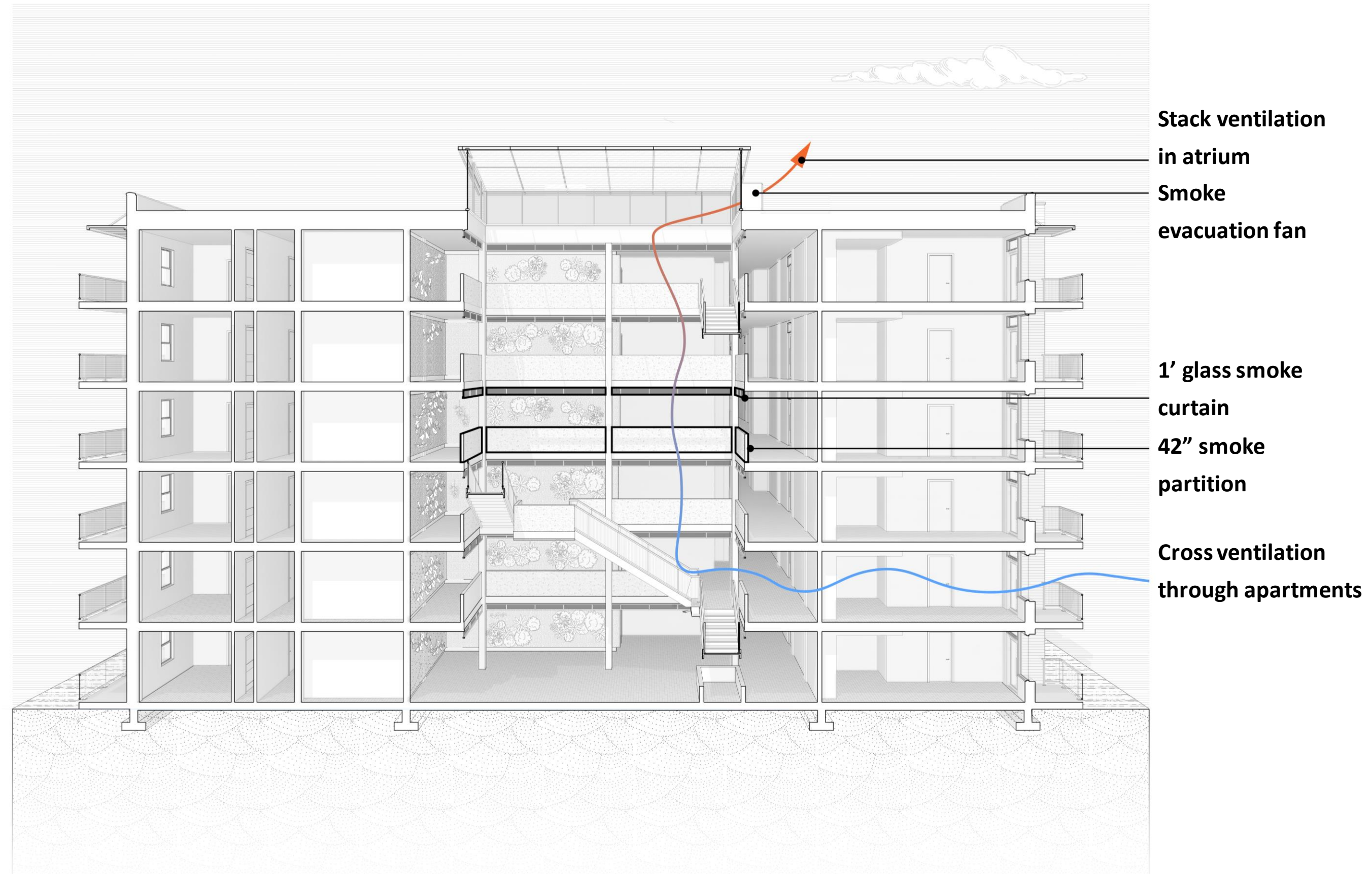


Smoke Control

- 1' glass smoke curtain is included around the ceiling perimeter of each level of the atrium with a solid guard wall around the opening at each level.
- Doors connecting the residential and commercial zones are hold-opening doors.
- There is a fan unit on the roof of each atrium for mechanically assisted smoke evacuation in larger amounts.

