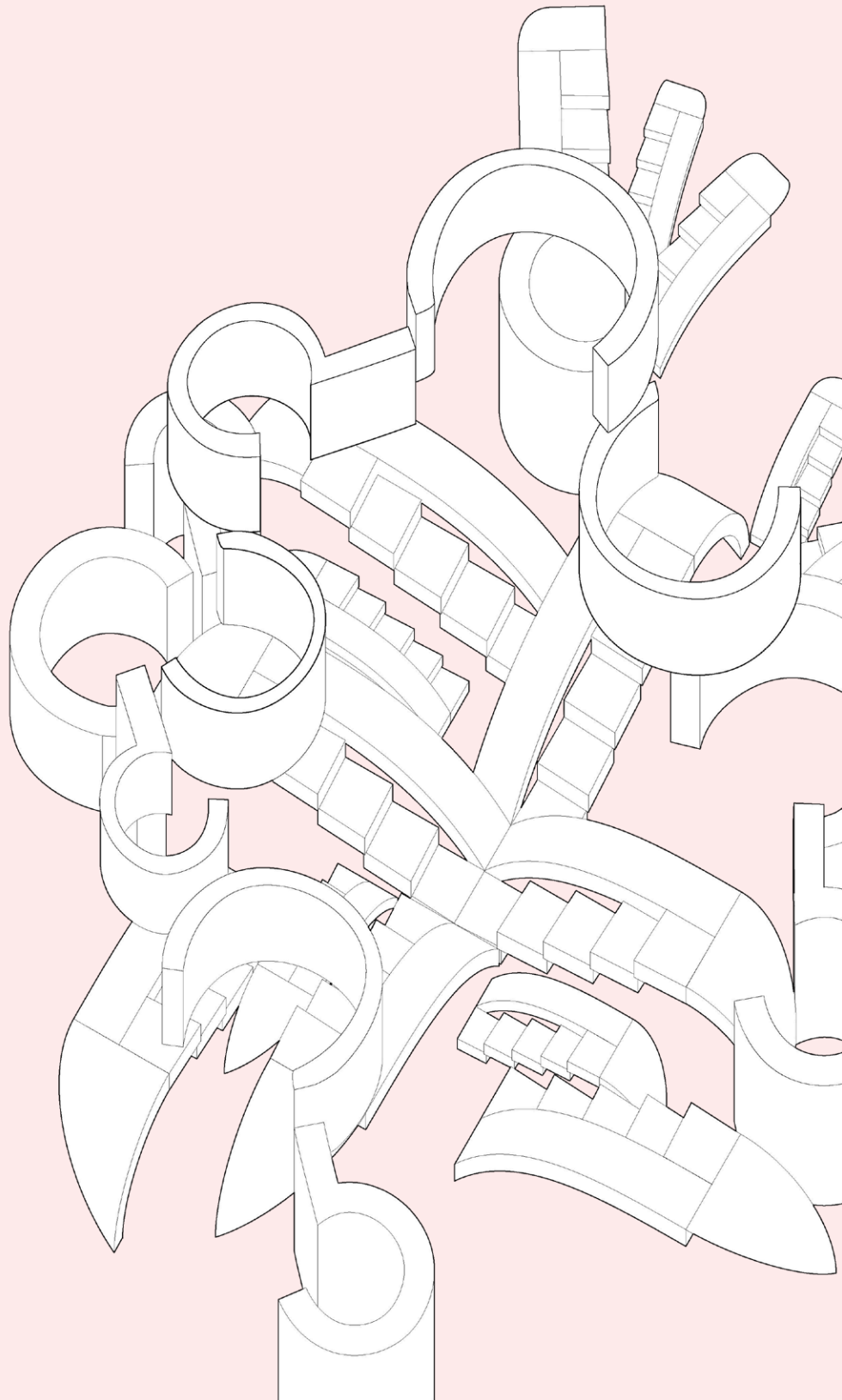


PORTFOLIO



CAMILA
MARTINEZ

CONTENTS

01	Allegheny Line	4-18
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03	Uphams Library	30-39

ALLEGHENY LINE

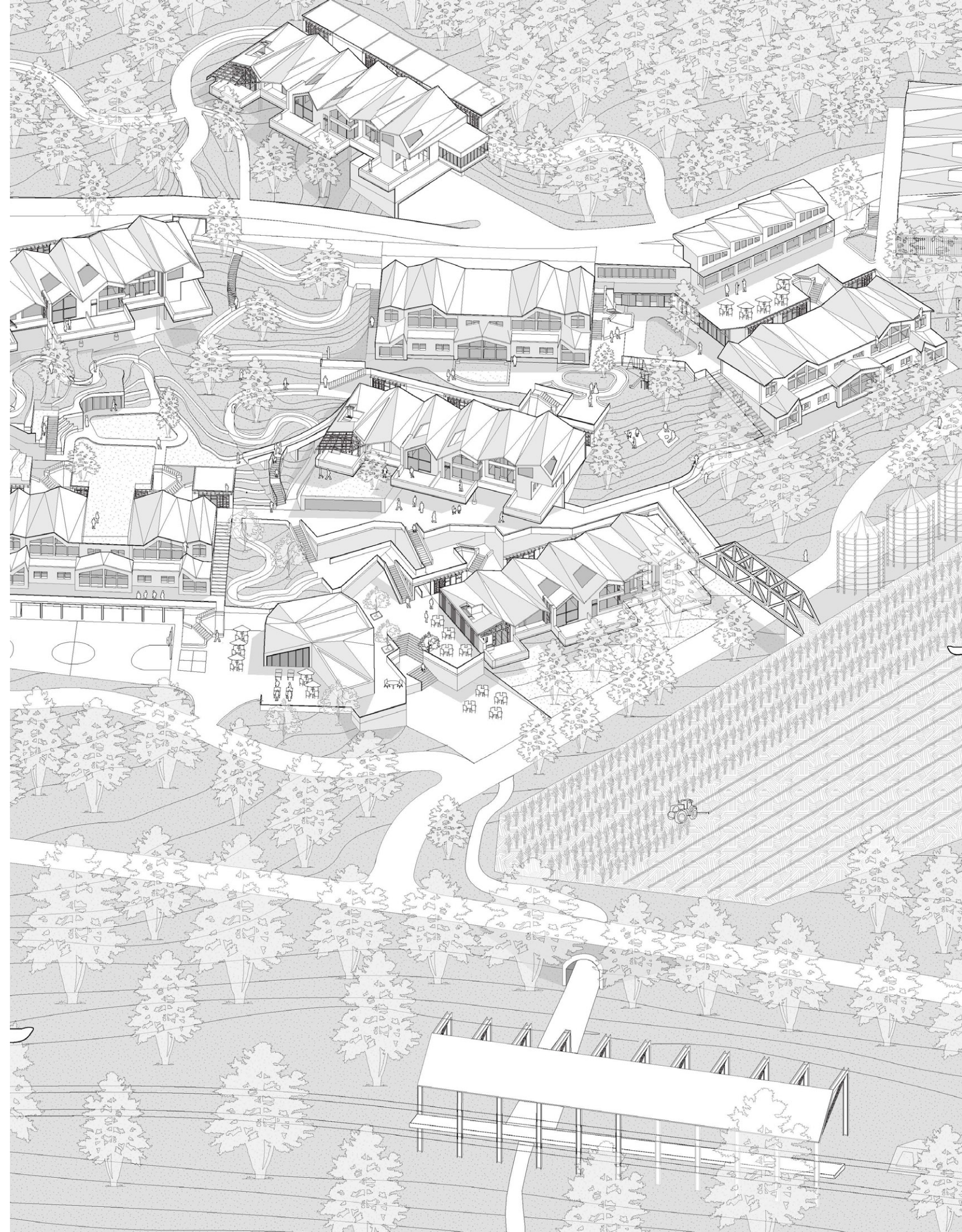
Pittsburgh, PA

Instructor: Jared Abrahams & Vicky Achari

Partner: Charlie Hymowitz

Year: 2023

This project spans three distinct sites, each designed to not only enhance the city's aesthetic appeal but also foster a sense of environmental responsibility and communal well-being. A reimagined rail line weaves through these three sites, acting as the connective thread that ties the urban fabric together. Efficient and sustainable, the rail line facilitates easy access between the agricultural community, waterfront housing units, and the downtown gateway station.

