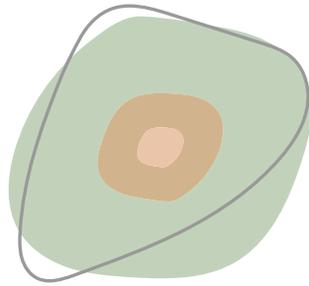


campfire

arcadia: a housing community
in the heart of east liberty

by studio**STAY**



Welcome to Arcadia



campfire

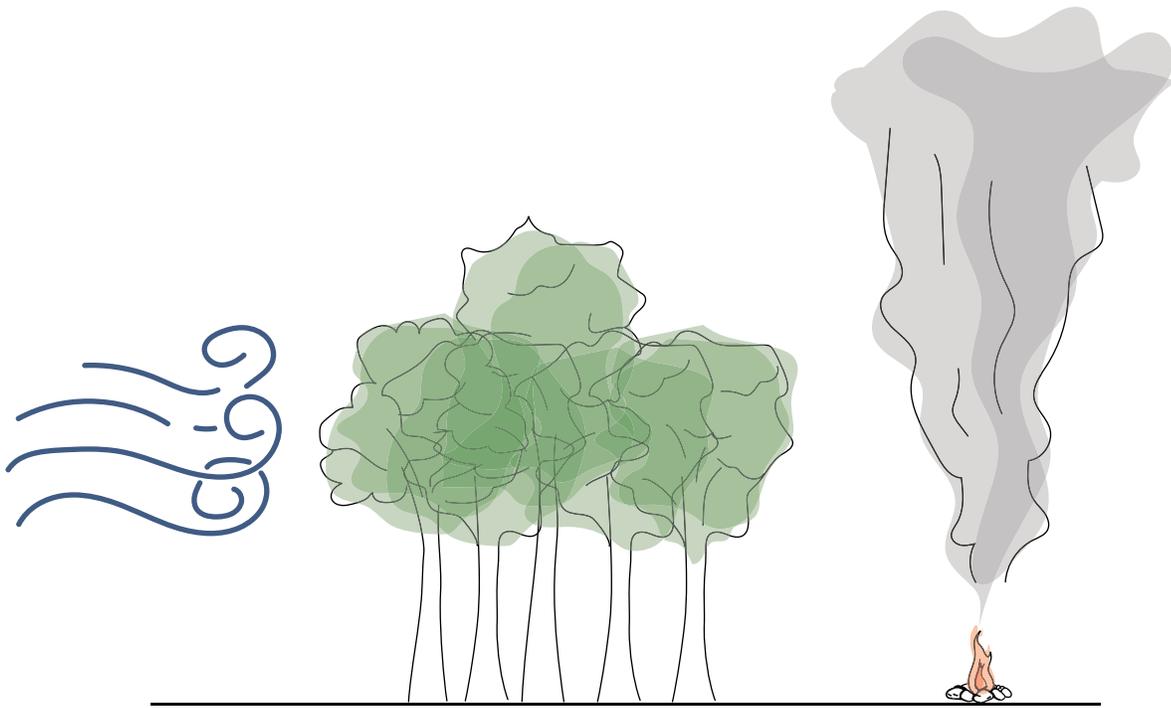
A campfire is the source of warmth, music, food, and endless stories to share. This concept represents the core driving force for every decision made from the park bench at the ground all the way to the balcony overlooking all of Pittsburgh at the 28th floor for Arcadia.

Before a campfire is even bursting out embers, warming the chilly nights, countless careful considerations are made to ensure that it performs as it should. These include everything from the types of wood used, where the fire is built, and most importantly how the fire is built. These ideas were all translated into the function, form, and performance goals for Arcadia.

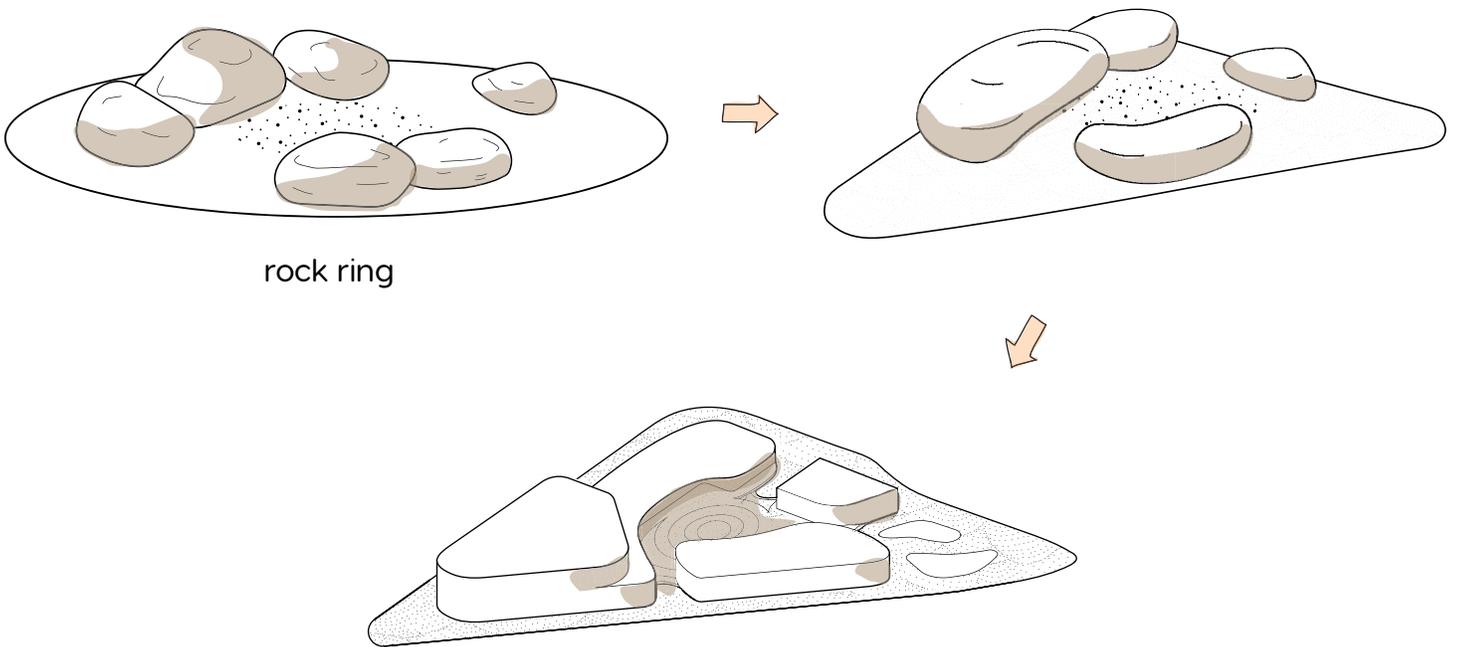
The events that happen in and around a campfire are friendly, fun, and always evoke a feeling of hominess even when you are deep in a forrest. These playful elements are reflected in the large central courtyard, and throughout Arcadia's details, fit, and finishes across the board.

A campfire also offers a great method of social cooking. By using nearby ingredients, the calmer charcoals left from burning wood, and just a bit of seasoning, a delicious meal can be made anywhere. At Arcadia, there is a locally run, subsidized restaurant that offers rotating chefs the chance to cook using ingredients grown from the roof garden. Both a symbol of the versatility of campfire, and also a hearth for East Liberty.

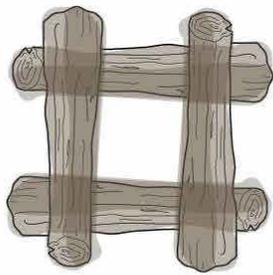
Finally, a campfire's smoke can a powerful visual monument, seen from miles away. Yet, at the same time its airy, light, and ephemeral, never imposing on its surroundings. That is exactly what Arcadia tries to recreate, being a high-density high rise in a neighborhood where most other buildings rarely pass 5 stories. Arcadia roots firmly its foundation in East Liberty, but never overshadows the rest of the community.



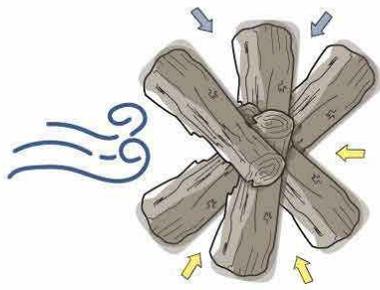
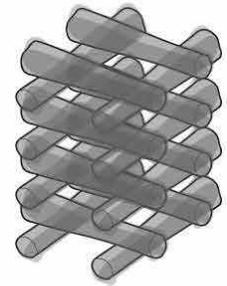
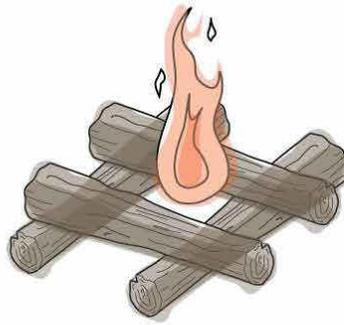
wind



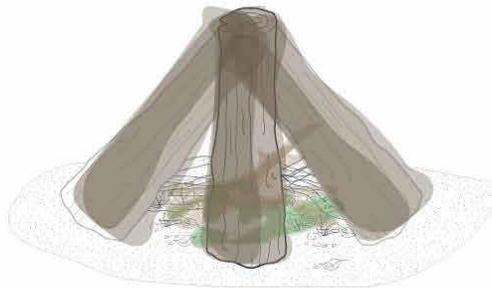
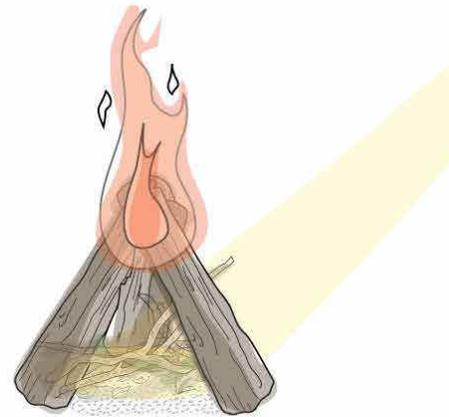
rock ring



log cabin



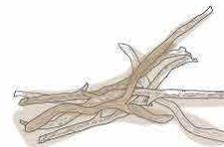
teepee



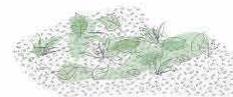
components



fuel



kindling



tinder

Table of Contents

Concept	a
Program & Firm Goals	01
Site Analysis	03
Individual Generation	10
Iteration	20
Precedents	22
Formal Ideas	24
Sustainability	28
Design	30

PROGRAM REQUIREMENTS

- 10,000 sqft community maker space (as core)
 - Located on the second floor of retail podium
 - Vehicular access along Centre Ave
- UPMC Healthcare Facility - 10,000 sqft
 - Has their own architect - we provide core shell
 - Integrated within the community (ground level)
 - Requires vehicle drop off for patients
- Minimum 4 retail spaces facing Centre Avenue
- 80% floor efficiency (approx. 8 - 10 units / floor)
- Maximum of 189 housing units
 - 10% of one bedroom (525-800 sqft), 50% of 2 bedroom 2 bath (900 - 1200 sqft) , 40% of 3 bedroom 2.5 bathroom (1250 - 1550 sqft)
 - Operable windows
 - Access to the outdoors
 - Designed for proper ventilation
- Separate lobby for the public podium (second floor)

CLIENT STATEMENTS

- Our building needs to be able to stand the test of time, through appearance as well as function
- Building should be unique to East Liberty and our site
- No superficial facade: not to use other materials and claddings mask what's underneath
- Accessibility is very important
- Enhance pedestrian experience along the corner of Penn Avenue & Centre Ave
- Green Roof
 - all exposed roof surfaces with ease of access to residents
 - on the roof above second floor retail podium
 - public green spaces at ground level as a possibility
- Minimum LEED Gold Ranking
- The building needs to facilitate interaction with the community

FIRM GOALS

- community engagement (open public spaces, green spaces, and entrances)
- accesses for different purposes (private residents, retail podium, UPMC, loading, etc.)
- maximize the inflow of natural light in terms of form, gesture, and orientation
- solar shading devices to control heating/cooling loads
- access to exterior spaces, such as balconies terraces and open communal areas for residents
- incorporate exterior spaces with living spaces
- minimize the effects of pollution (especially noise pollution)
- incorporate other sustainability certifications, in addition to LEED Gold

1. Establish logical circulation path and convenient access to our site to minimize the impacts on traffic and transportation, promoting transportation efficiency and reduce vehicle distance traveled.
2. Incorporate spaces for diverse uses for the public into our building to promote walkability and to improve public health by encouraging daily physical activity.
3. Demonstrate the accessibility to quality transit through design to reduced motor vehicle use, thereby reducing greenhouse gas emissions, air pollution, and other environmental and public health harms associated with motor vehicle use.
4. Reduce parking footprint to minimize the environmental harms associated with parking facilities, including automobile dependence, land consumption, and rainwater runoff.
5. Bike-friendly design to reduce pollution by promoting alternatives to conventionally fueled automobiles.
6. Utilizing various architectural and landscape design strategies to reduce sound pollution.
7. Understand and analyze our site comprehensively and develop design that take careful considerations about sun path, rainwater, wind direction, and other environmental elements.
8. Incorporate sufficient green spaces to conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity, minimizing effects on microclimates and human and wildlife habitats by reducing heat islands
9. Create exterior open space that encourages interaction with the environment, social interaction, passive recreation, and physical activities.
10. Demonstrate an improvement of 8% in the proposed building performance rating compared with the baseline building performance rating. (Whole-building energy simulation)
11. Use low-e materials to the building

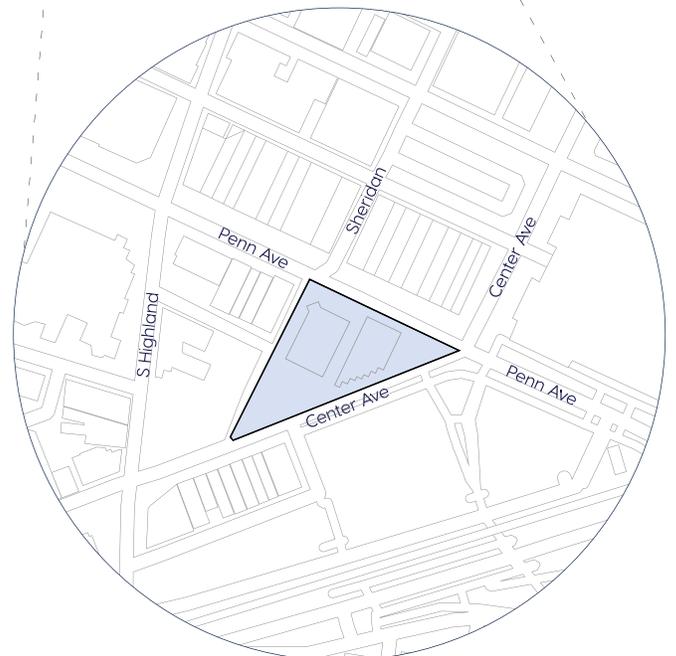
OVERALL GOAL: Our building should be certified at least LEED GOLD



campfire:ARCADIA

The current context around our site in East Liberty is currently booming with new restaurants, a variety of commercial properties, hotels, and community institutions. Once a family neighborhood, it has become a place that attracts more and more millennials through its recently new apartment buildings and trendy commercial areas.