Fire Suppression

- A standard wet pipe fire sprinkler system with temperature control heads is used.
- A 7 foot by 7-foot control center is located on the ground floor with exterior access.

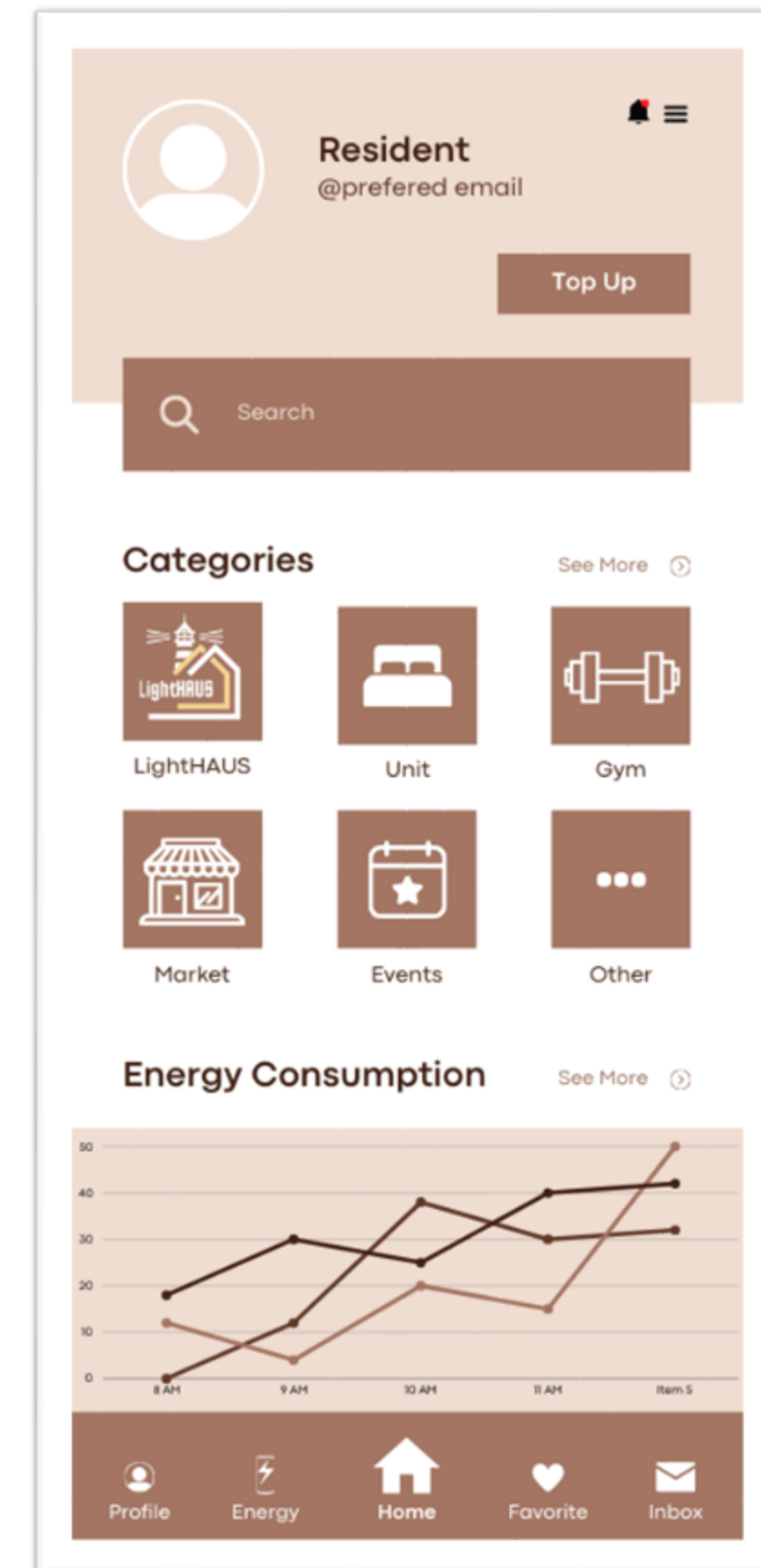
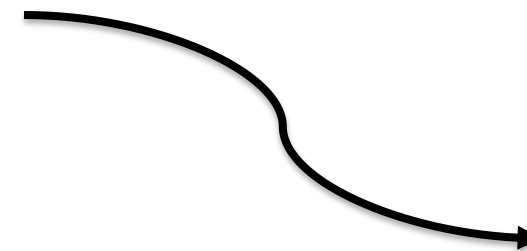