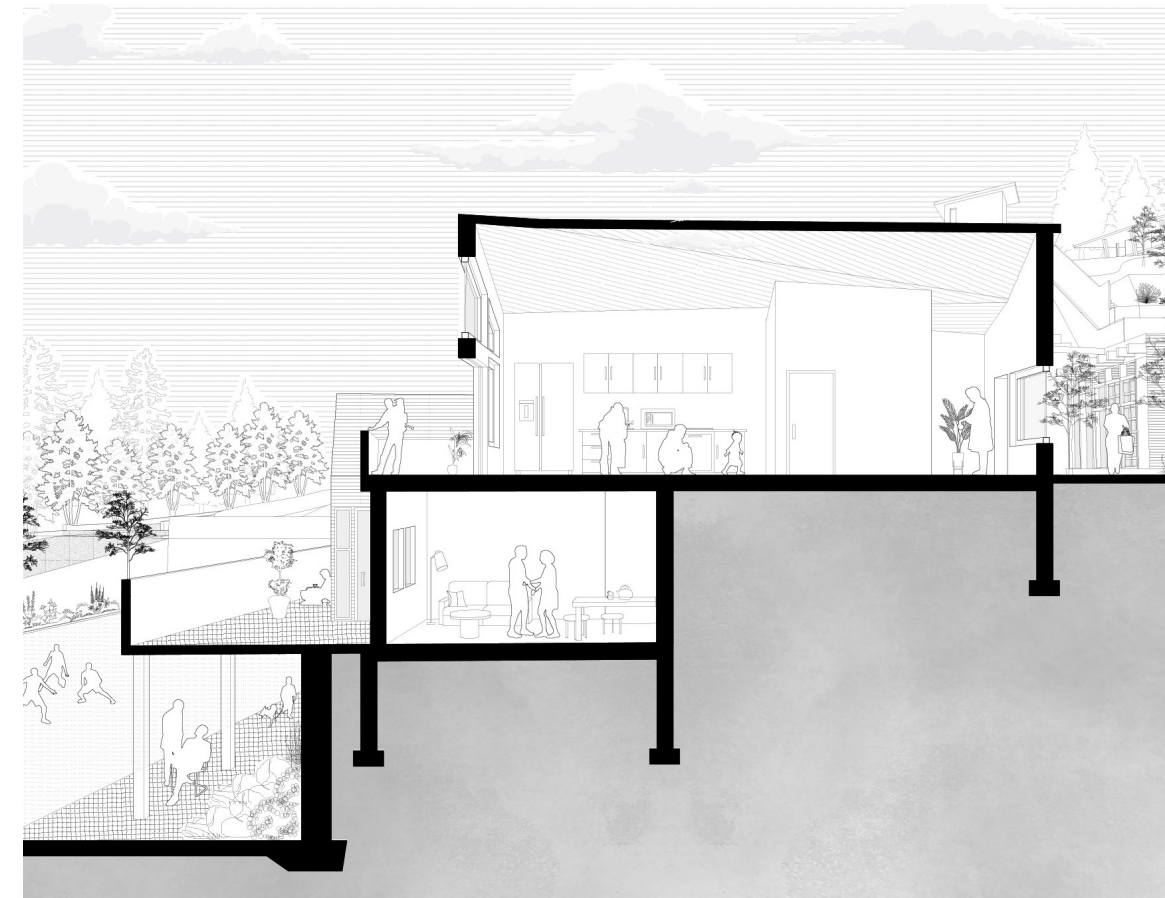
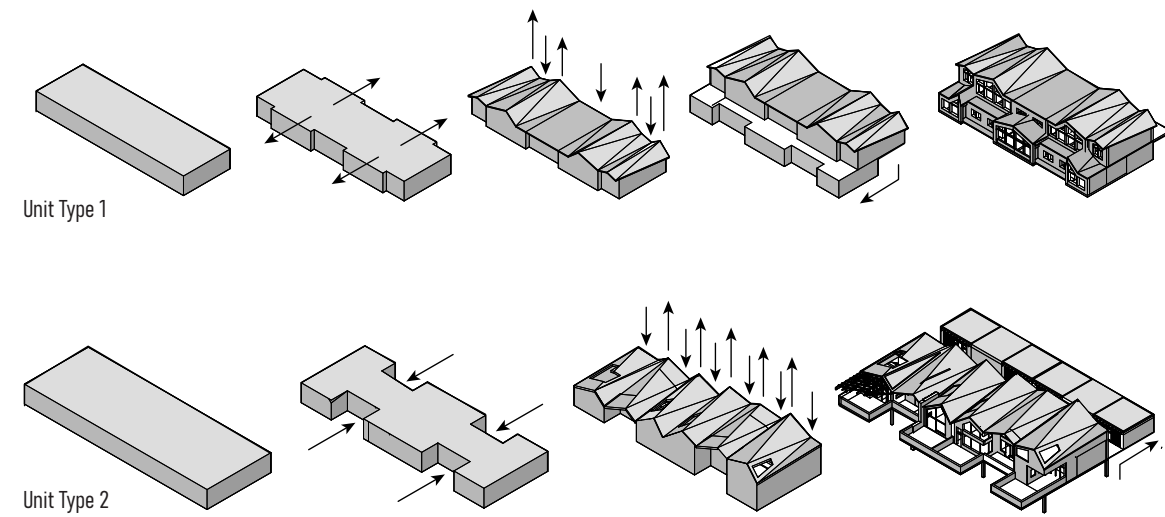


01

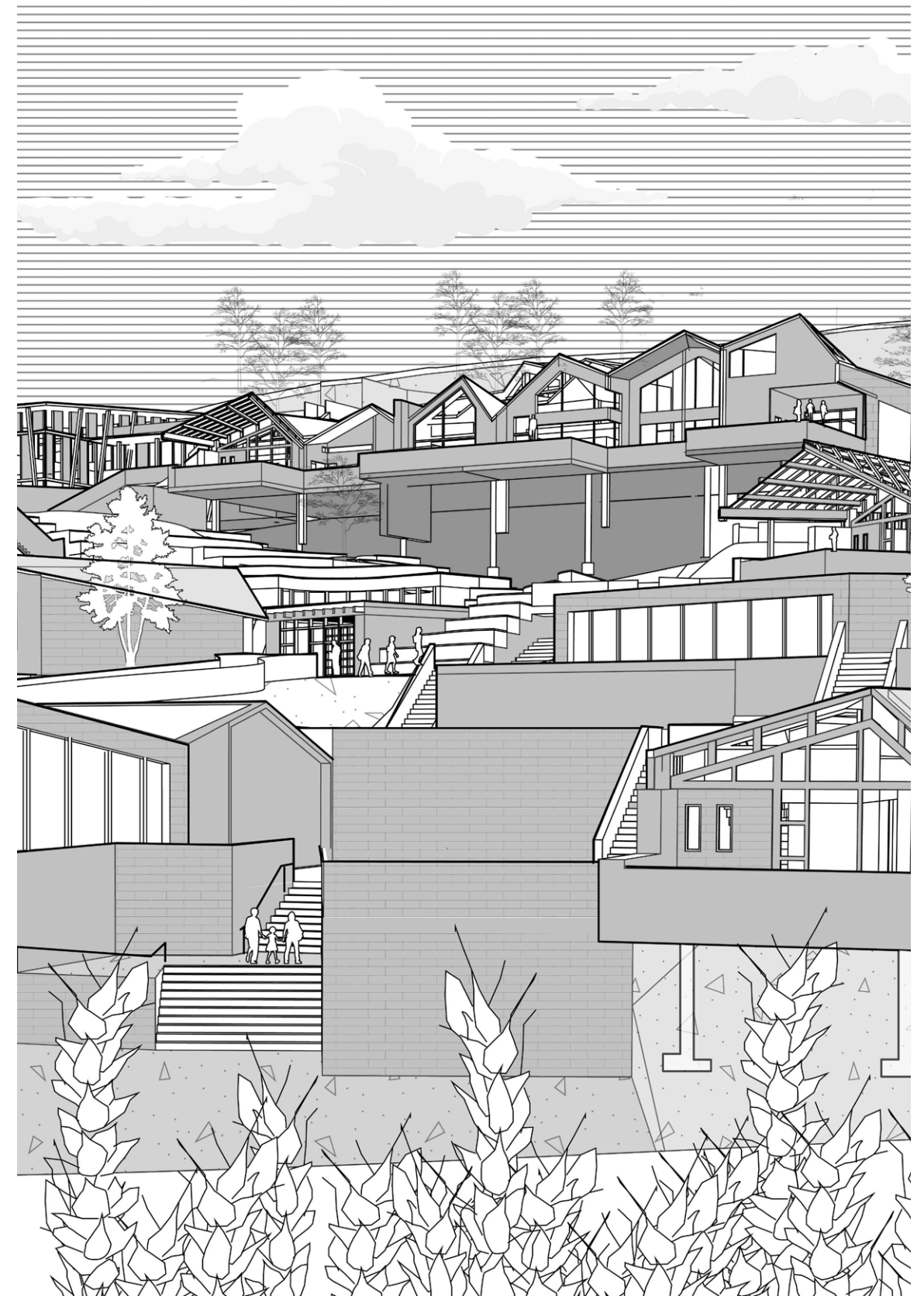
01: AGRICULTURAL COMMUNITY NEAR PITTSBURGH ZOO

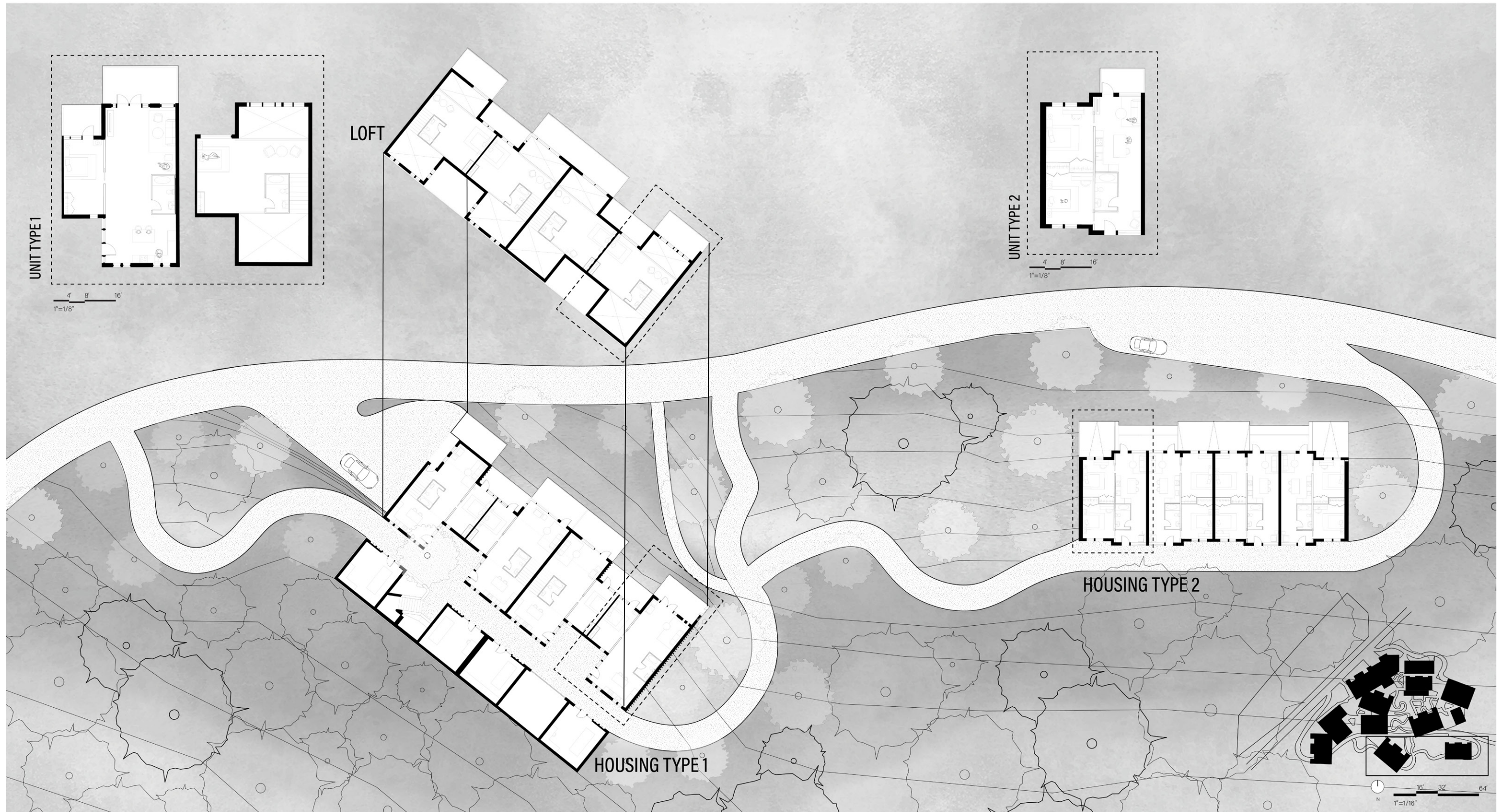
Nestled alongside the Pittsburgh Zoo, an innovative agricultural community emerges, harmonizing urban living with nature.