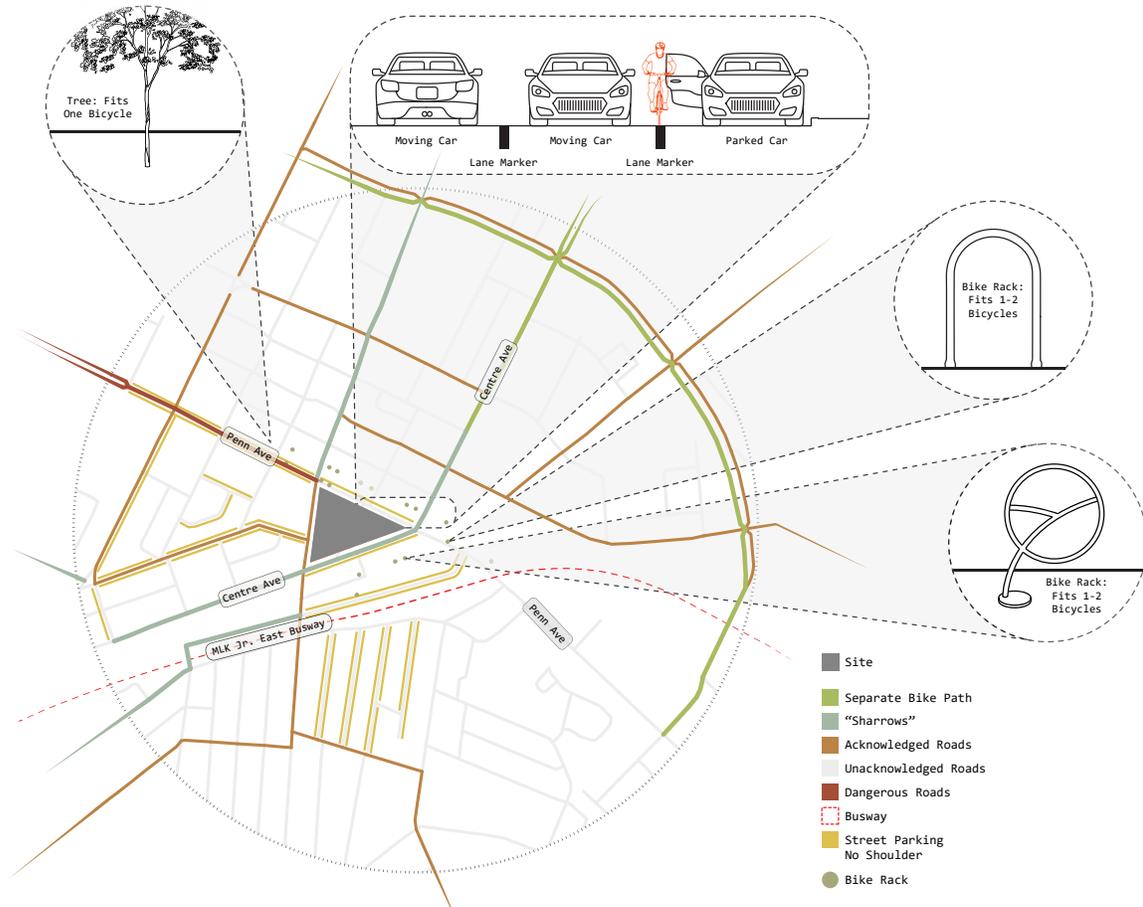
The redevelopment of this neighborhood brings up issues of gentrification, as these newly built apartments have increased rent, pricing many current residents out. The main goal of this project is to be as inclusive to all residents of the East Liberty community to provide a safe, welcoming space they can all enjoy.





In the neighborhood of east liberty, there is a scarcity of greenspace. Our project strives to provide a safe space abundant with plant life for all members of the community to enjoy. The green space located on our site wraps around the building, from the ground

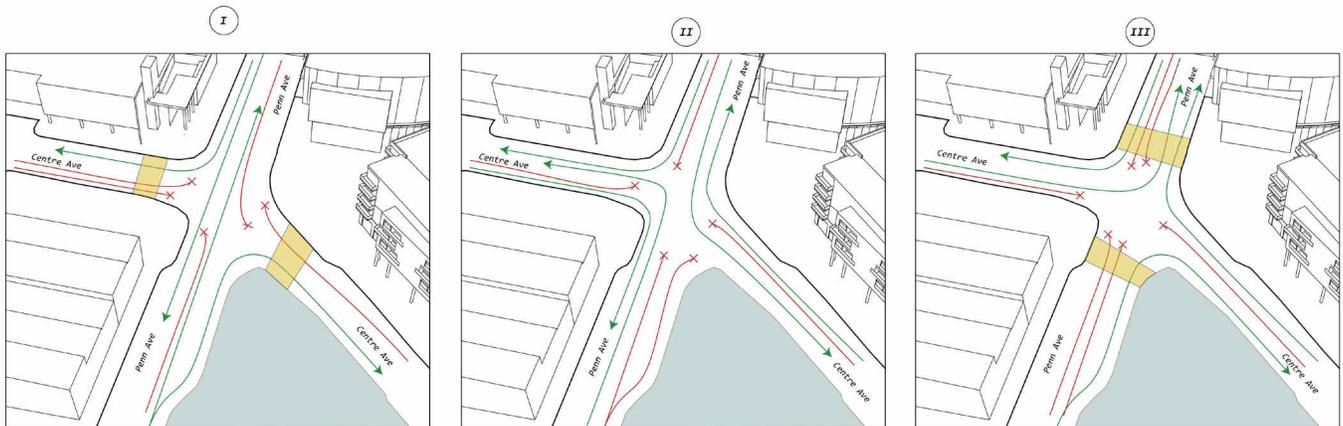
to the roof to create a comforting indoor/outdoor environment. There are plantings on the ground floor near the entrances and in the central courtyard. We hope to incorporate plantings along the communal spaces that wrap around the whole building.



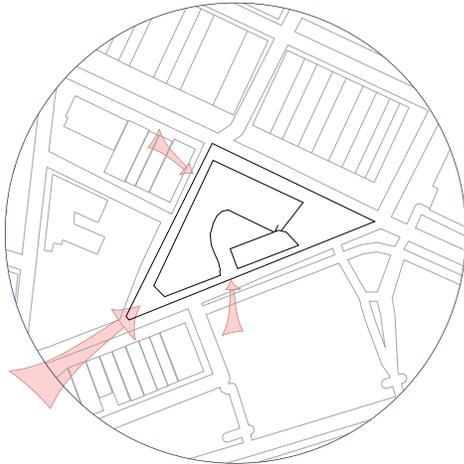
campfire:ARCADIA

While conducting interviews and being on site, the amount of time it took to cross streets made it difficult for some people to access our site and its surrounding areas. Our project aims to create a safe space residents can occupy during busy traffic

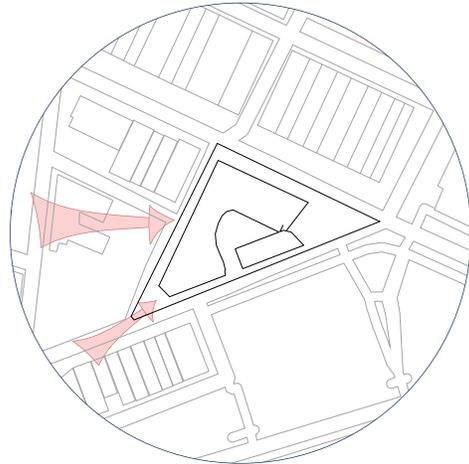
hours. Additionally, there is a lack of bike storage in the surrounding areas. Our transit oriented development aims to help solve this issue as well.



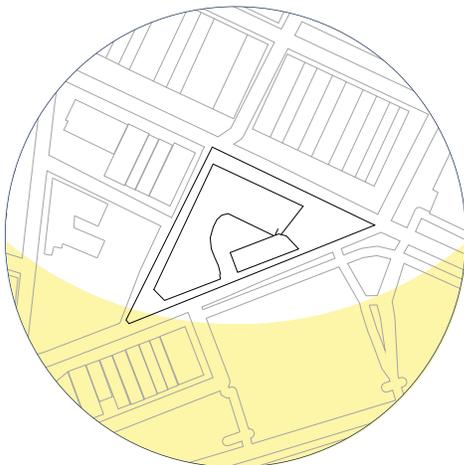
pedestrian crosswalk scenarios



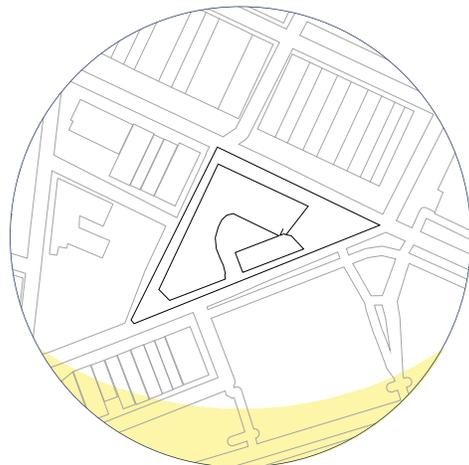
wind - june 21



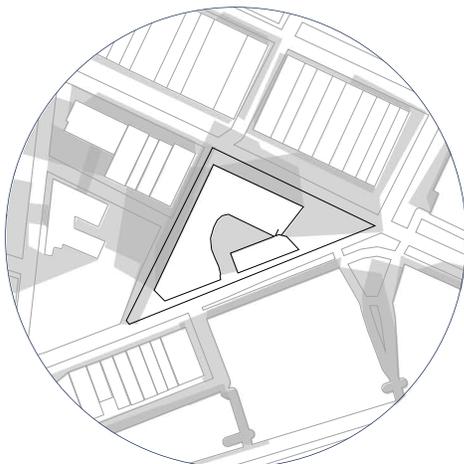
wind - december 21



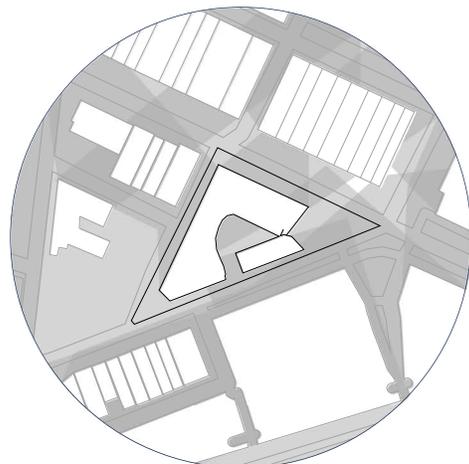
sun - june 21



sun - december 21

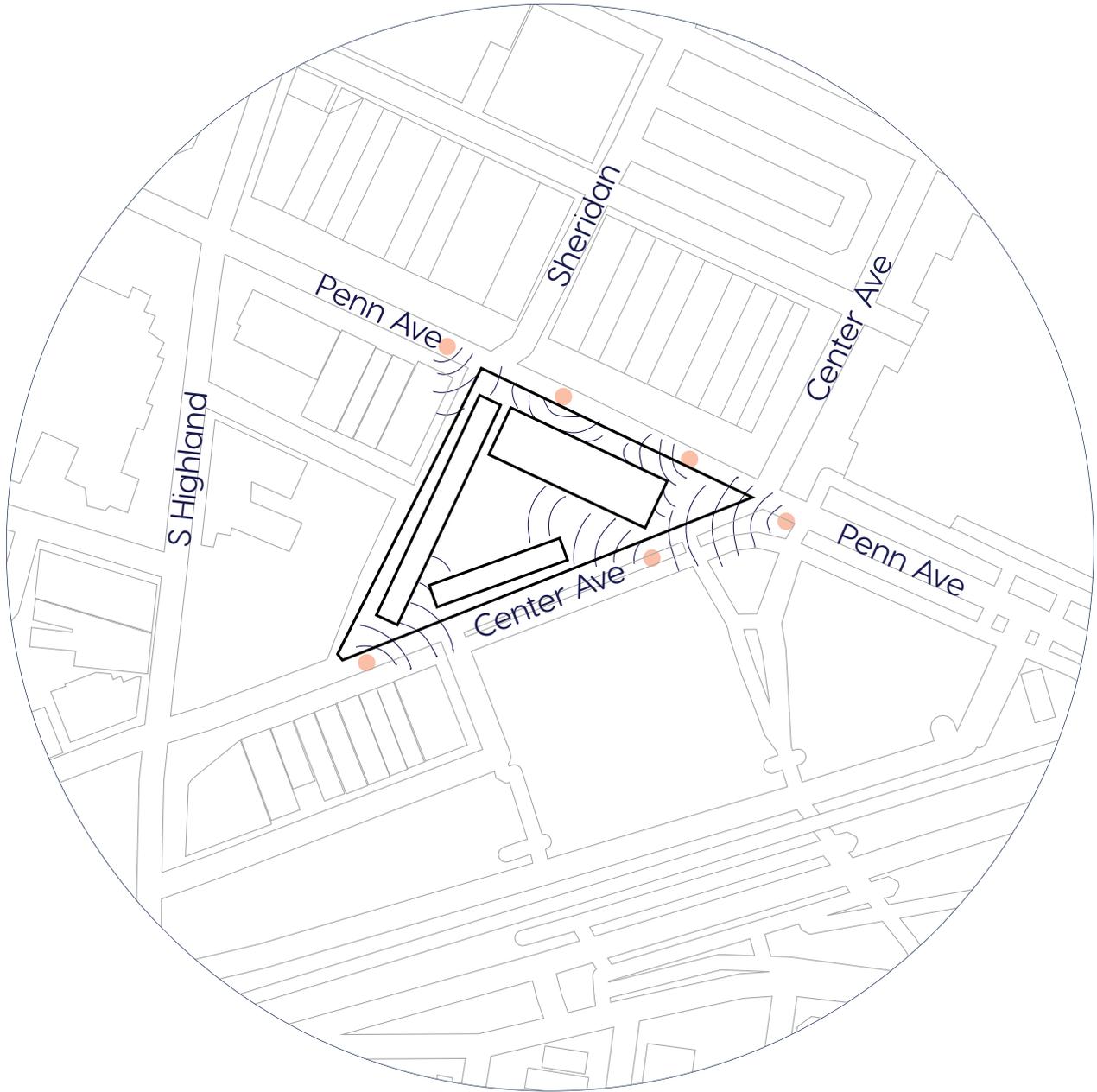


shadow - june 21 (9 am - 3 pm)



shadow - december 21 (9 am - 3 pm)