THE LIGHTHAUS APP



Occupants will use a **building automation system (BAS)** phone application to interact with building settings. This will allow users to understand the building and its consumption.

- Includes set points for temperatures and humidity.
- Notifies users of optimal times to open windows for air quality through the local **weather station air quality index and Carbon Dioxide sensors in the building.**
- Shows the energy contributed to the eco-gym.
- Lighting control.
- Allows residents to connect to speakers in the market to enjoy music (music selection will be limited to prohibit explicit content).
- Community forum.
- Schedule for learning center.
- Also includes other residential portal characteristics.

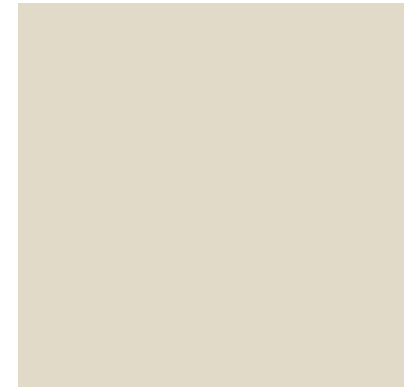


INTERIOR MATERIALS



Low VOC paint

Improve and maintain indoor air quality.



Sherwin Williams
ProMar® 200 Zero VOC Interior Latex Paint
Color: SW9506_Warm Winter

All specified materials and FF&E are thoughtfully selected to align with the project goals of affordability, health, well-being, and aesthetics.

Formaldehyde-free, and all paints, adhesives, and coatings contain low to no VOCs.

Interior Flooring

- 100% recycled Mohawk flooring
- 52% recycled content carpet



Mohawk Group LVT for unit living and dining (Sidewalk Gray-849)



Mohawk Group Tufted carpet for unit bedrooms (Writer-999)