The site features housing units constructed from cross-laminated timber. Residents enjoy a unique blend of city living and organic farming, fostering a self-sustaining and eco-conscious neighborhood. The proximity to the zoo creates opportunities for educational programs, promoting a connection between urban dwellers and the natural world.



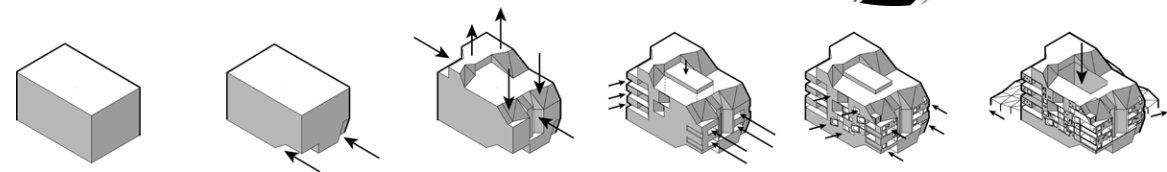
Section Through Unit Type 2



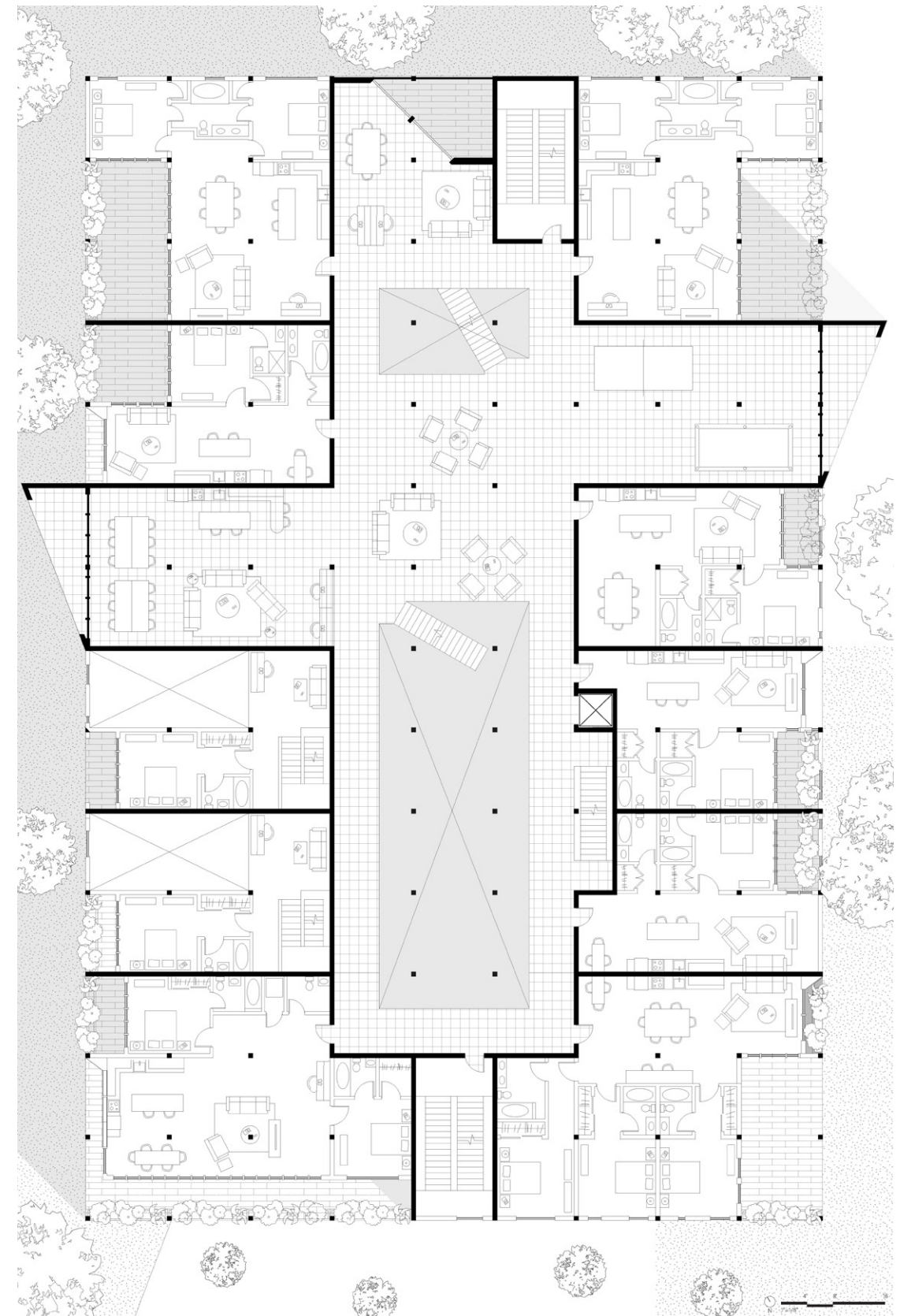


02: HOUSING UNITS AT STRIP DISTRICT WAREHOUSES

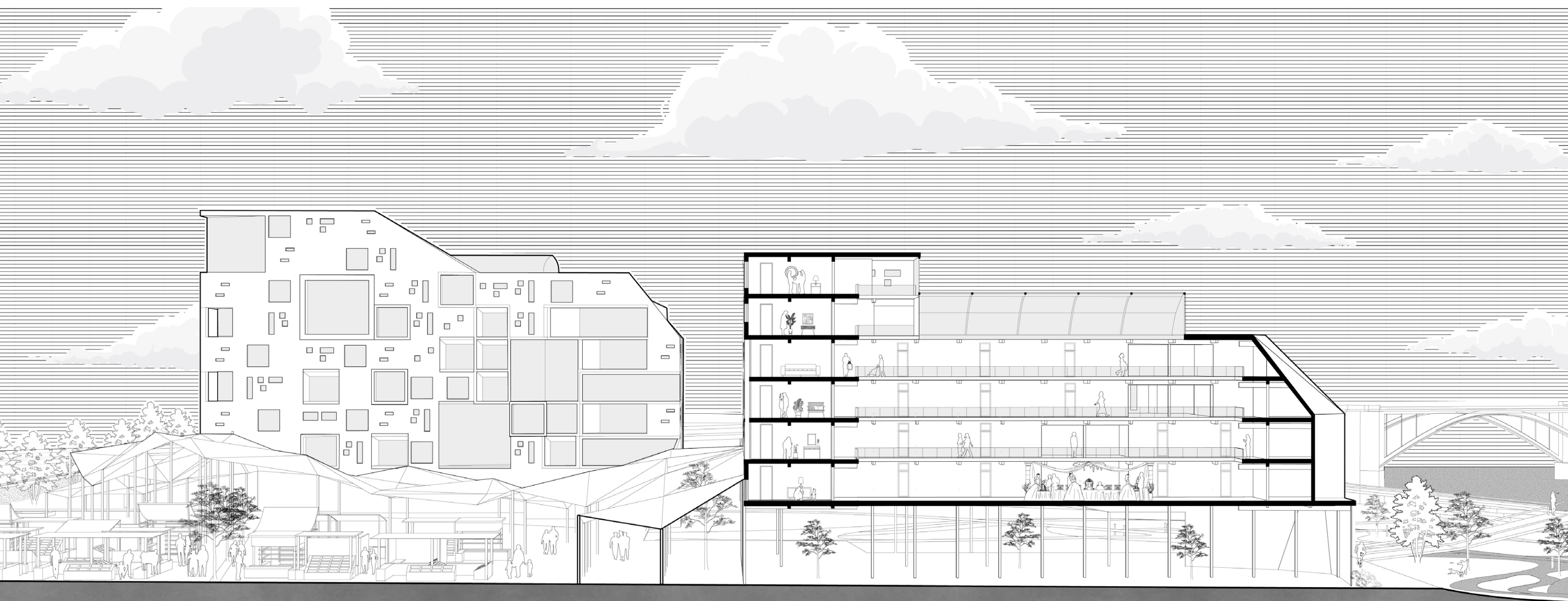
The historic Strip District Warehouses along the waterfront undergo a transformation into modern, sustainable housing units. This waterfront community not only redefines urban living but also revitalizes a historic district, providing a picturesque and sustainable urban landscape.