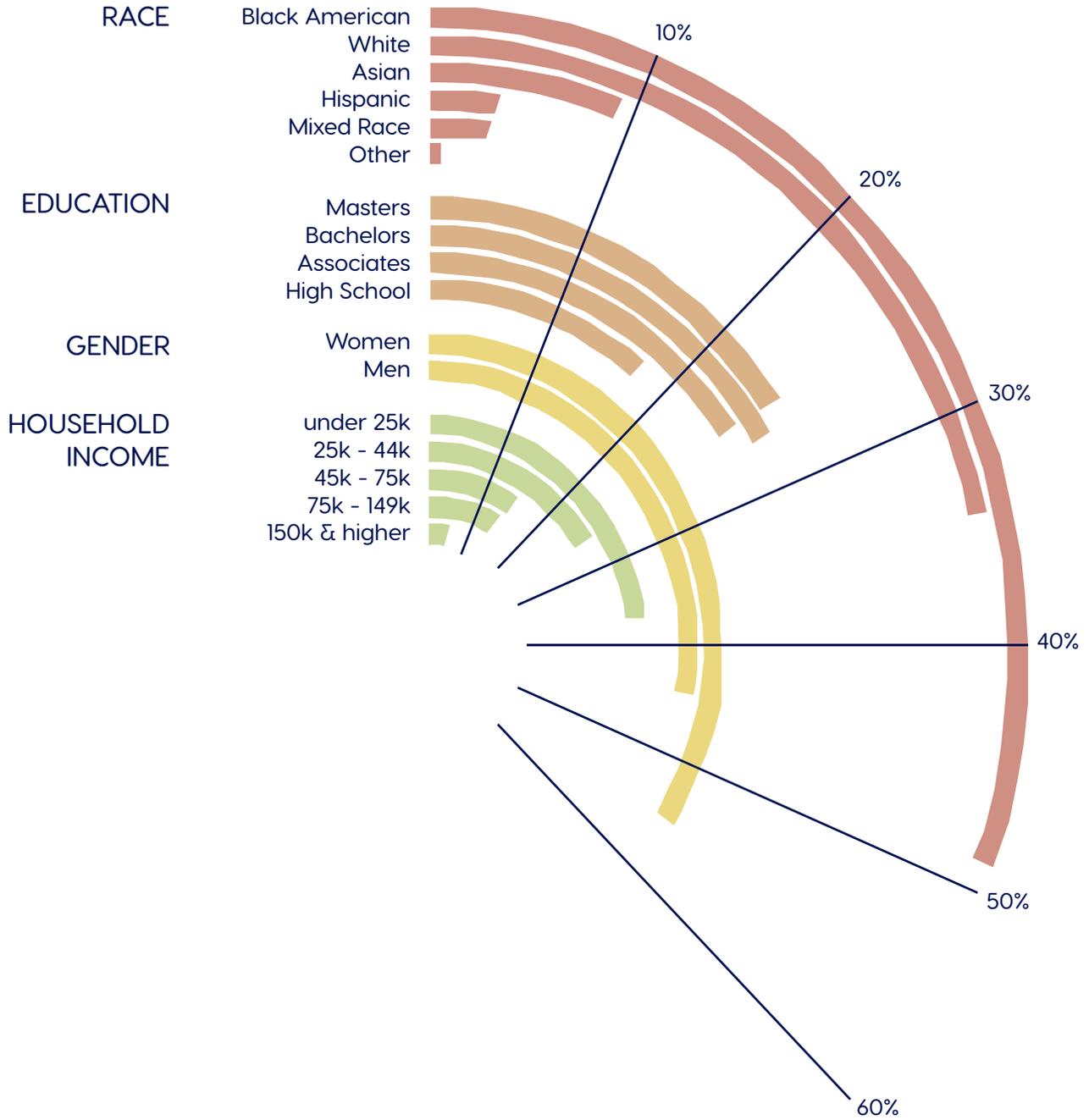
future tense dense



Vehicular and pedestrian traffic had a direct impact on our overall massing design. The courtyard is facing Centre Avenue to block off unwanted acoustic levels from Penn Ave. The entrance to the courtyard on the intersection allows for a open and welcoming experience. The thinner massing along Centre Ave

allows for interaction between the courtyard and the community. While the goal was to create a safe and quiet central courtyard, units are placed on the Penn Avenue corridor to help facilitate interaction between those residents and the community members.

demographics



future tense dense

Because of the diverse nature of East Liberty (as shown above), the main conceptual point of arcadia is to create a building that will fit the needs of those already living in the community. Additionally, the project will be accessible to everyone, and provide a safe space for the community to enjoy.

Population: 5,678
Median Income: \$33,697



Robbie

“Enjoys having a beer and walking through the city streets”

Robbie says that while he doesn't mind making the walk to Target, and other stores in the East Liberty area, he knows many people who live too far away to walk and don't have cars. That coupled with **poor public transportation makes getting to these hubs difficult.** He would love if there was an affordable housing project that could accommodate more people in East Liberty.



Krista

“Driving & chatting makes her night!”

Krista moved to Point Breeze when she was 10 and has been there ever since. She has seen East Liberty since before the new developments took the neighborhood by storm. **She believes the biggest issue is and has been the lack of inclusion.** All of these new developments have been targeted at people she dubs temporary residents - people who come for a few years, whether for school or for a job, and move out, leaving nothing for the community behind.

Krista also believes that affordable housing in East Liberty wouldnt make sense. Target, Whole Foods, Market District, and all the other stores in the area are “luxury” to those who would need affordable housing. **Food stamps, affordable groceries, better public transit, and welfare are all crucial elements in creating an affordable and inclusive community.**



Georgina

Local Resident

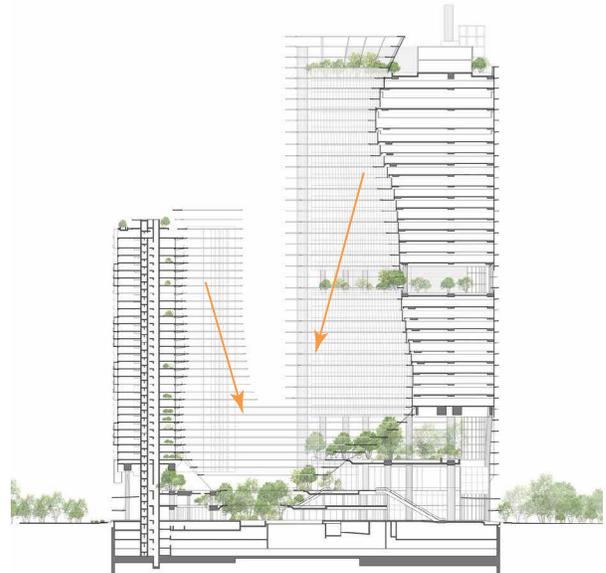
“That's not going to be affordable. There is no way.” Georgina said when she first heard us working on an affordable high rise residential project in her neighborhood, “East Liberty does not need no more housings, who is going to live in those? I know it ain't gonna be us.”

As a local community representative, Georgina has been fighting against projects like Shady Hill Center, which could **potentially further push her and her community out of their home.**

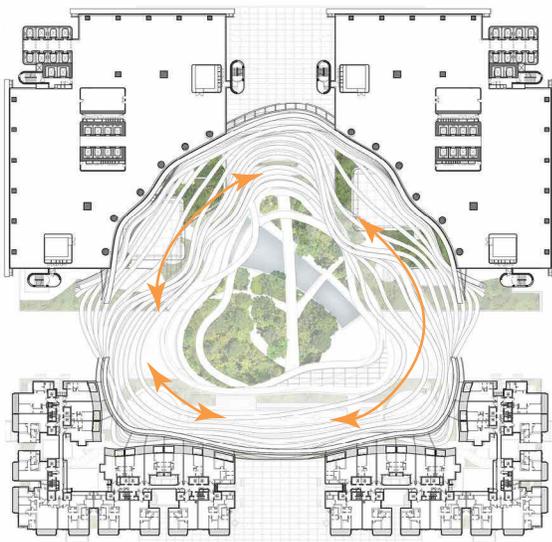
CENTRAL COURTYARD

In order to create and enhance a sense of community, we are inspired by several precedents which incorporate a spacious and lively central courtyards in their residential highrise design. Our goal is to bring back to the community and make the public space in the residential highrise more inclusive and open to everyone in the community.

Green Heart | Marina One Singapore
- Ingenhoven architects -



Central courtyard is visible from above



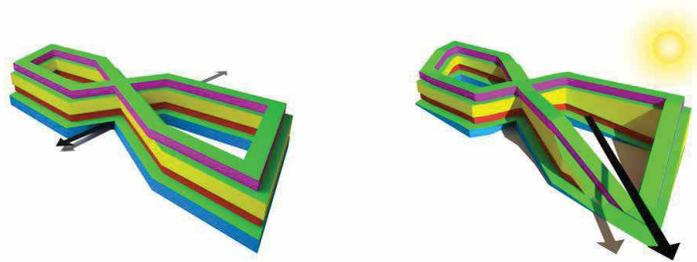
Create a sense of enclosure and community



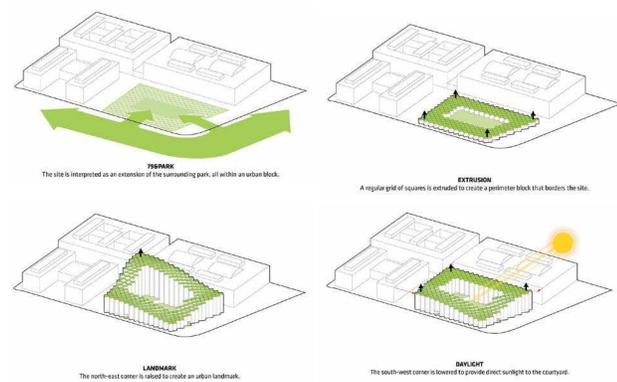
Incorporate green space and outdoor public space

Curvy catwalks creates a vigorous experience and enhance interactions between human and space

Eight House
- Bjarke Ingels Group -



79 & Park
- Bjarke Ingels Group -



campfire:ARCADIA

STEPPING TERRACES

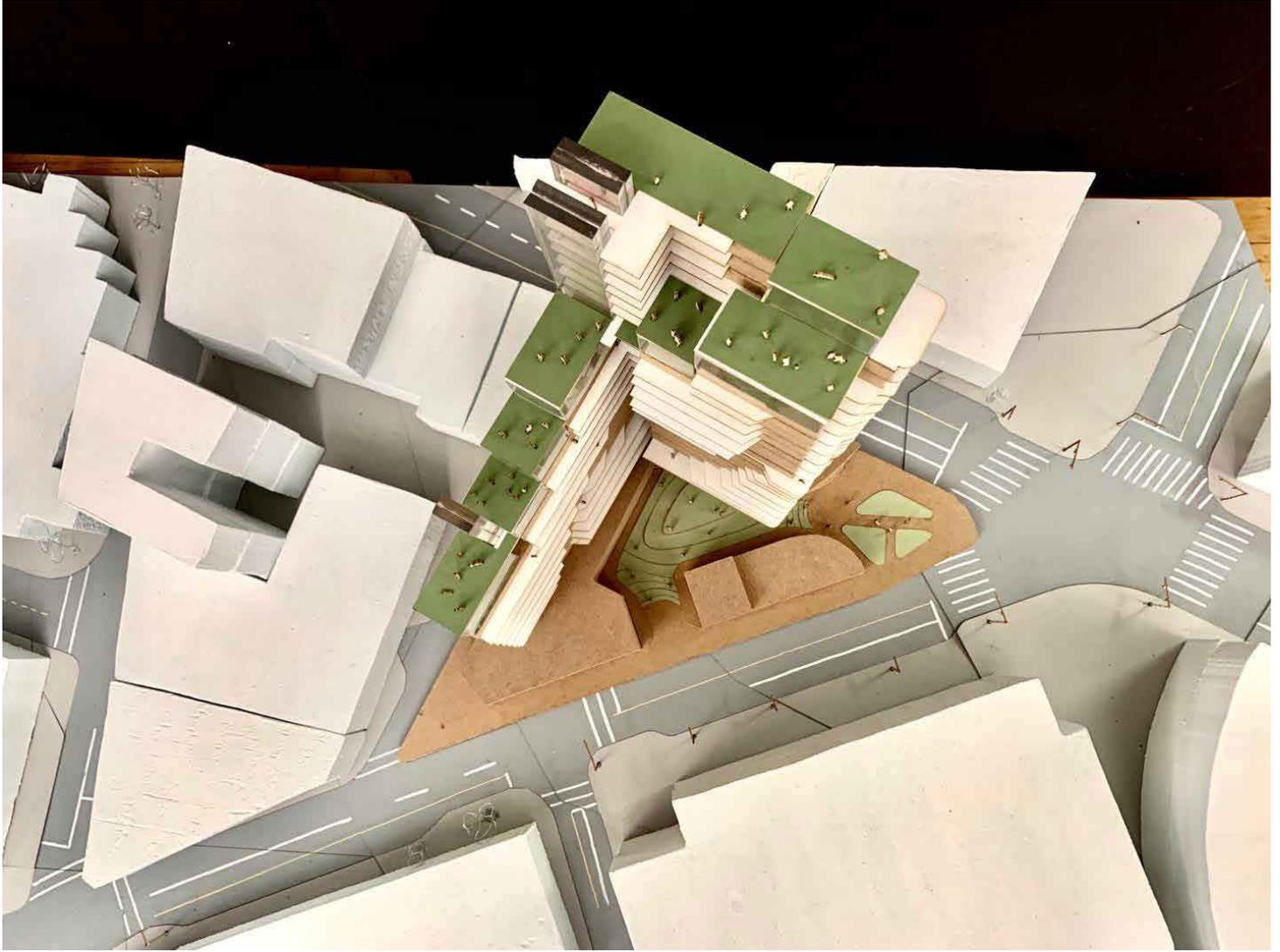
Stepping terrace can be a strategy that provides a gradual transition from the ground to the residential highrise, as well as creating outdoor spaces on the roofs at different floors for the residents.