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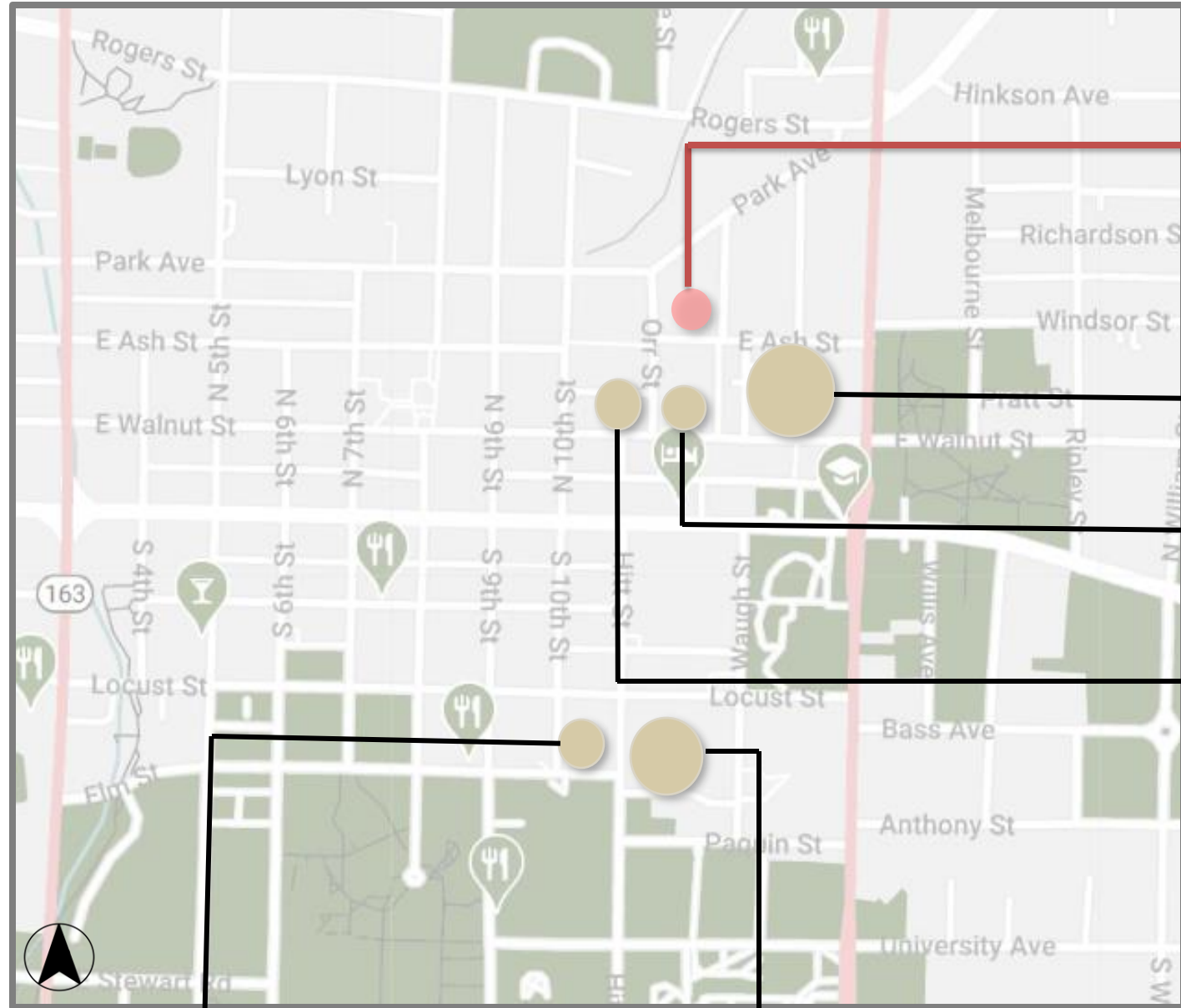
Market

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Existing Multi-Family Housing Map