View from Riverfront



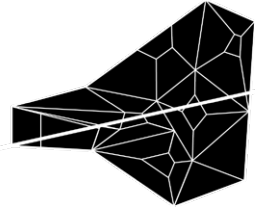
Variation 1 Floor Plan



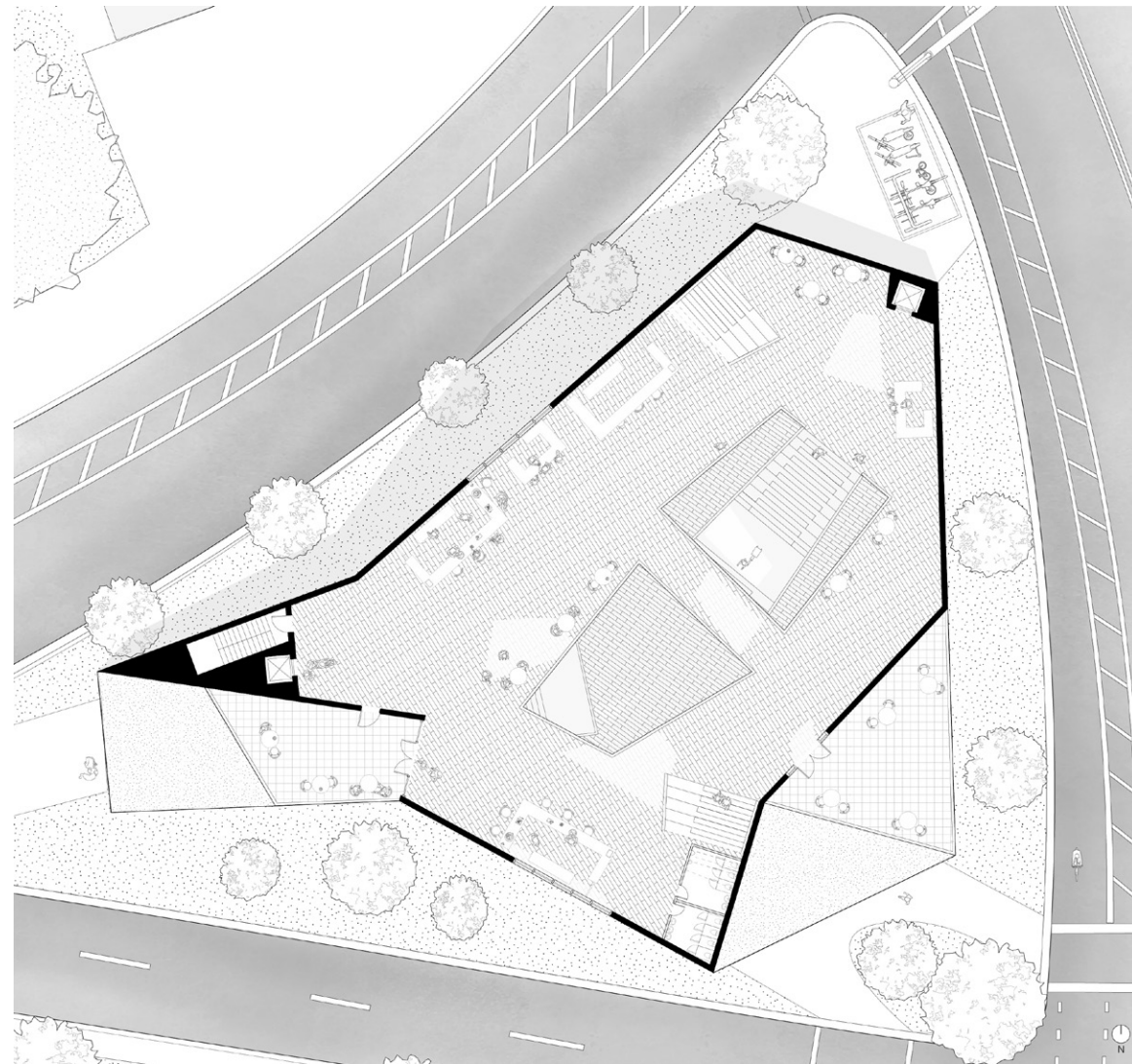
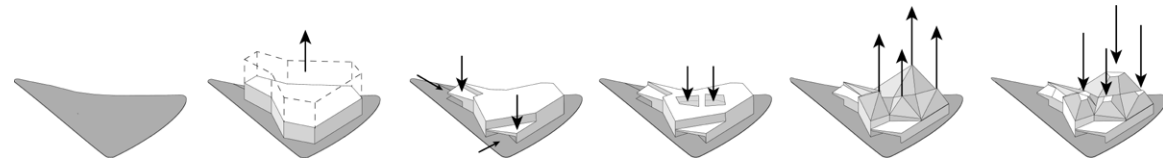
MARKET The site is complemented by a designated outdoor market, creating a vibrant and dynamic atmosphere for residents and visitors alike.

Here, families can sell their produce and vendors provide local ingredients for the thriving restaurant scene Downtown.

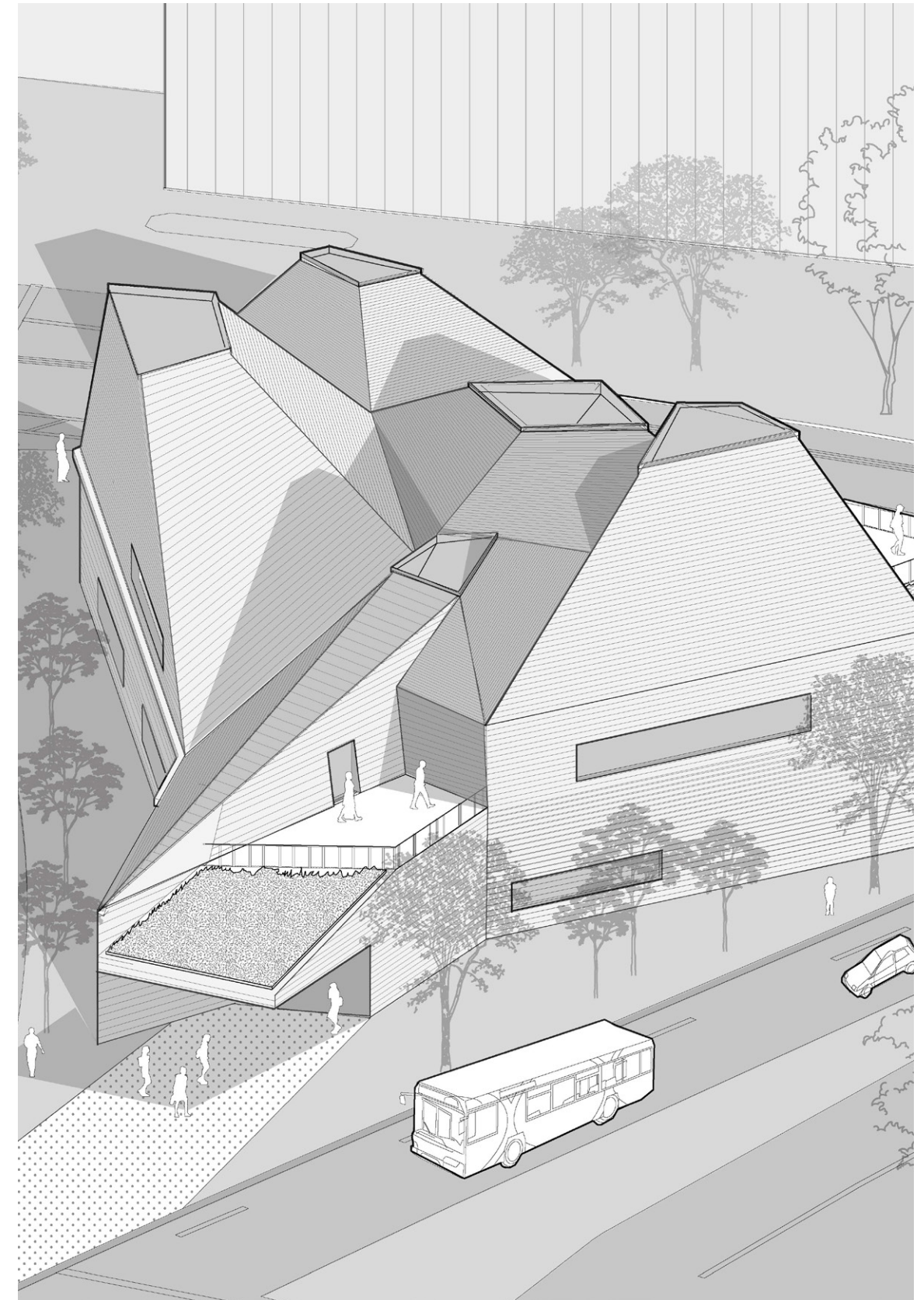
03: GATEWAY STATION IN DOWNTOWN

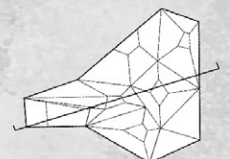
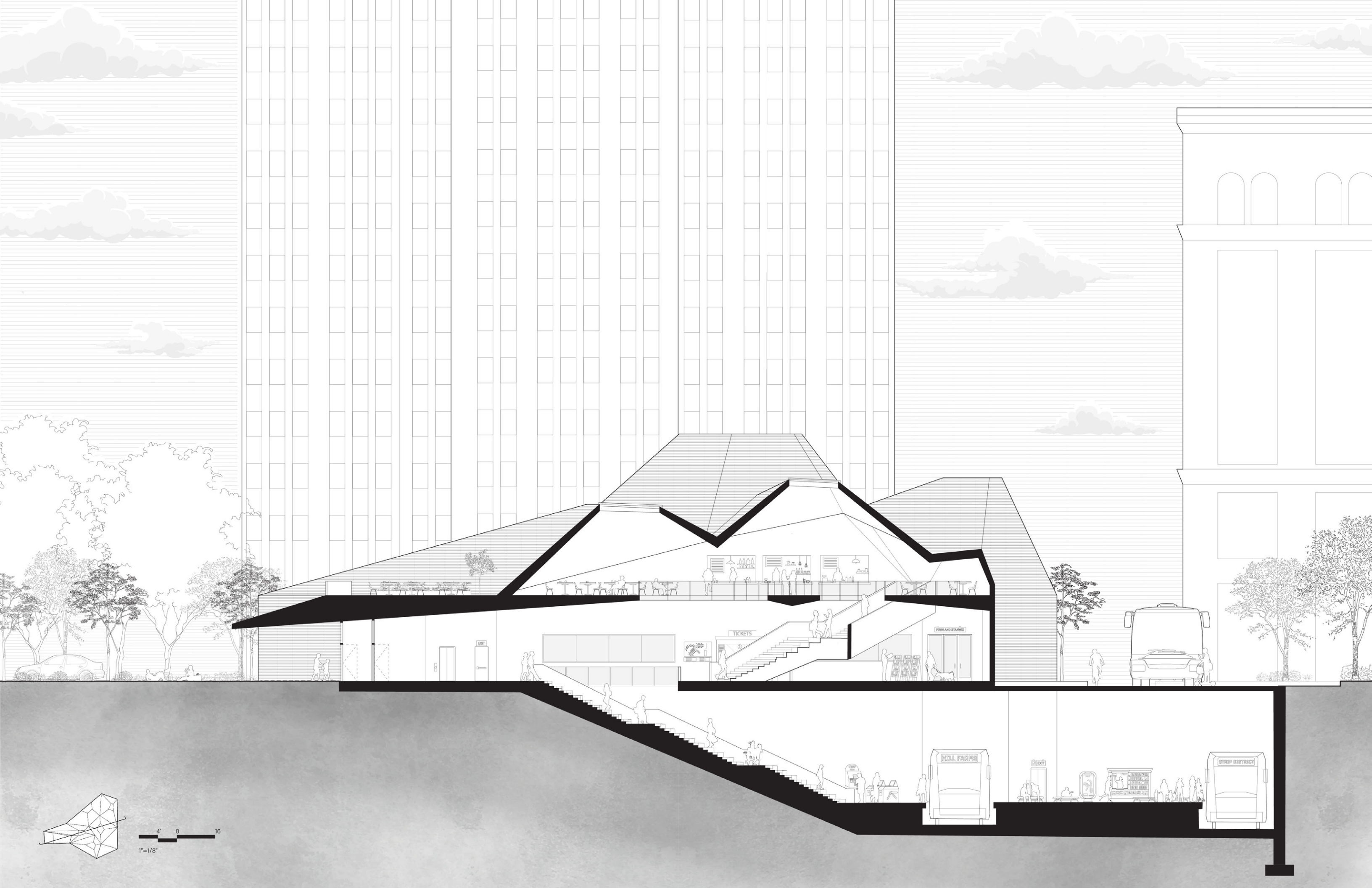


At the heart of downtown Pittsburgh, the Gateway Station undergoes a thoughtful redesign, becoming a central hub that seamlessly integrates with the city's reimagined rail line. Constructed using cross-laminated timber, the station reflects a commitment to sustainable architecture. This hub serves as a dynamic transportation nexus, connecting various neighborhoods and promoting a greener, more efficient public transit system. The redesigned Gateway Station symbolizes the city's dedication to embracing the future while preserving its rich history.