The Spiral
- Bjarke Ingels Group -

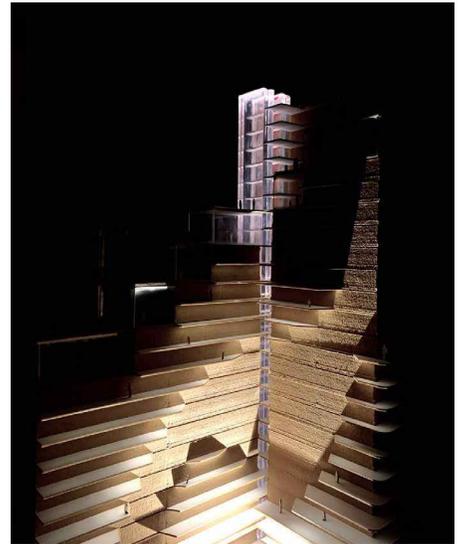


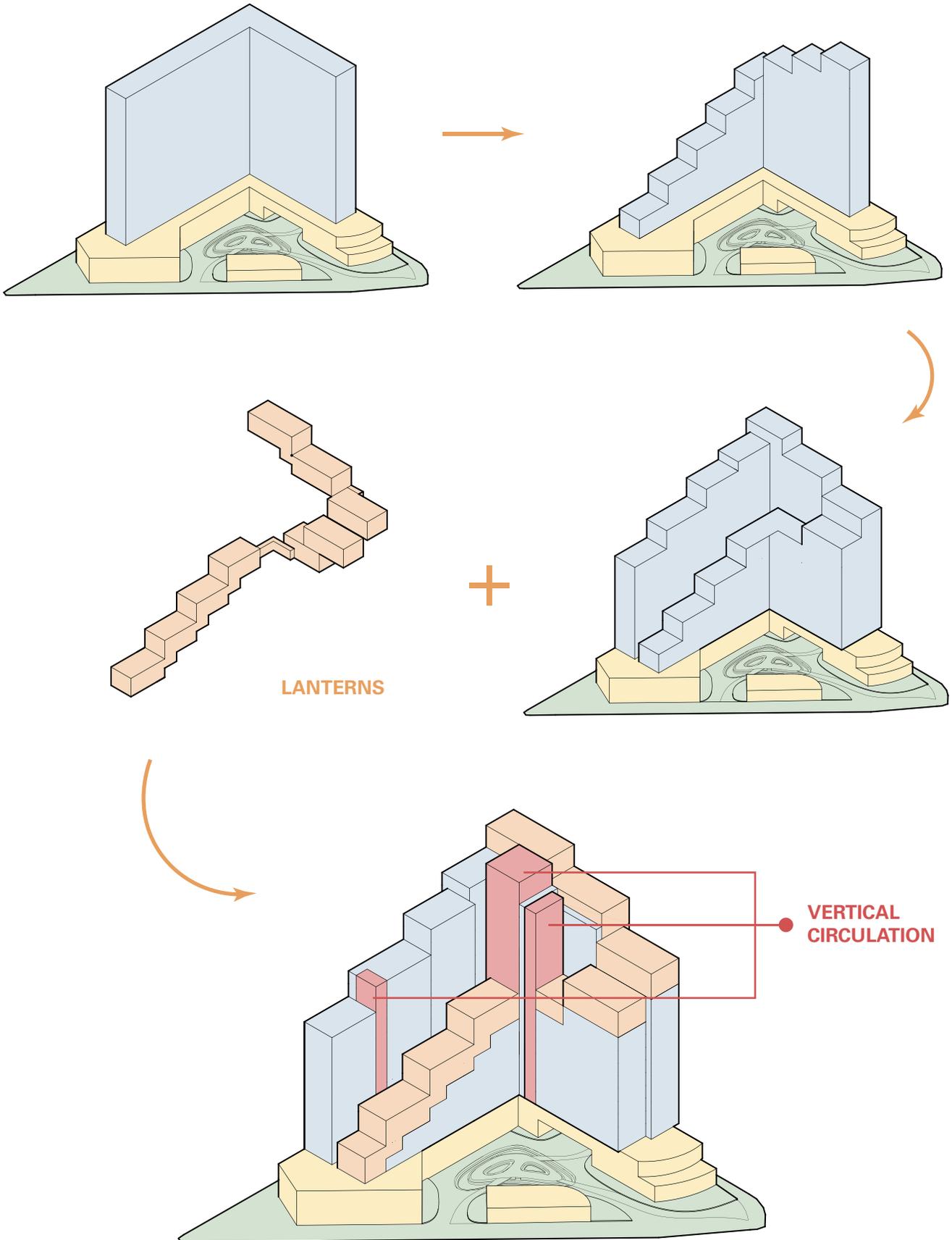
future tense dense





campfire:ARCADIA

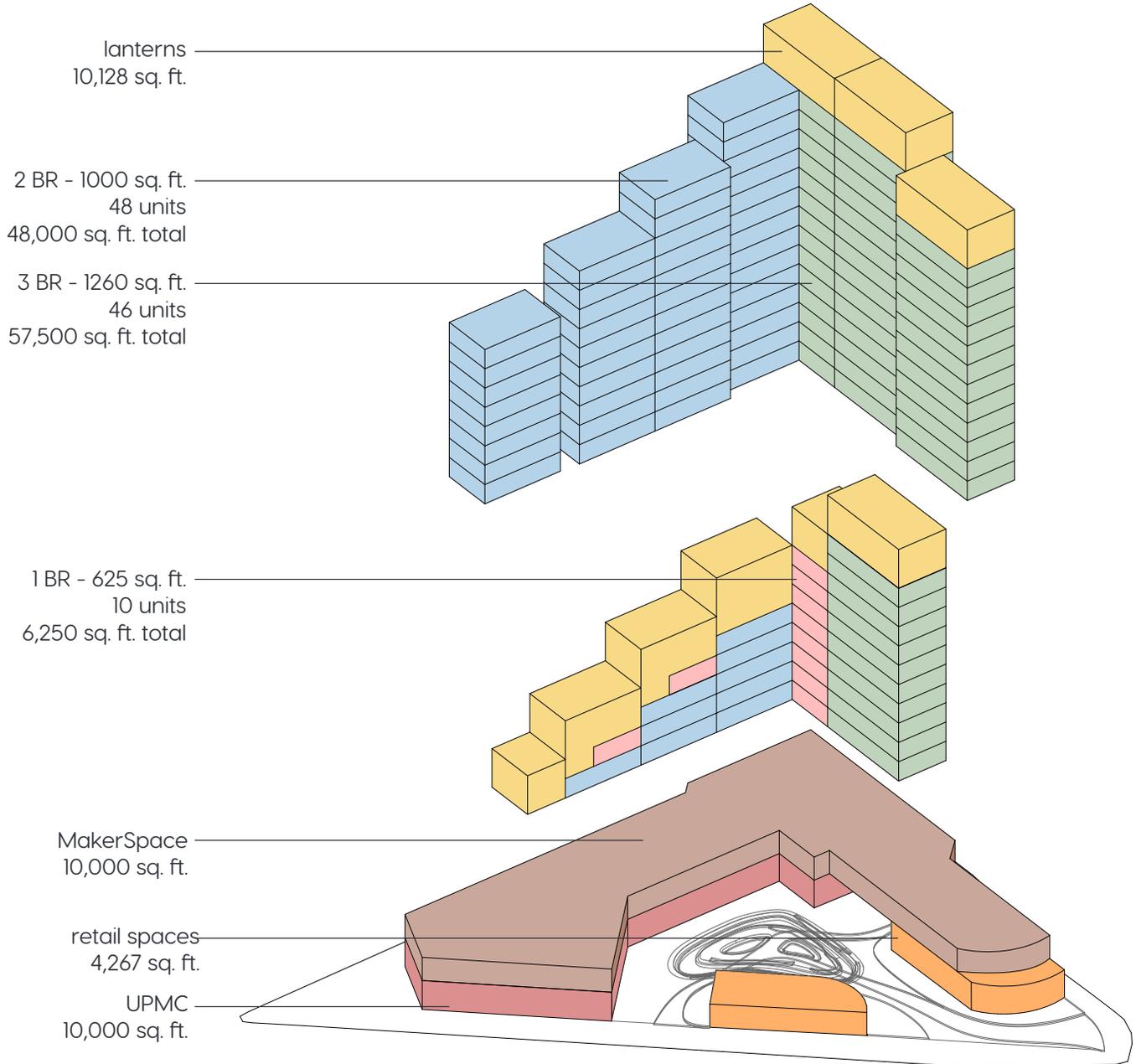




future tense dense

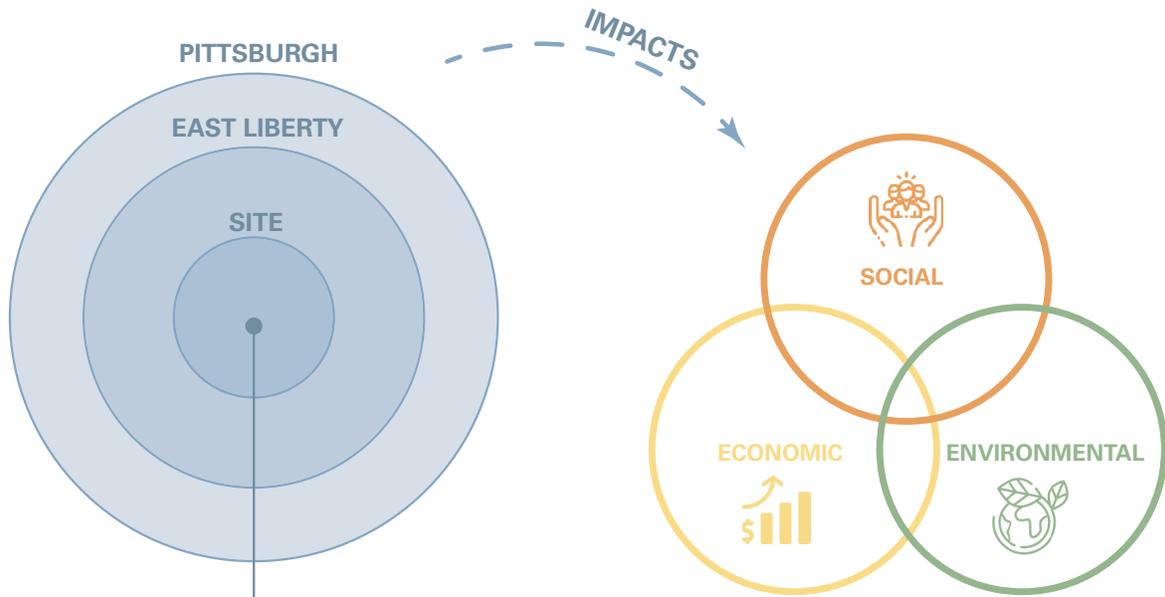
LANTERNS

VERTICAL CIRCULATION



campfire:ARCADIA

Total FAR = 6.05
 Site Area: 28,346
 Total Building Area: 171,620 sq. ft.
 Building Efficiency: 80%



future tense dense

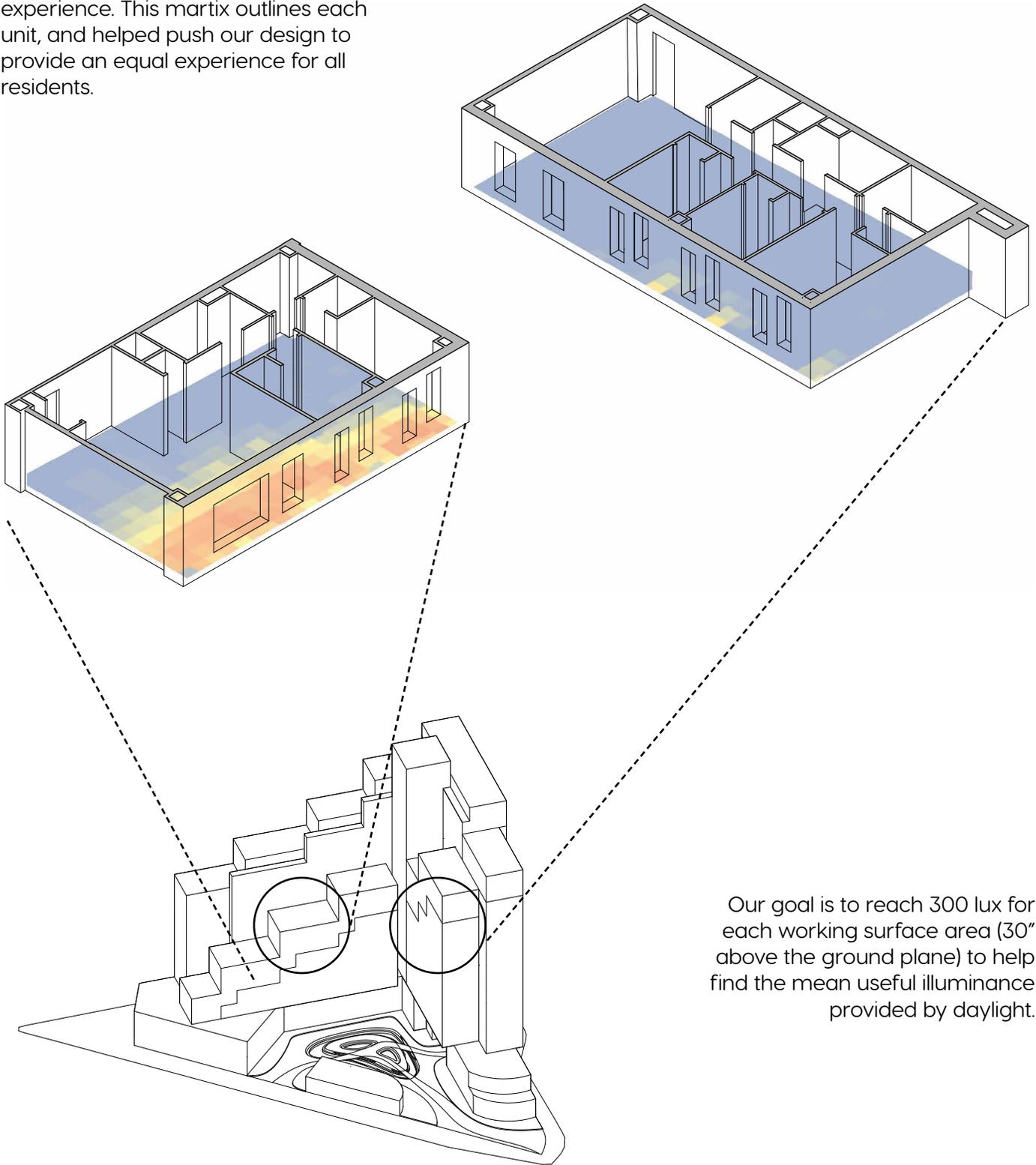
SOCIAL: Central Courtyard, Lanterns

ENVIRONMENTAL: Water Management, Water Harvesting for Lantern Usage, Thermal Loads, Lantern Shading, Indoor Experience