Existing Multi-Family Housing Near Site

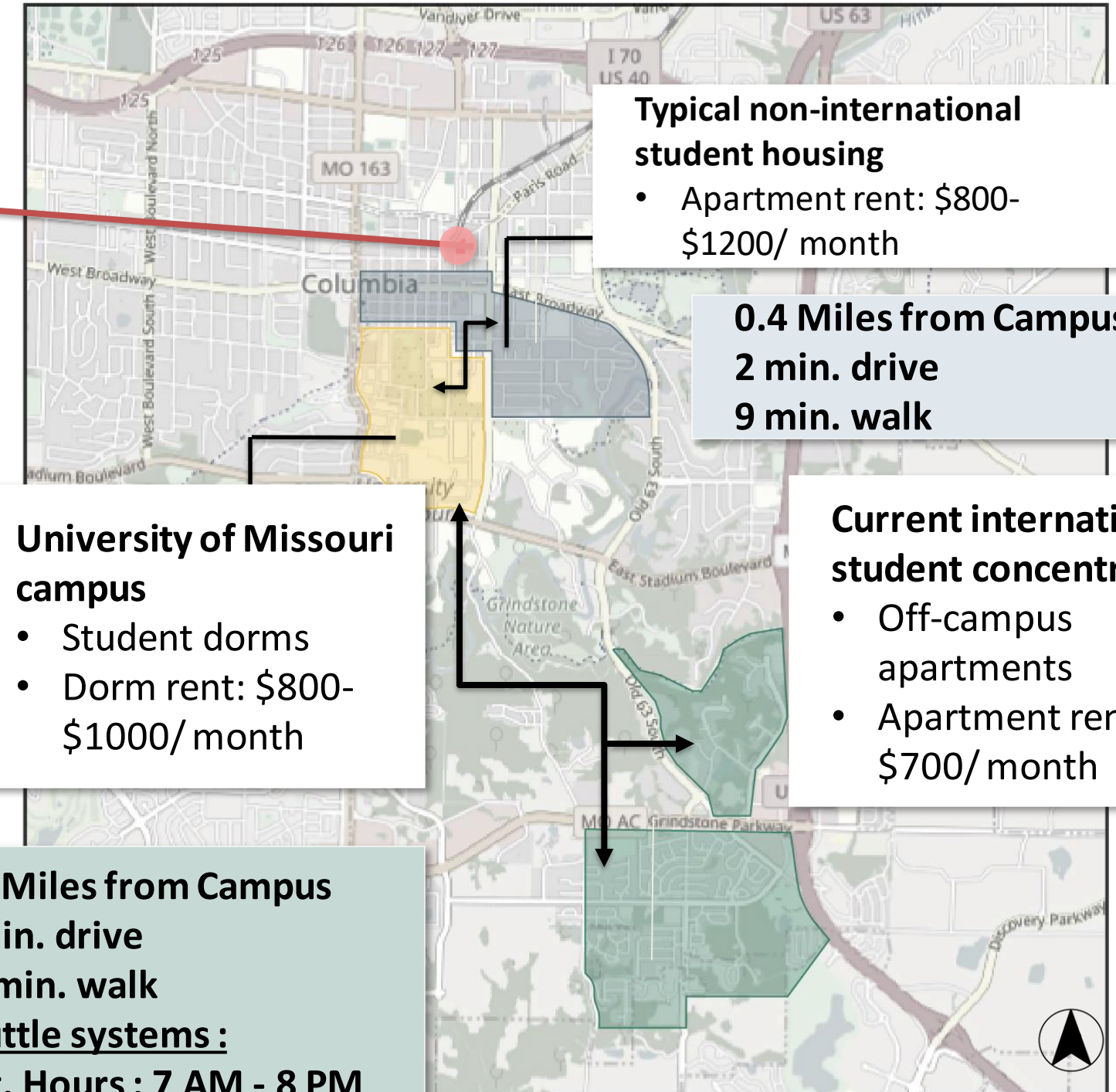


Project site

- Brookside Midtown**
Average Rent : \$800 - \$1200
5 Min. walking distance
- Orr Street Lofts**
Average Rent : \$550 - \$740
5 Min. walking distance
- North Village Lofts**
Average Rent : \$550 - \$695
4 Min. walking distance

Brookside Downtown
Average Rent : \$1000 - \$1400
12 Min. walking distance

Belvedere Apartments
Average Rent : \$385 - \$645
13 Min. walking distance



Typical non-international student housing

- Apartment rent: \$800- \$1200/ month

0.4 Miles from Campus
2 min. drive
9 min. walk

University of Missouri campus

- Student dorms
- Dorm rent: \$800- \$1000/ month

Current international student concentration

- Off-campus apartments
- Apartment rent: \$500- \$700/ month

1.9 Miles from Campus
5 min. drive
42 min. walk
Shuttle systems :
Avg. Hours : 7 AM - 8 PM

COST ESTIMATE



total O&M costs: \$2,460,000
 total rent collected: \$90,324,000
 total loans paid: \$212,965,389
 total profits: \$45,296,400



TOTAL COST
\$65M

COST AFTER REBATE
\$48M

COST PER SQFT
\$266

COST PER BED
\$650

Current Target Market Concentration

\$570/Bedroom
 1.9 Miles from Campus
 5 min. drive
 42 min. walk
Shuttle systems :
 Avg. Hours : 7 AM - 8 PM