Second Floor Plan





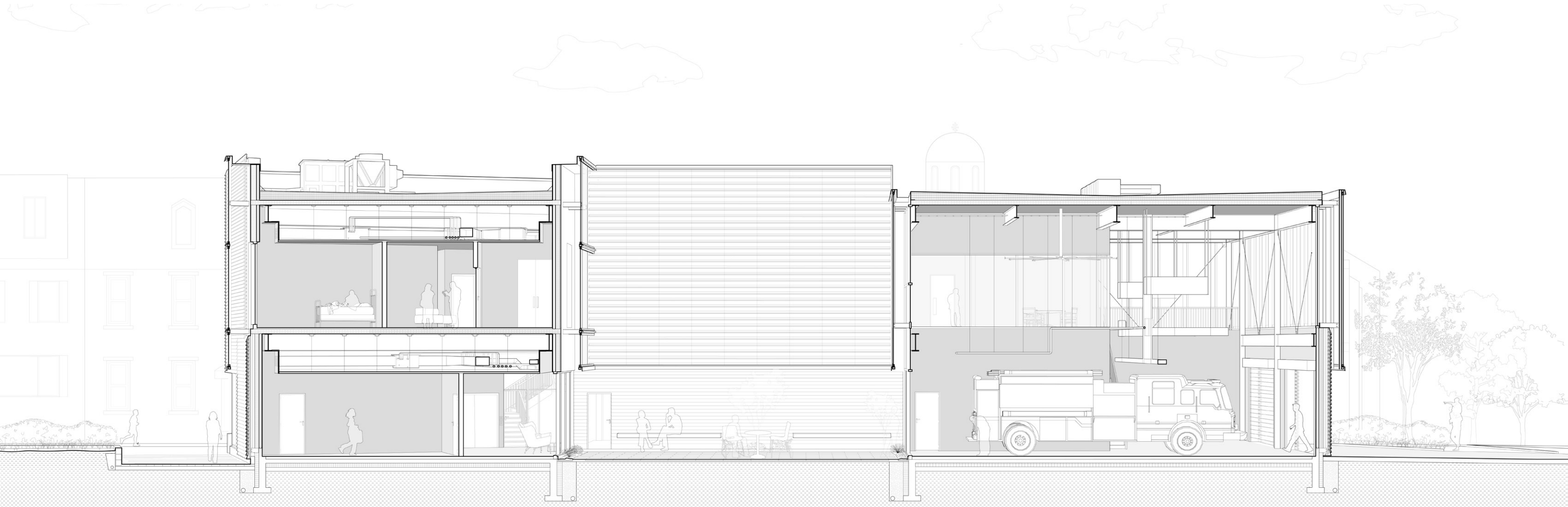
4' 8' 16'
1"=1/8"

SOUTHSIDE FIRE STATION

Southside, Pittsburgh, PA
Instructor: Andrew Stone
Partners: Darin Kim, Eric Yu,
Patrick Zheng
Year: 2024

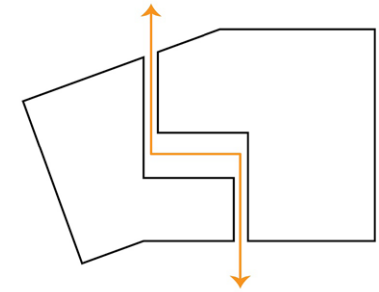
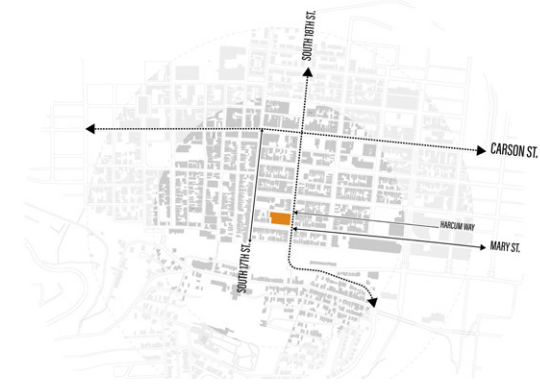
Our design aims to create a fire station that not only addresses the practical needs of firefighters but also serves as a visually engaging and welcoming public space for the community of South Side Flats. We assessed building integration as a driver for this project. We honed in on resolving structure, HVAC, facade, life safety, and more to create a comprehensive proposal for a fire station. Through all aspect, we kept in mind our goal of rethinking what a civic building is and how it can function to its needs but also be a human-scaled and welcoming space for both the people who work there and the general public.

02

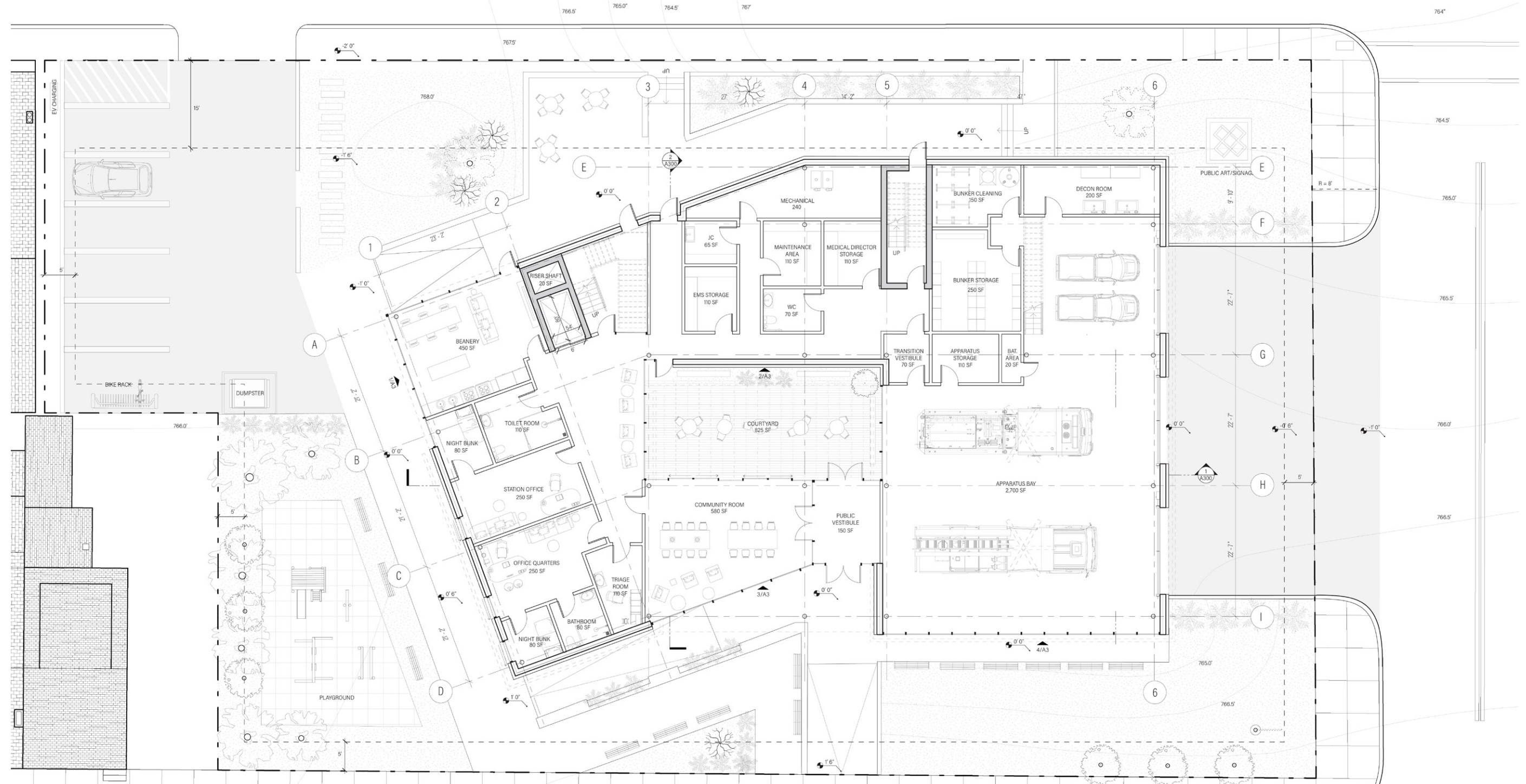


ORGANIZATION We knew we wanted our design to have a different and exciting language that breaks away from the neighborhood context and stand out as a civic building and beacon for the community.

We started this by creating an internal shift of massing. Initially this was to signify the programmatic and spatial distinction between the apparatus bay and the general living quarters.