ECONOMIC: Restaurant, Popup Shops, Retailers, Maker Space

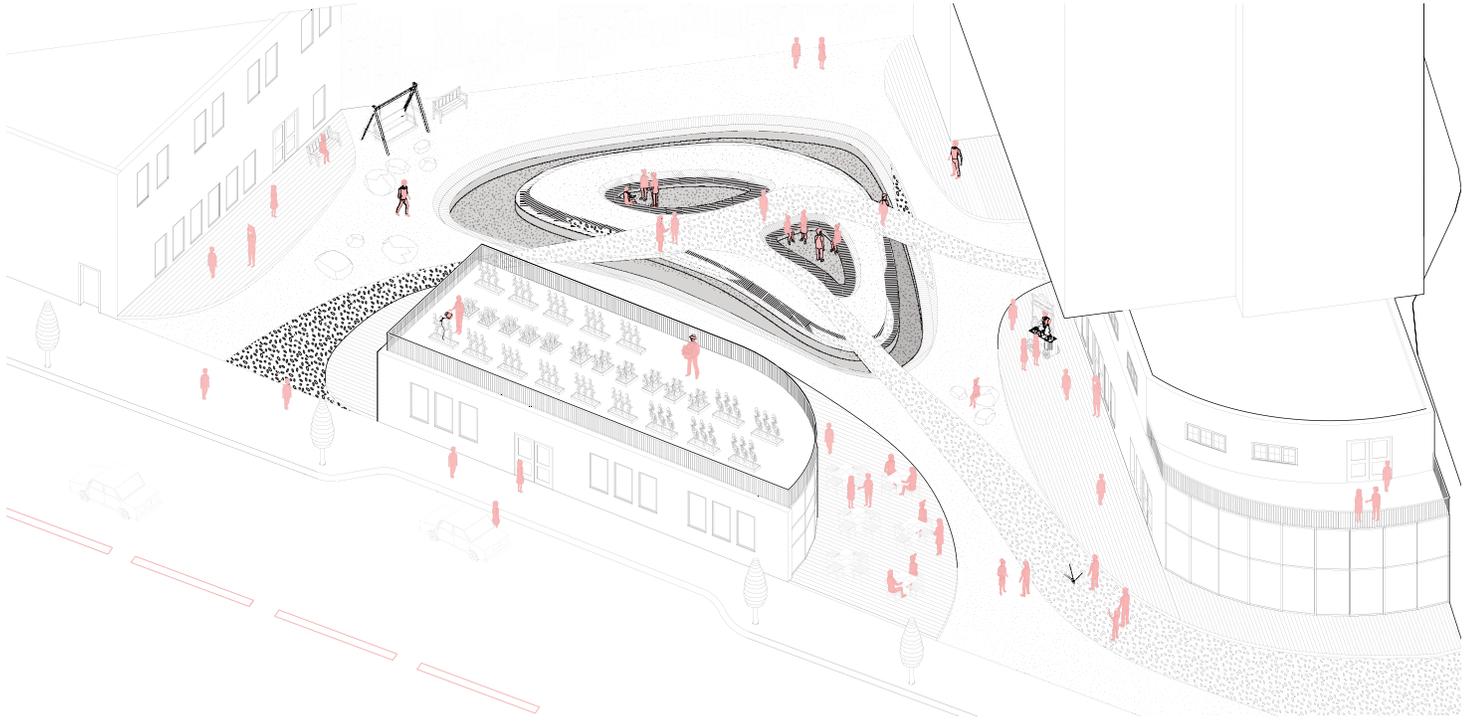
	SOCIAL	ENVIRONMENTAL	ECONOMIC	
SITE	Central Courtyard	Indoor Environment	Local Business / Vendors	SCALE
EAST LIBERTY	Container Garden	Green Roof	Providing Jobs & Experiences	
PITTSBURGH	Future Proposals - setting a precedent	Water Management	Other Farmers	

Because of the orientation of our site and units, each unit has its own daylight experience. This matrix outlines each unit, and helped push our design to provide an equal experience for all residents.