Units Available within 15 minutes of campus

\$550-\$1850 per room

Rebates, taxes, credits:
 -Low-income tax credit
 -Solar energy federal tax credit
 -Local and federal limited sustainable building tax credits



interest balance \$6,341,709
 principal balance \$1,001,925
 ending balance \$90,047,345
 net profit \$0

interest balance \$271,029
 principal balance \$7,072,605
 ending balance \$0
 net profit \$0

interest balance \$0
 principal balance \$0
 ending balance \$0
 net profit \$45,396,400

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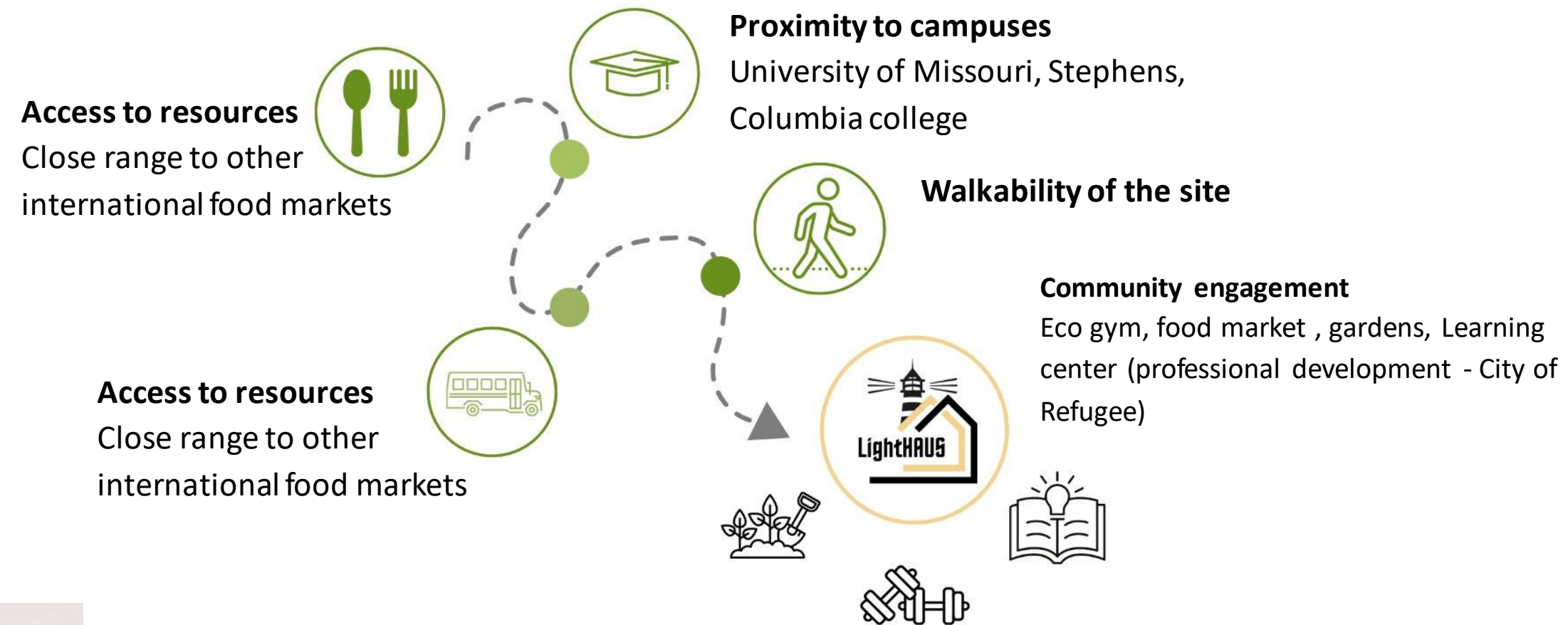
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Community