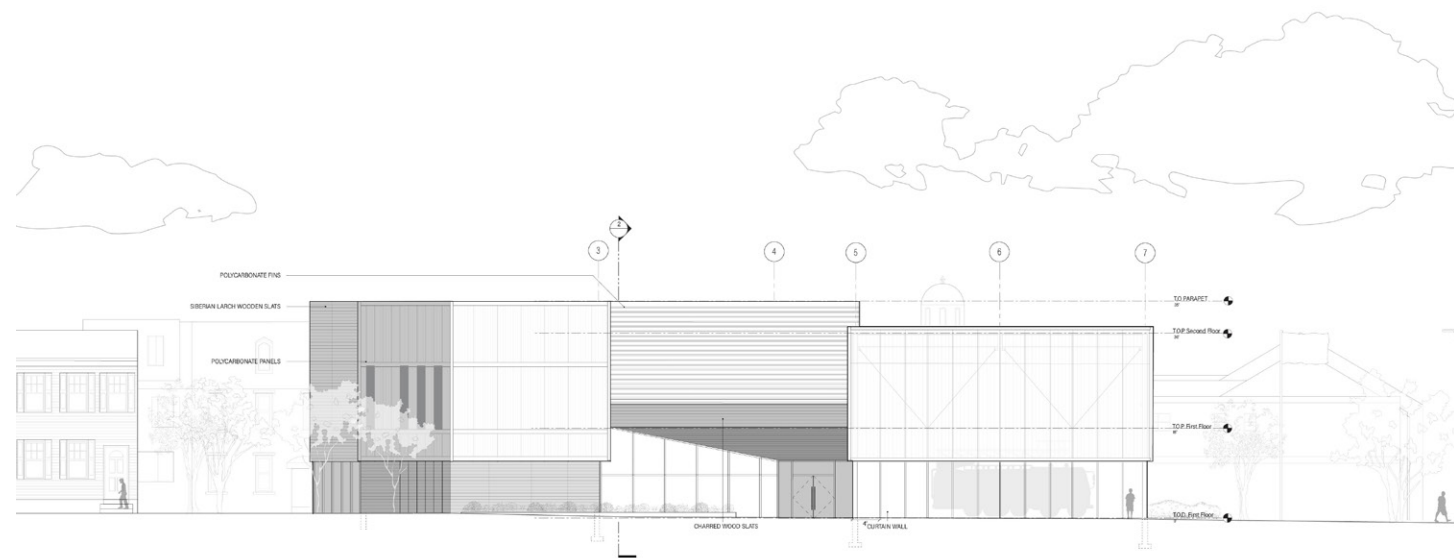


First Floor

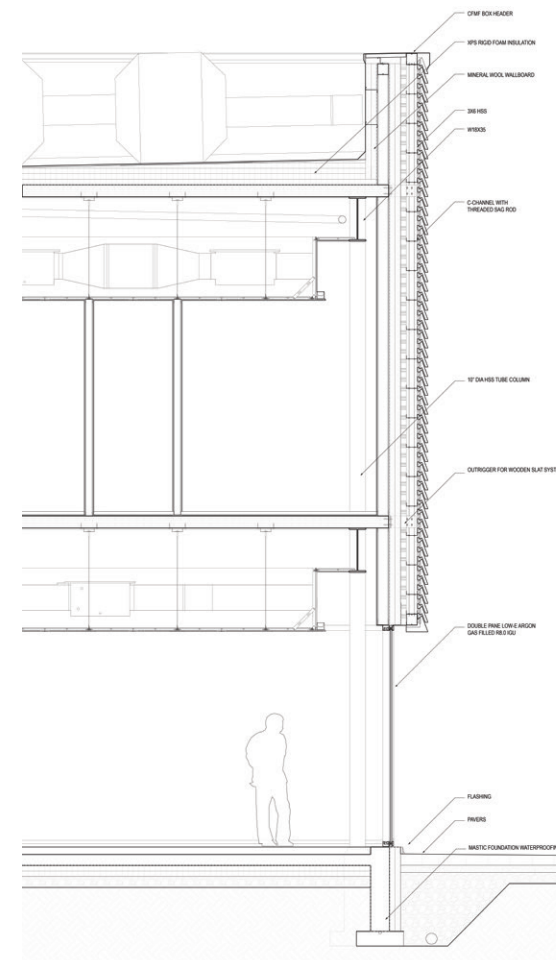




North Elevation



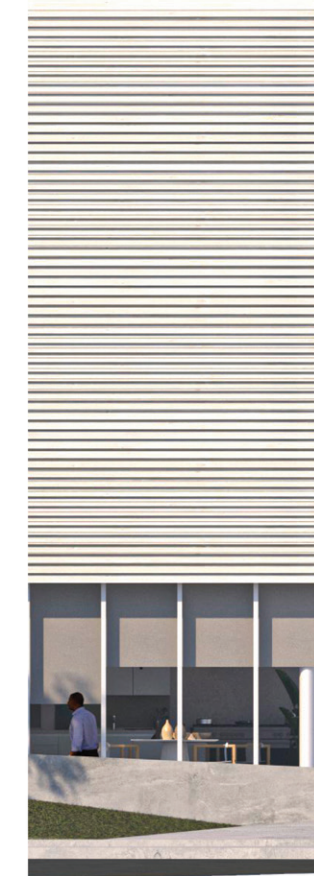
South Elevation



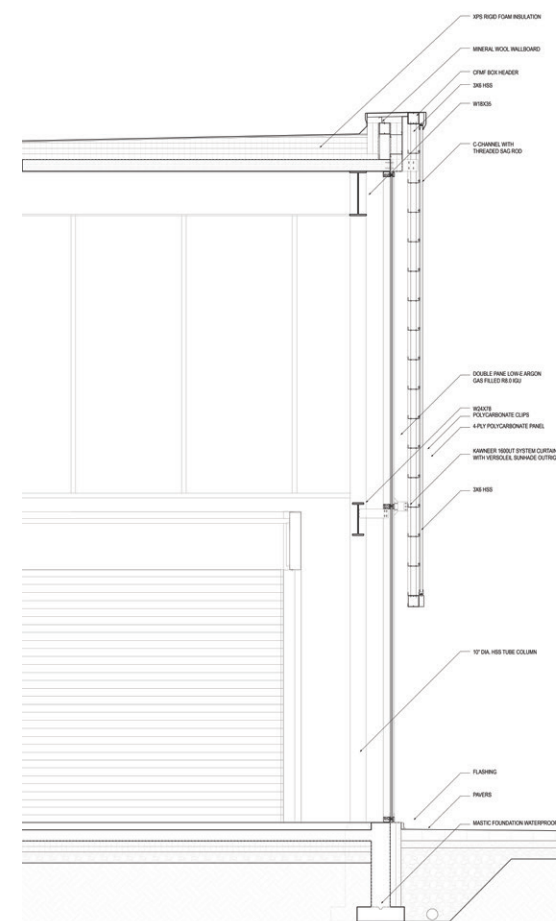
ENVELOPE

We settled on three levels of hierarchy for our facade materials in terms of transparency - wooden slats, polycarbonate, and curtain wall.

This is due to the nature of the programming, from transparent spaces being visible for the community to solid spaces concealing the gritty systems and work that go into the fire station.



North Detail



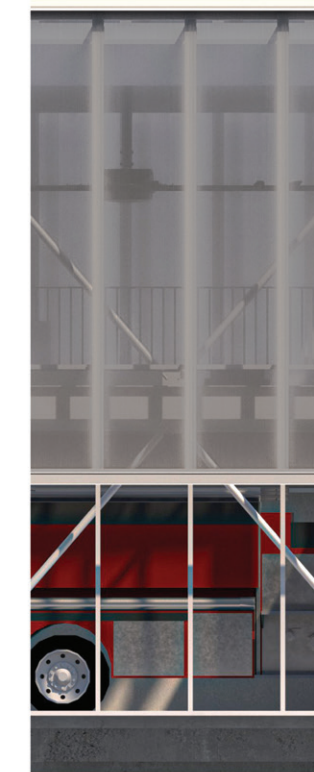
Code Compliance

2021 IECC

C402.1.3 - Opaque Wall Assembly Minimum Insulation R-Values
 Climate Zone 4
 Insulation Above Roof: R-30 continuous insulation
 Metal Framed Wall: R-13 and R-7.5 continuous insulation
 Below-Grade Insulation: R-7.5 continuous insulation
 Unheated Slabs: R-15 for 24" below

C402.4 - Building Envelope Fenestration Maximum U-Factors/Minimum R-Values
 Climate Zone 4
 Fixed Fenestration: U-0.36, or R-2.77

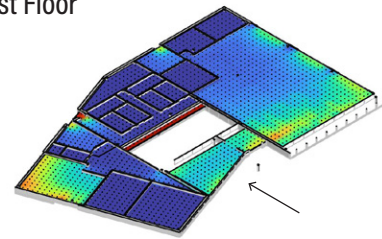
Total R-Value Assemblies
 Apparatus Bay - R-13



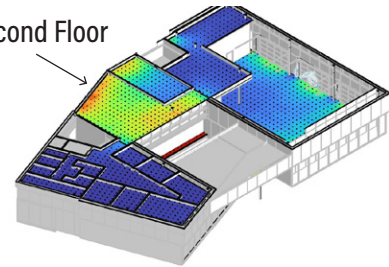
South Detail

CLIMATE ANALYSIS

First Floor

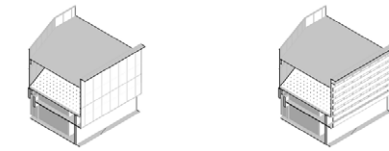
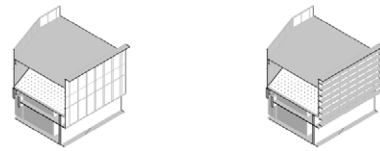


Second Floor

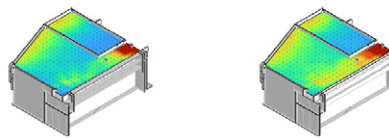
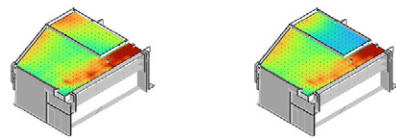


Avg. Lux
Entire Building

DAYROOM



STRATEGY



Having polycarbonate brings down the avg lux across occupied hours but fins help keep the transparency we want to achieve.

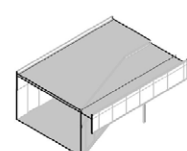
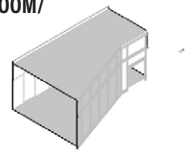
Glazing

PC Fins

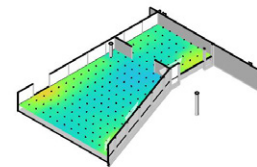
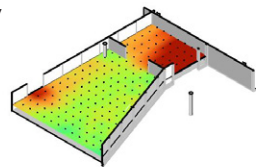


Avg. Lux
Day Room + Gym

COMMUNITY ROOM/
LOBBY



STRATEGY



Overhang significantly brings down the avg lux across occupied hours and fits in with our facade strategy.