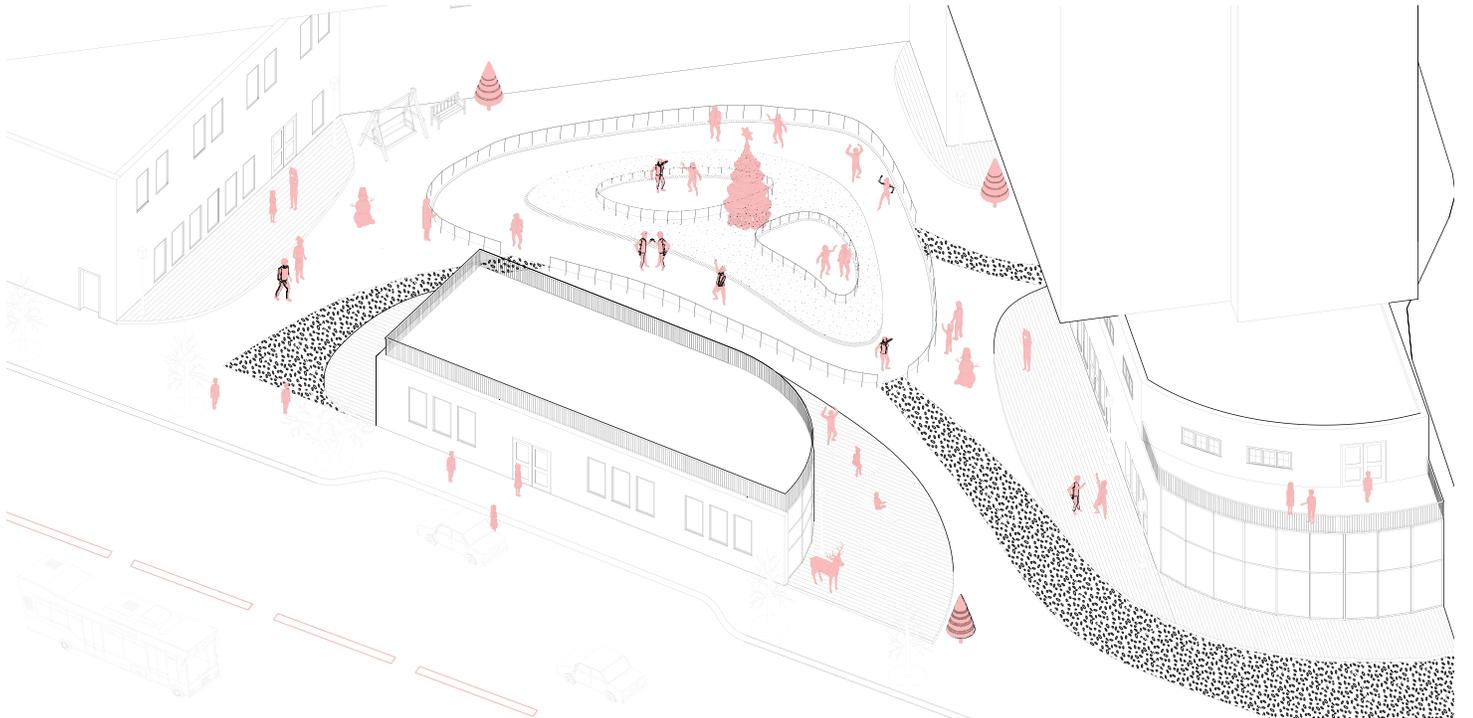
campfire:ARCADIA

SUMMER



future tense dense

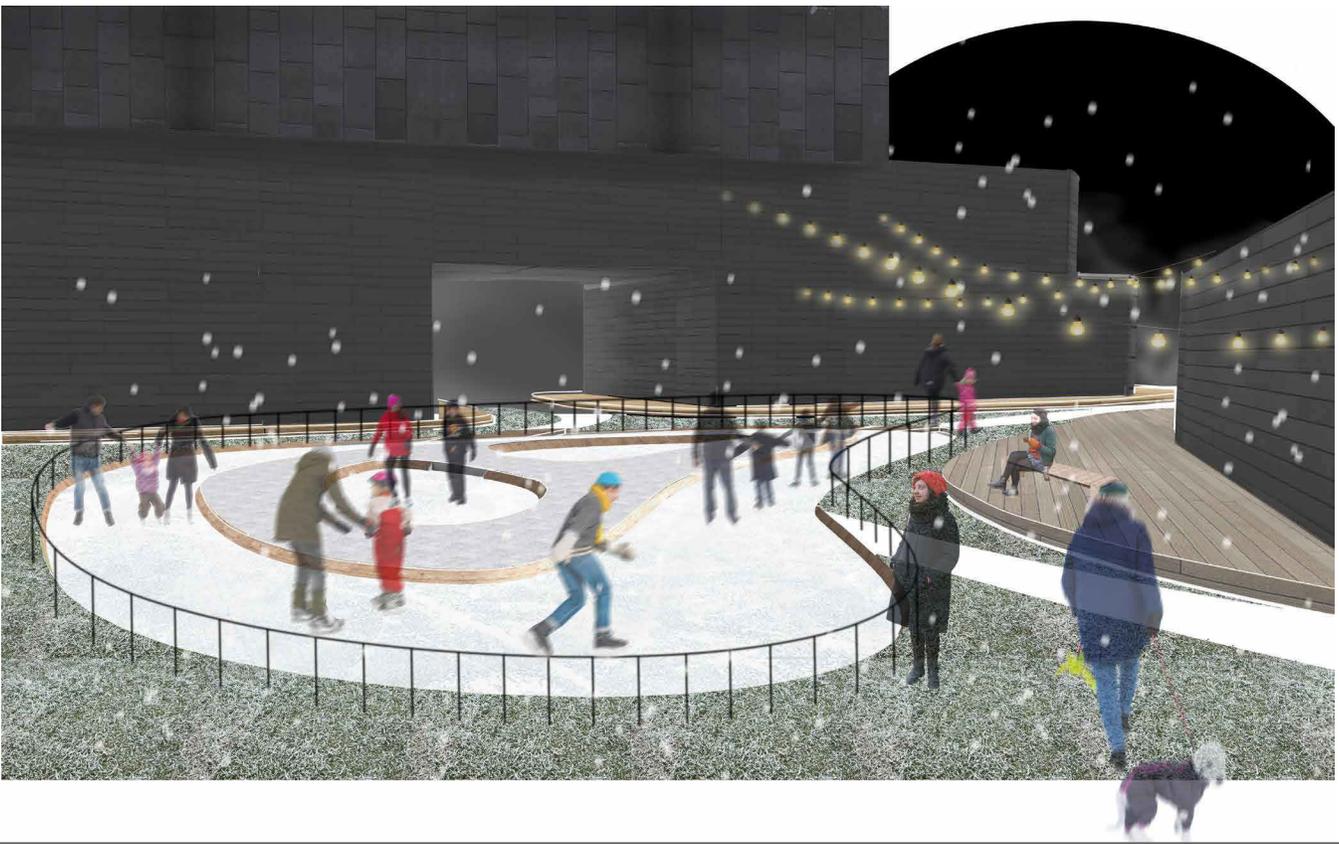
WINTER



SUMMER

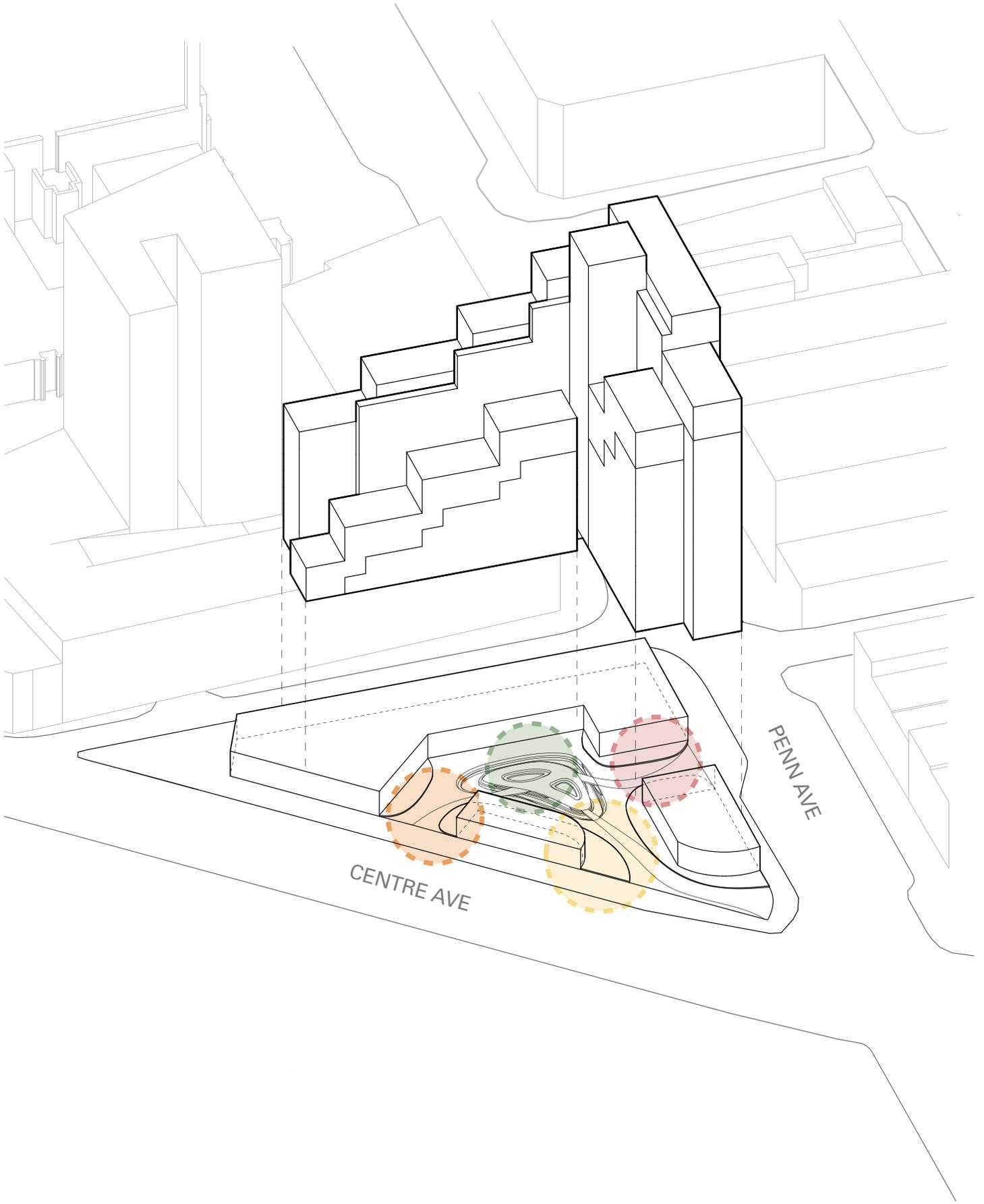


WINTER

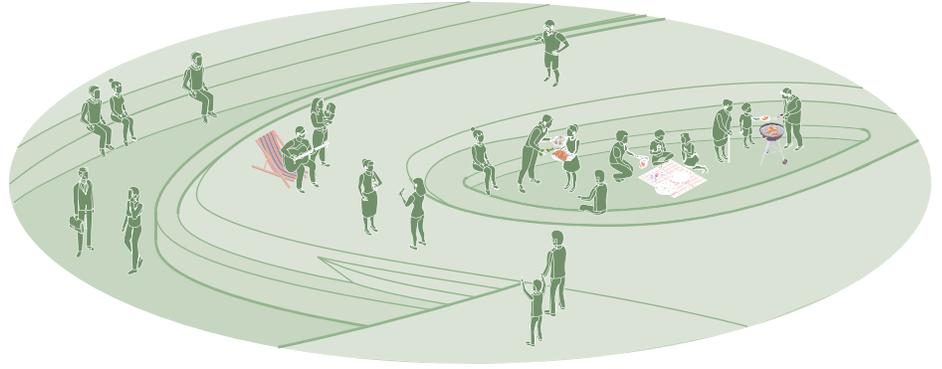


campfire:ARCADIA

future tense dense

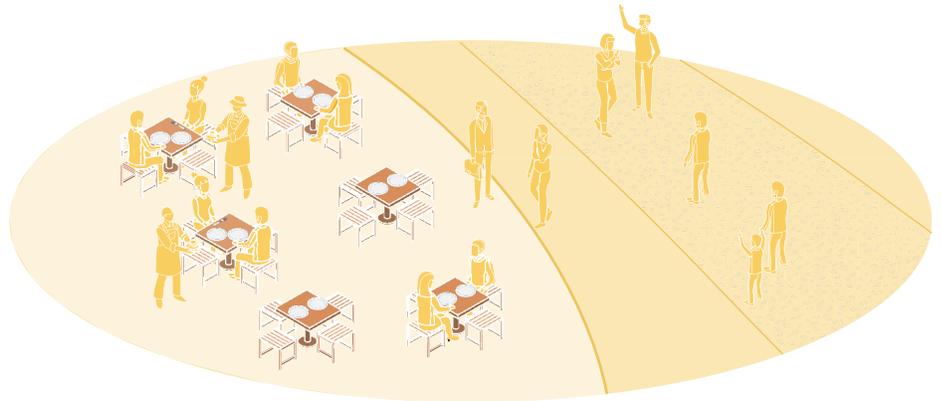


CENTRAL COURTYARD



POPUP STORE

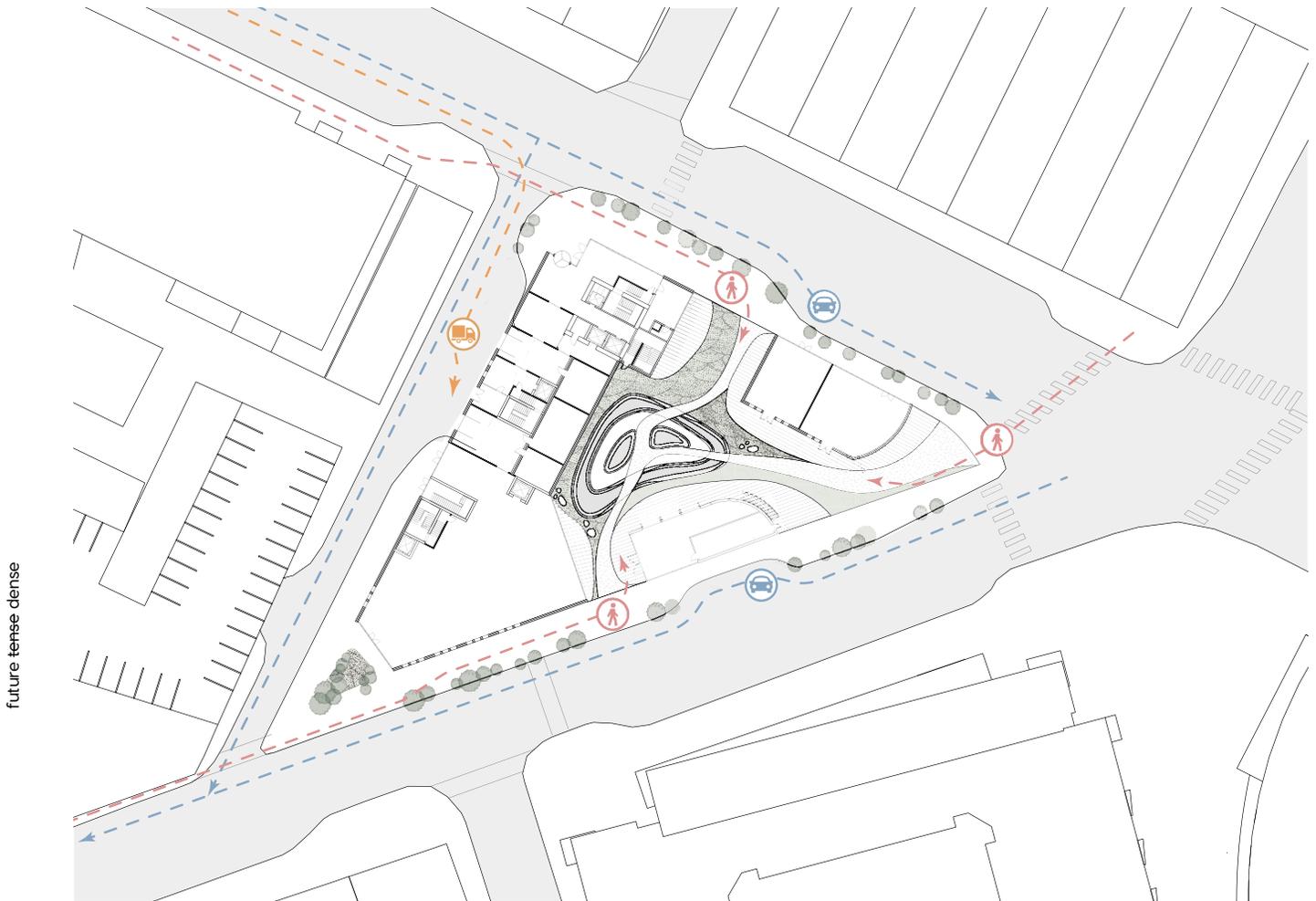
RESTAURANT



FARMERS MARKET

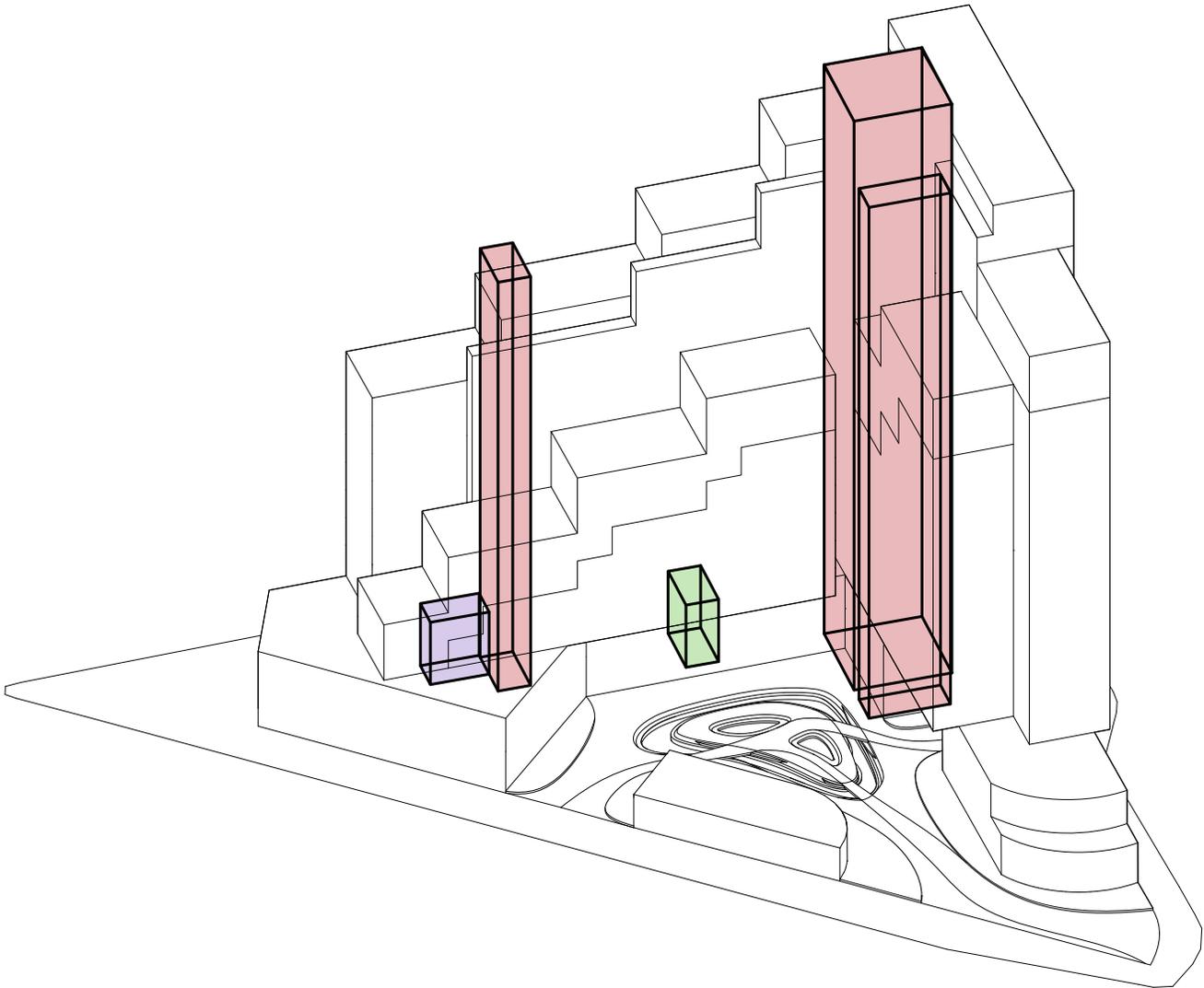


campfire:ARCADIA

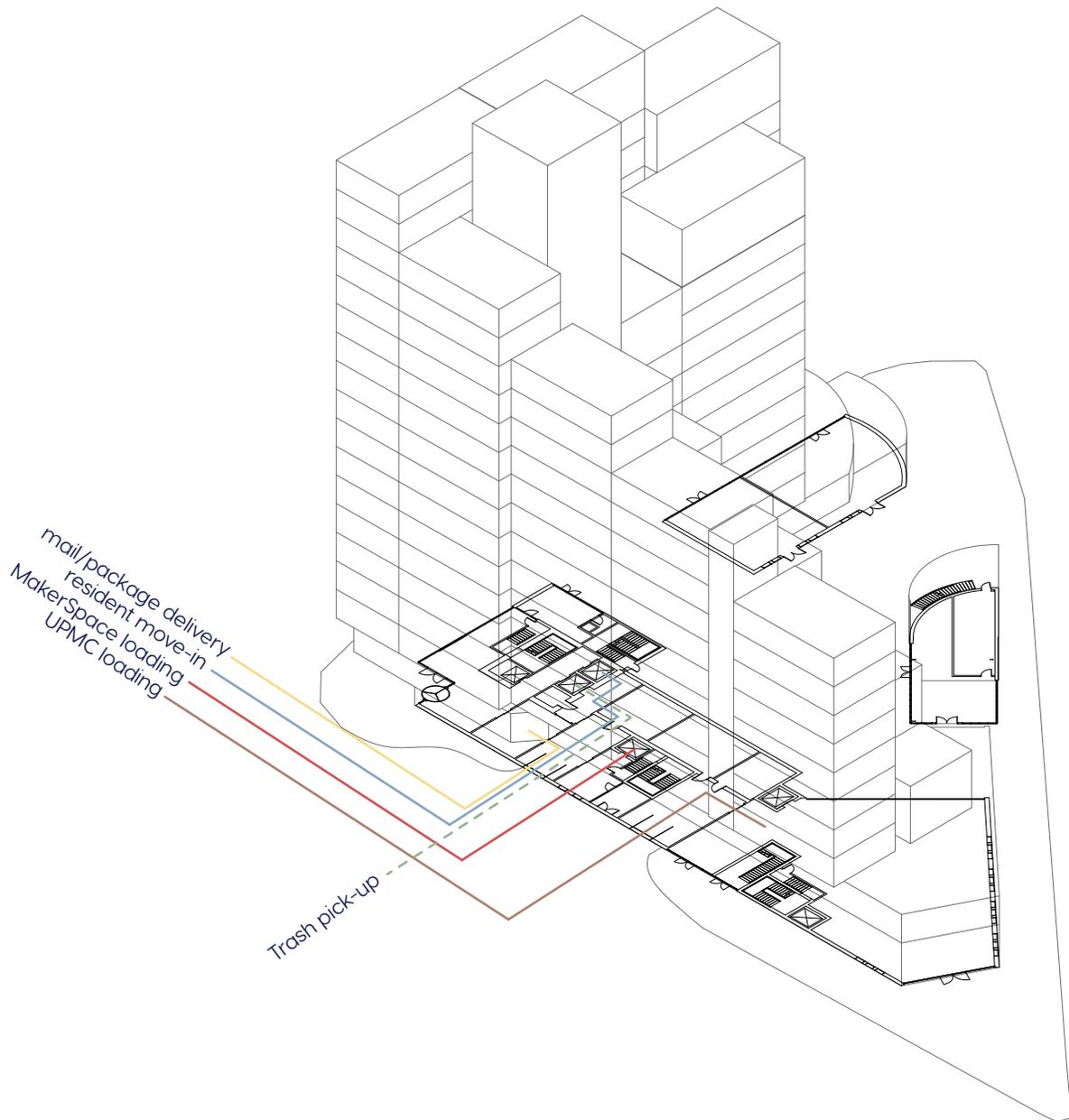


future tense dense

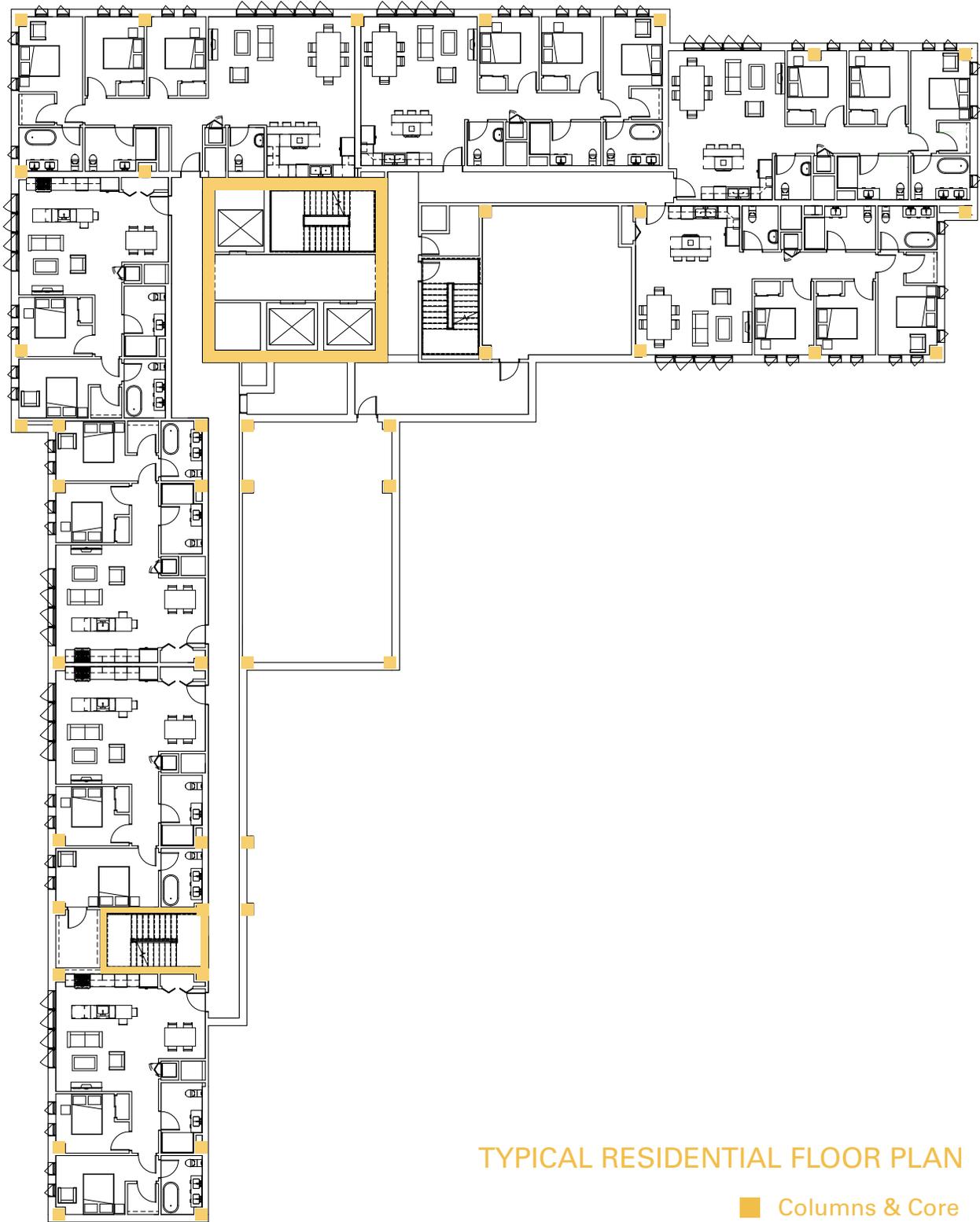
Our site is meant to bring together the community, but especially to those coming to our campfire by foot. This diagram shows the relationship between foot and vehicle traffic in our central courtyard and surrounding loading areas.