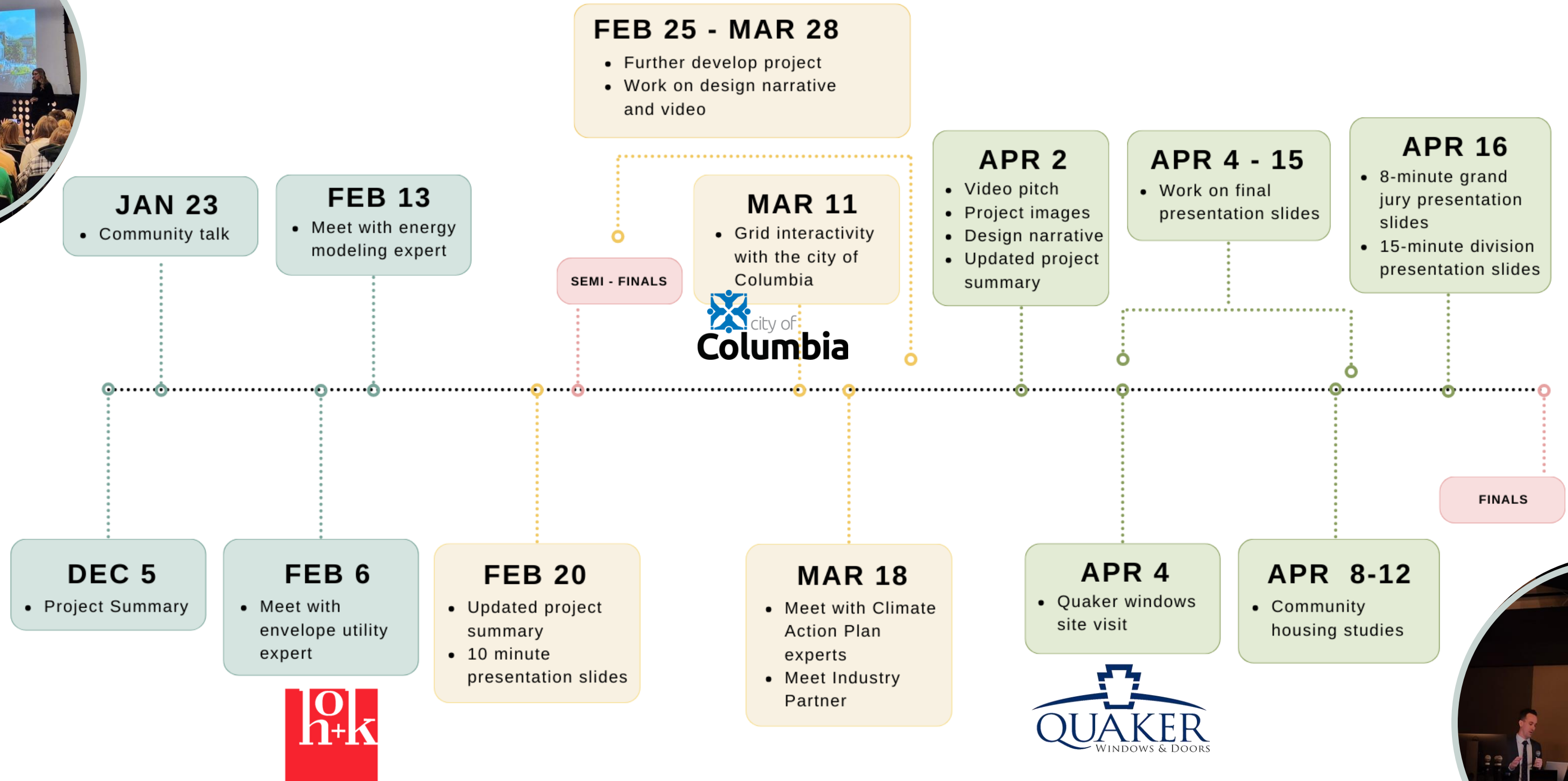
- The design includes several amenities that catalyze accessibility to food, learning, and physical/mental health.
- Green walls
- Strategic view corridors
- Agrivoltaic garden



EV Charging & rideshare:

- The proximity of LightHAUS reduces the burden of resource insecurity.
- Residents will still need to travel for additional supplies.
- On the North end of the building is an electric vehicle rideshare station.
- The City of Columbia offers grants for EV stations, allowing implementation without increasing our budget or rent.

Timeline



THE END



THANK YOU!