No Overhang

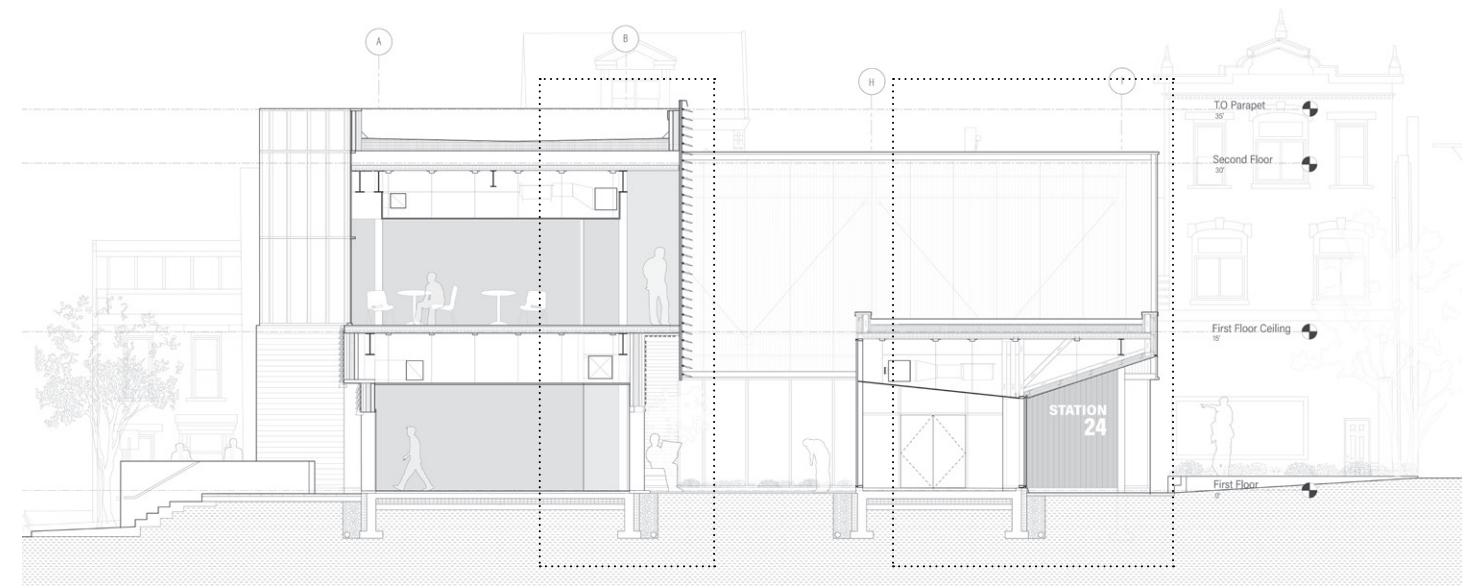
Overhang



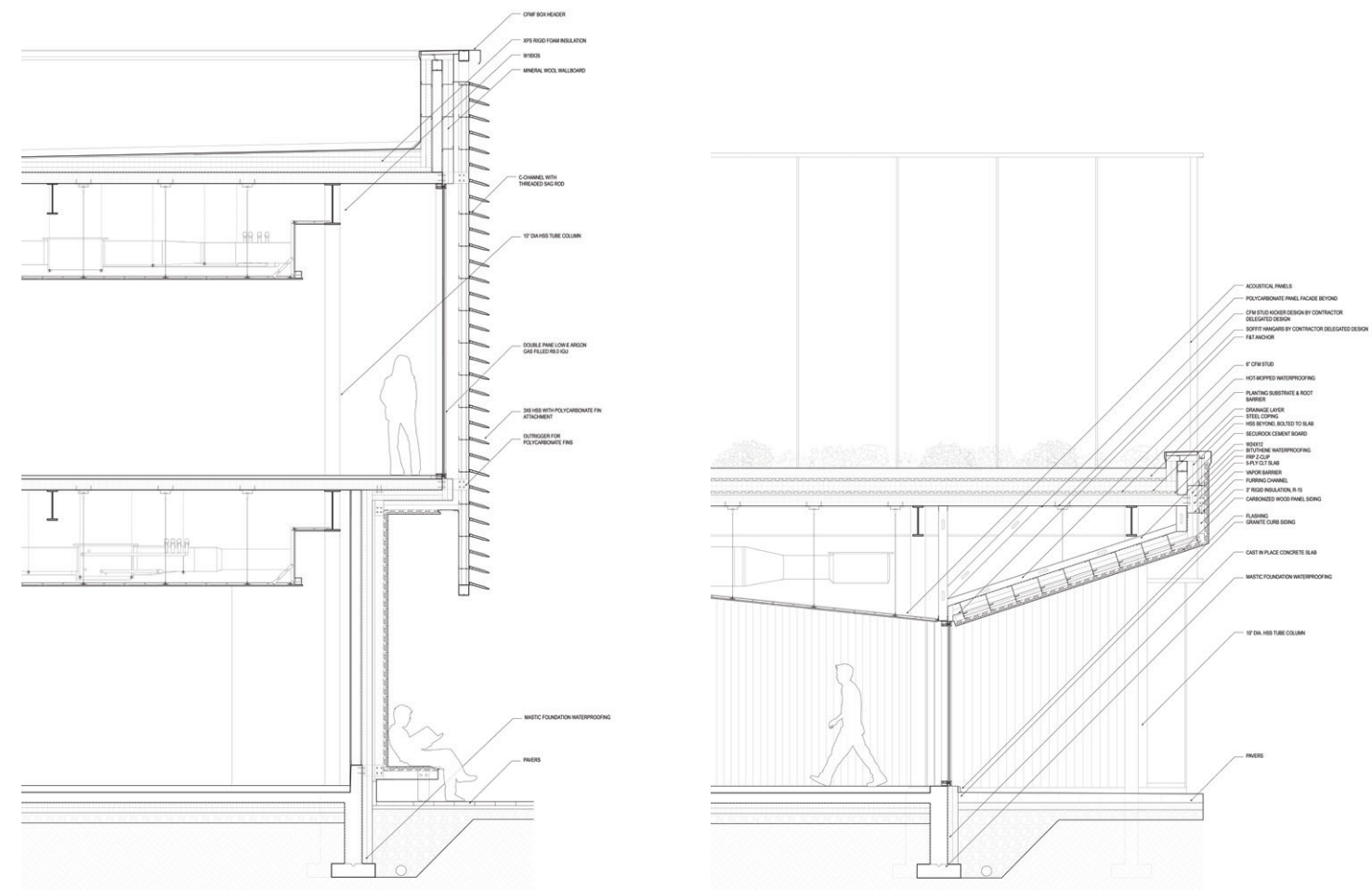
Avg. Lux
Community Room/Lobby

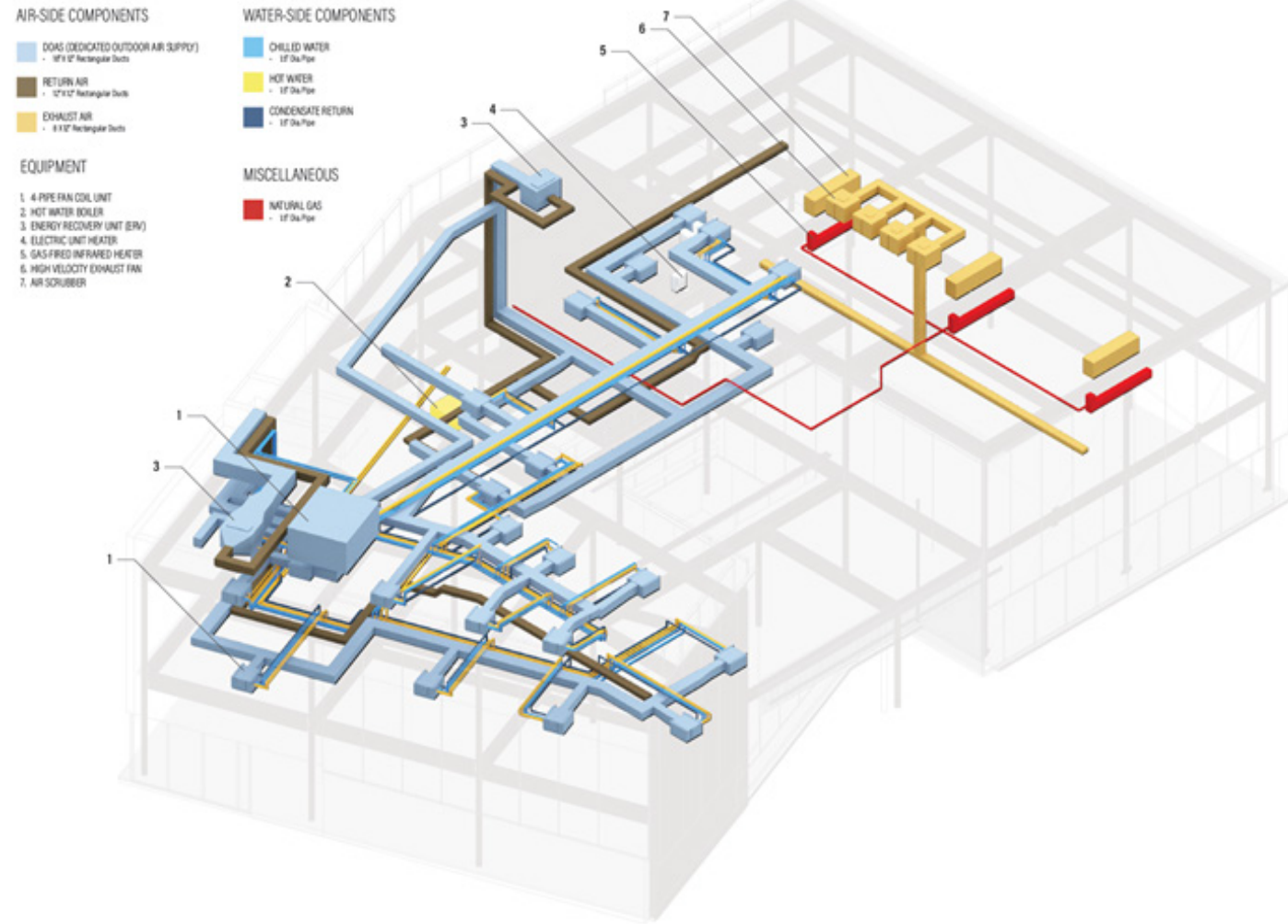
Through climate analysis we further developed shading strategies on two south facing facades we found to be overexposed.