There are multiple points of vertical circulation depends on the programmatic element. The red represents the residential tower core, the purple represents UPMC, and green represents the MakerSpace. This circulation is meant for egress, and/or move-in/loading.



Sheridan Square is the main street where move-ins and loading occur (besides the front of the restaurant for its specific needs). From this back entrance, residents can receive mail and move into their new apartments. The UPMC clinic and the MakerSpace have their own loading zone as well. Trash is also picked up from this street as shown above.



campfire:ARCADIA

TYPICAL RESIDENTIAL FLOOR PLAN

Columns & Core



future tense dense



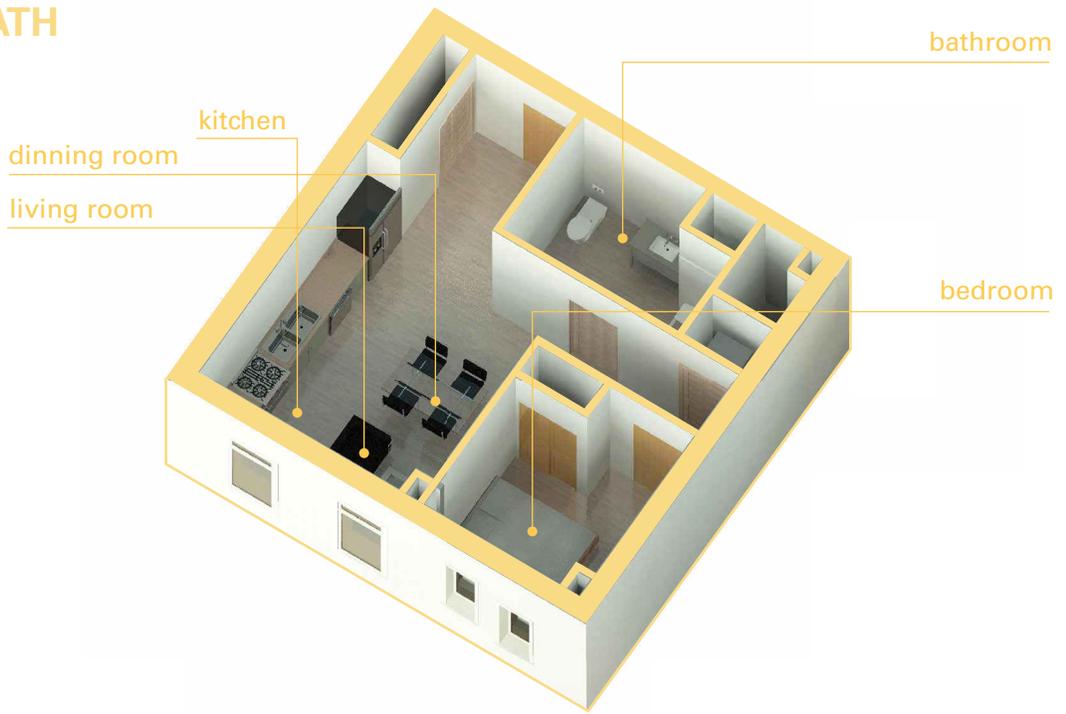


campfire:ARCADIA



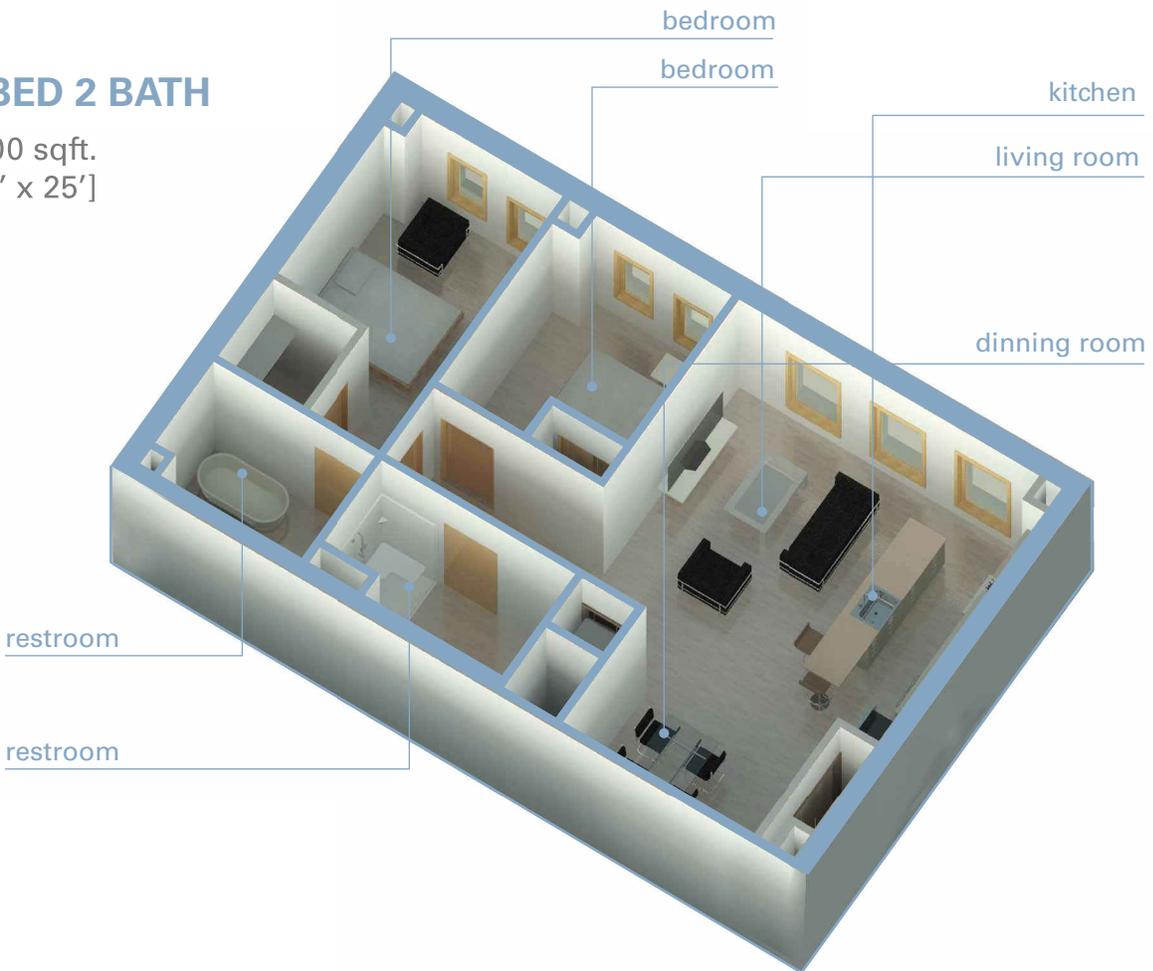
1 BED 1 BATH

625 sqft.
[25' x 25']



2 BED 2 BATH

1000 sqft.
[40' x 25']



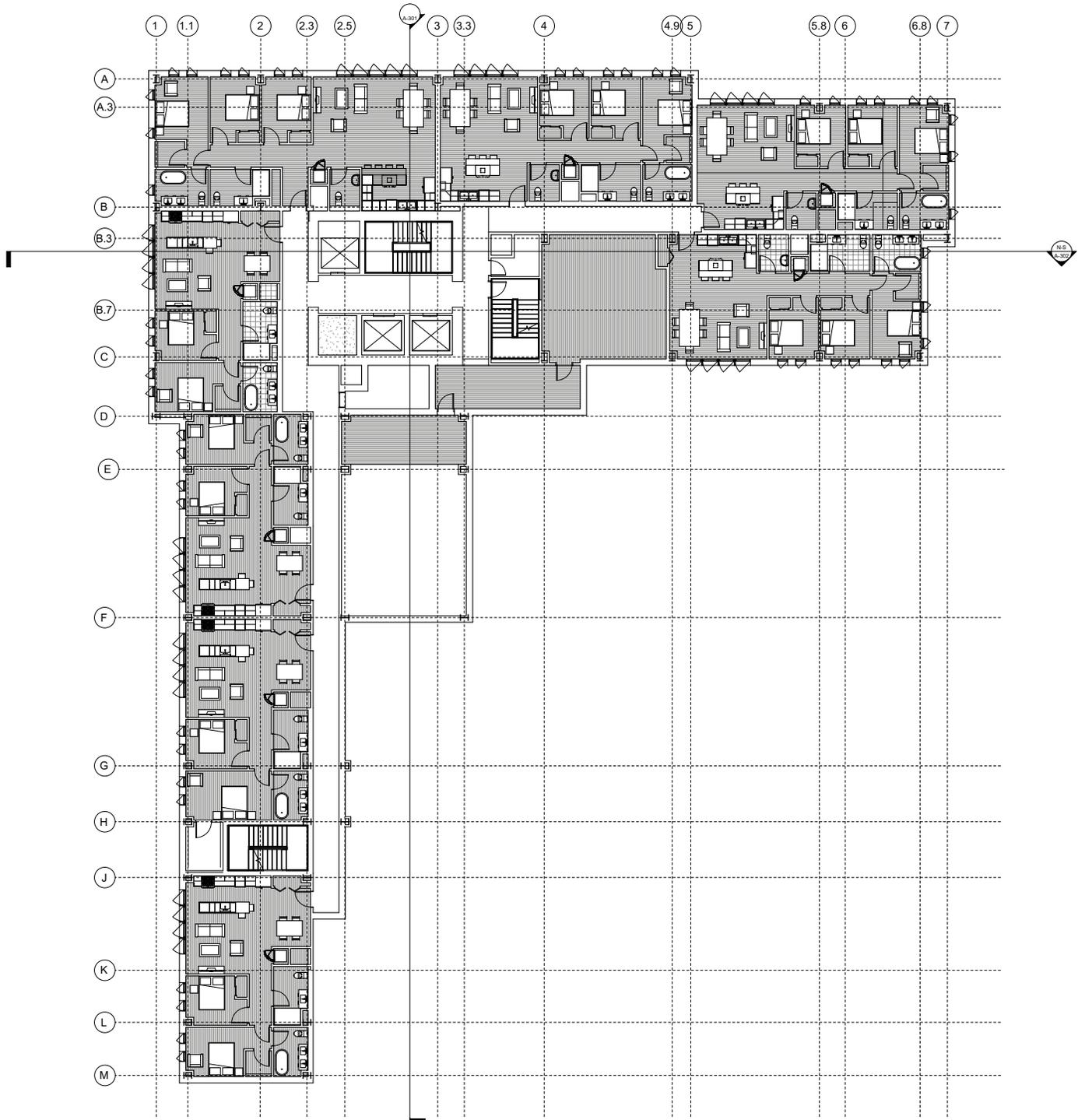
future tense dense

3 BED 2.5 BATH

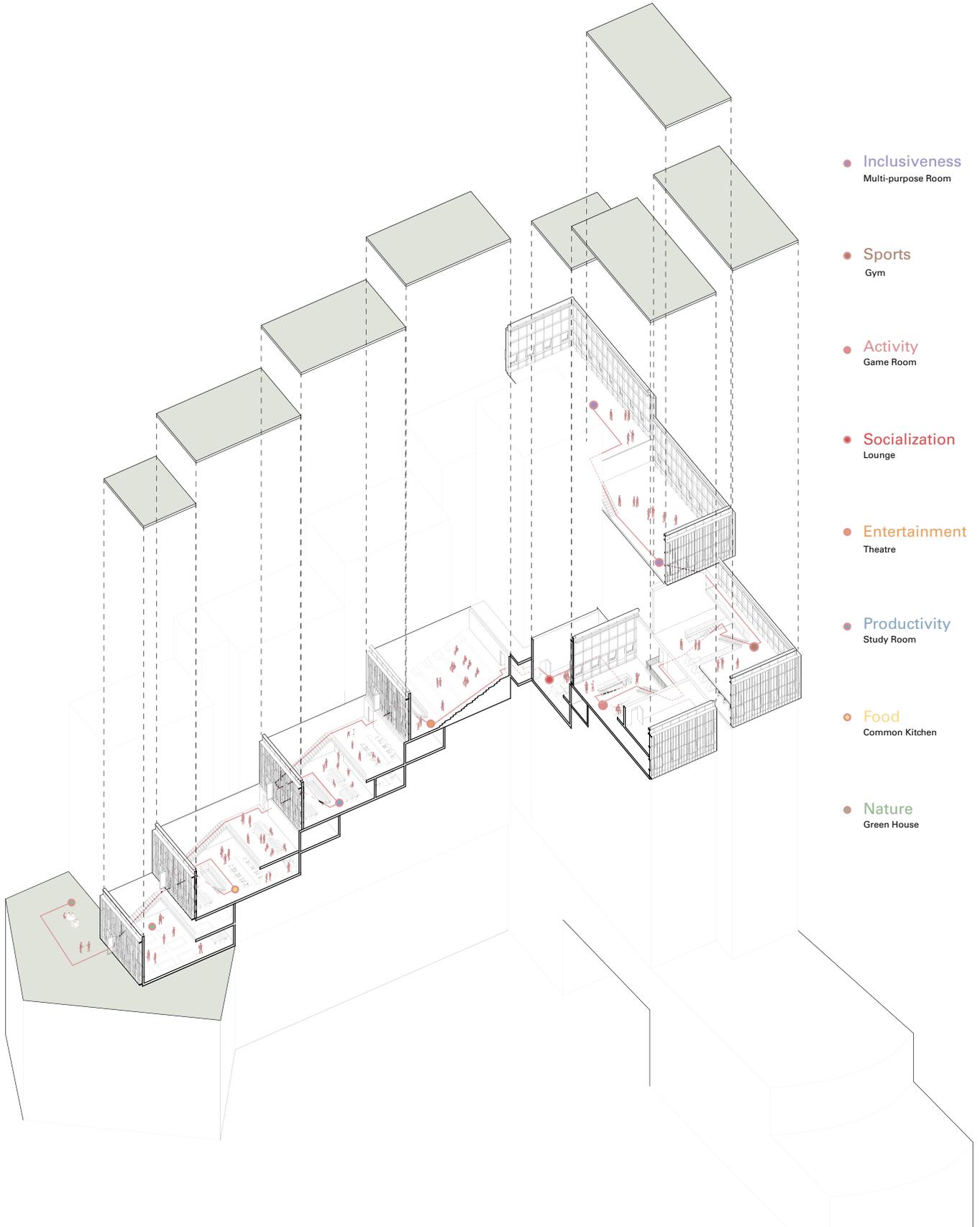
1250 sqft.
[50' x 25']



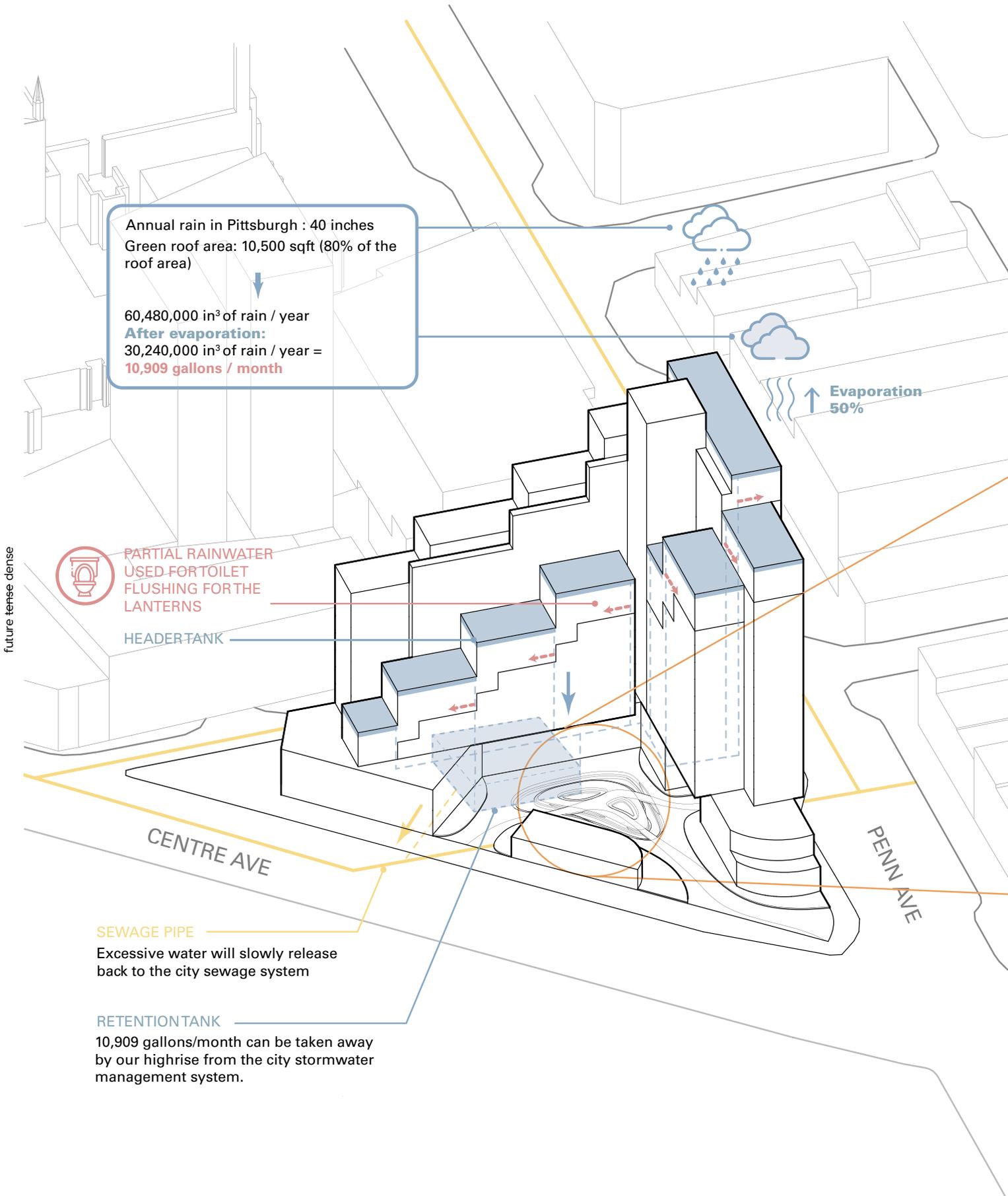




future tense dense







Annual rain in Pittsburgh : 40 inches
 Green roof area: 10,500 sqft (80% of the roof area)

60,480,000 in³ of rain / year
After evaporation:
 30,240,000 in³ of rain / year =
 10,909 gallons / month

↑ Evaporation
 50%

PARTIAL RAINWATER
 USED FOR TOILET
 FLUSHING FOR THE
 LANTERNS

HEADER TANK

CENTRE AVE

PENN AVE

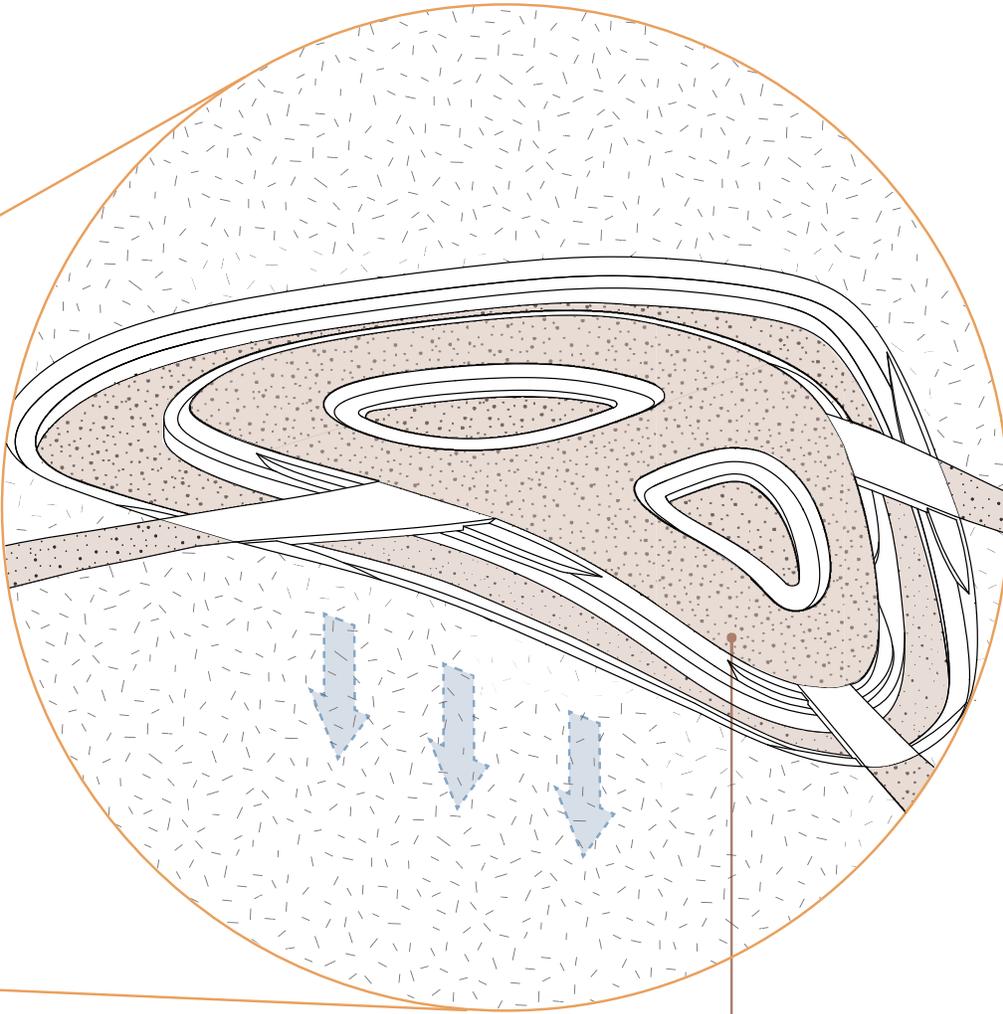
SEWAGE PIPE
 Excessive water will slowly release
 back to the city sewage system

RETENTION TANK
 10,909 gallons/month can be taken away
 by our highrise from the city stormwater
 management system.

future tense dense

CENTRAL COURTYARD

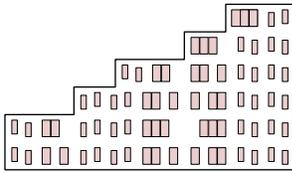
Permeable Surface Area : 4040 ft²



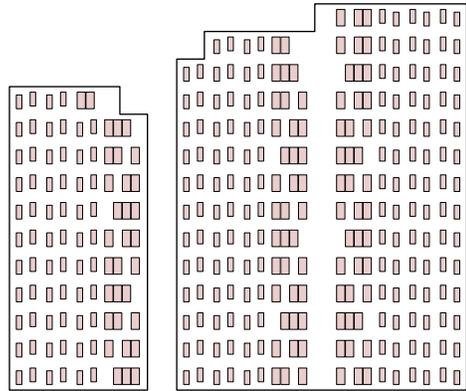
Permeable Paver

TECHO-BLOC
Blu 80 Slate
ONYX BLACK



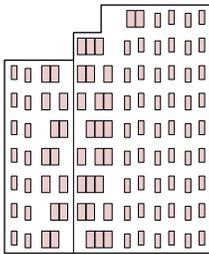


southeast elevation
WWR: 25%

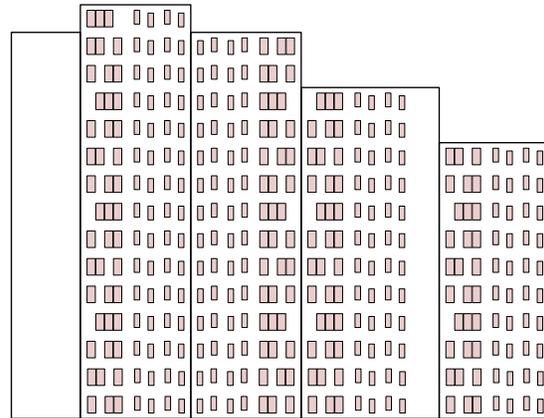


northeast elevation
WWR: 22%

future tense dense

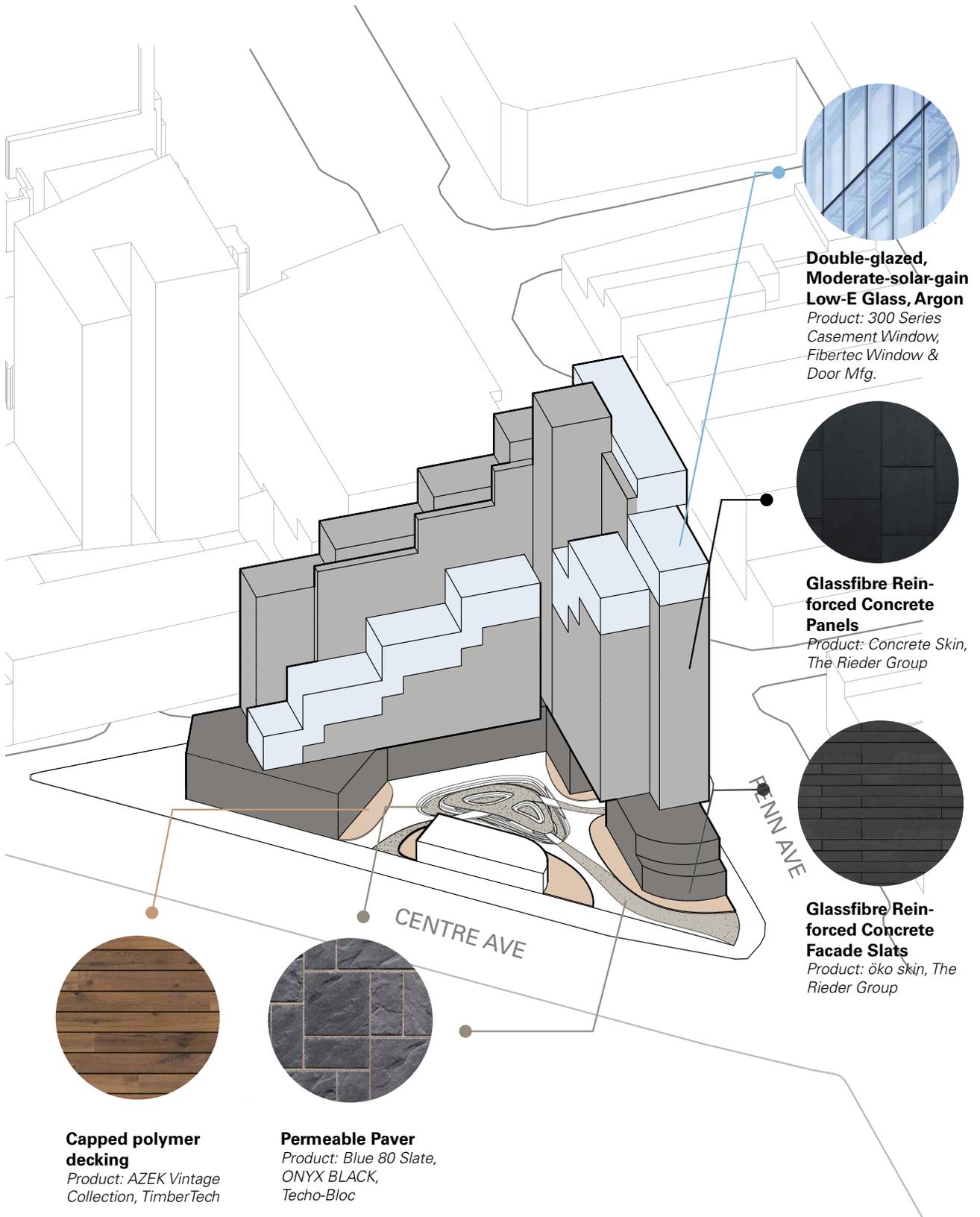


southwest elevation
WWR: 22%



northwest elevation
WWR: 19%

Overall, there is a WWR of 22% if you take account of the WWR of each elevation. Note that this ratio only takes into account the tower, which is majority of our building design.



campfire:ARCADIA



future tense dense





campfire:ARCADIA