This included an overhang at the entry way and polycarbonate fins for the dayroom which lower solar exposure yet still allow for views.



West Facing Section

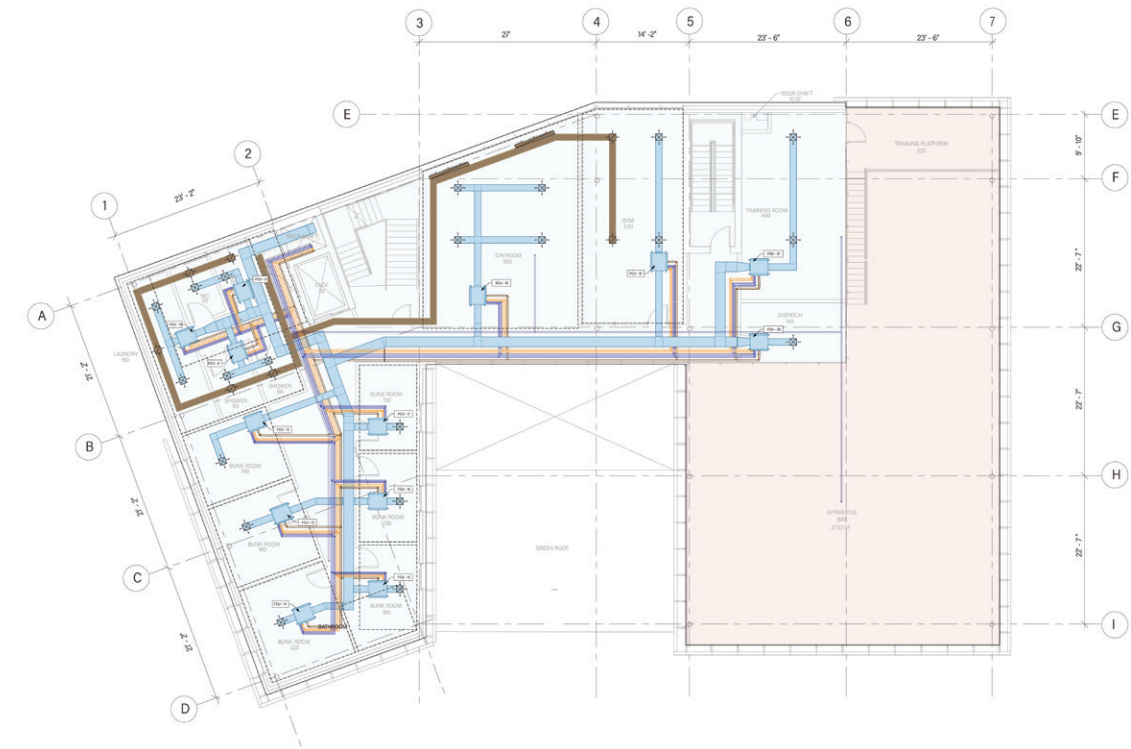




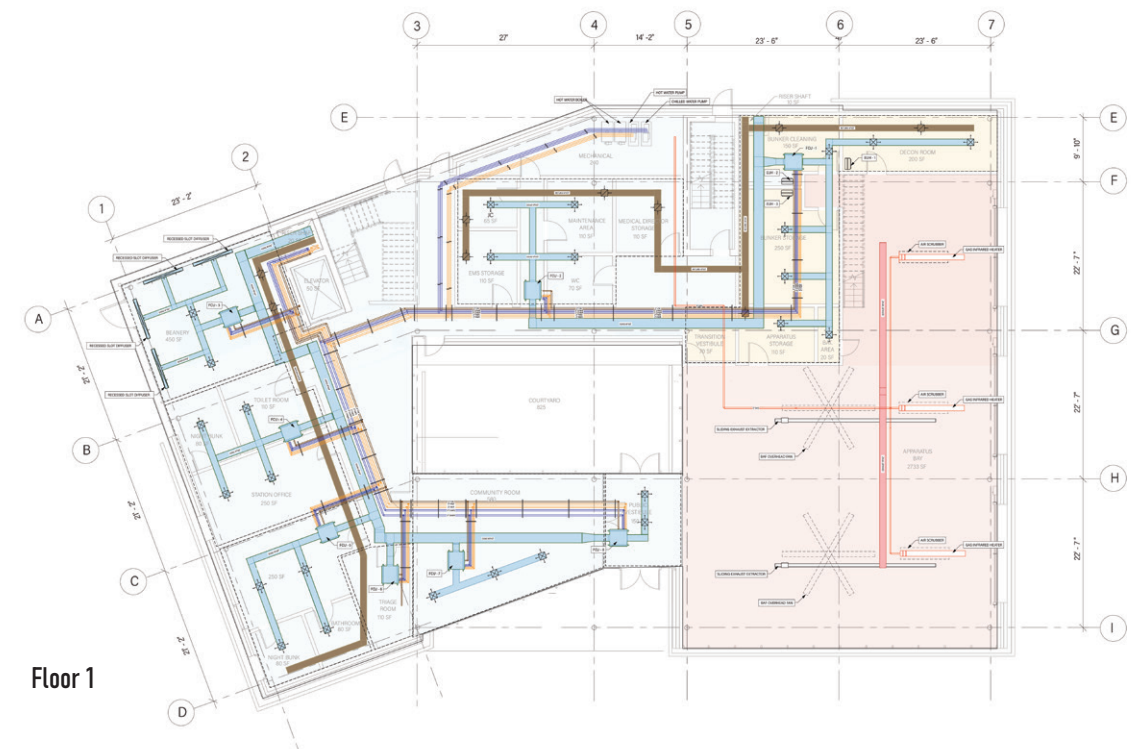
HVAC

An FCU system allows for heating and cooling to be run at the same time, allowing for certain spaces such as the bunks and offices to be heated while other spaces such as the gym to be cooled. This would improve the comfort and quality of life for the firefighters living in the space, allowing them to better perform their work.

To increase the energy efficiency of our building and to supply the volume of outdoor air required by ASHRAE 62.1, two ERVs are utilized to capture energy from rejected waste air. The heating of the apparatus bay is treated as a separate system from the rest of the fire station with three gas infrared heaters.



Floor 2



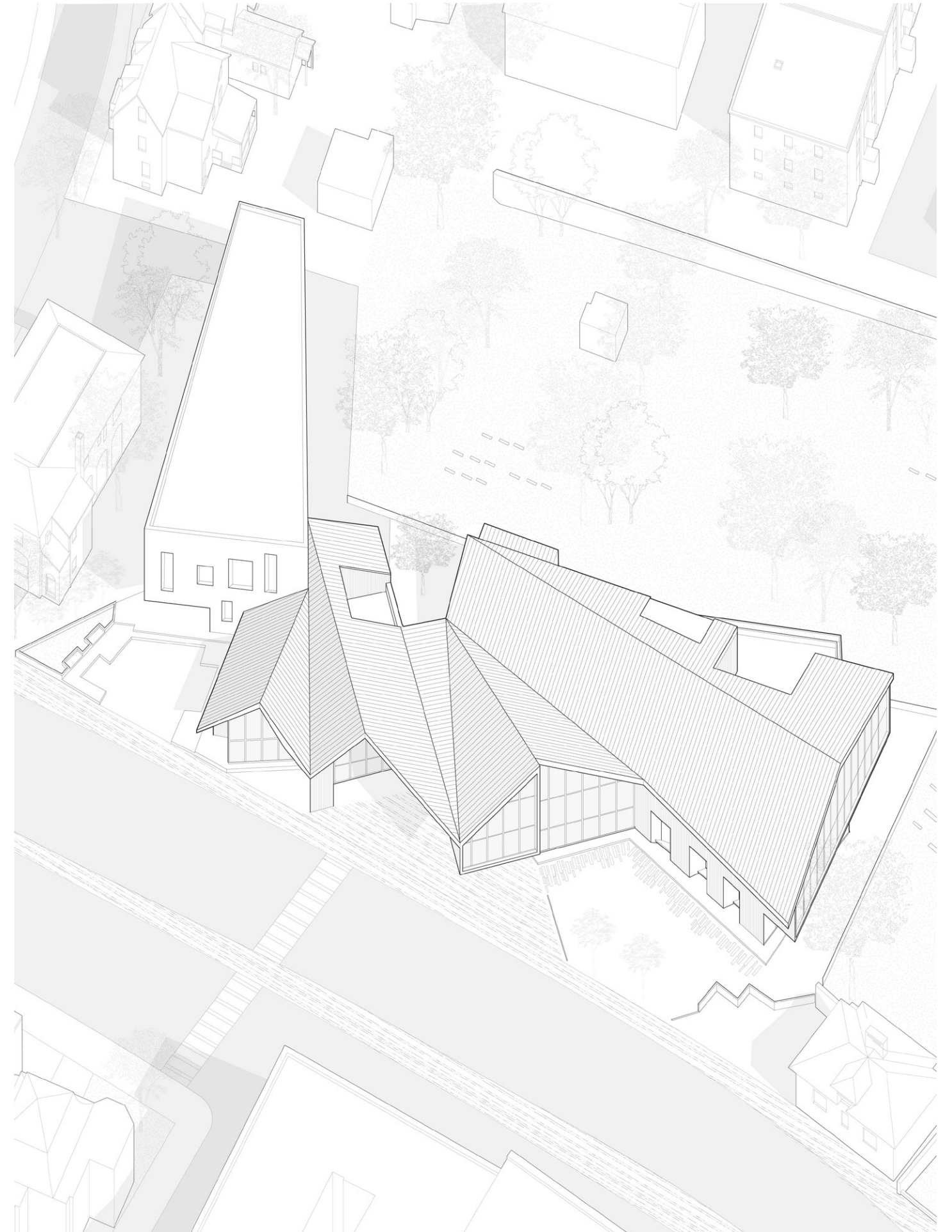
Floor 1



UPHAMS CORNER PUBLIC LIBRARY

Dorchester, Boston, MA
Instructor: Vicky Achani
Year: 2024

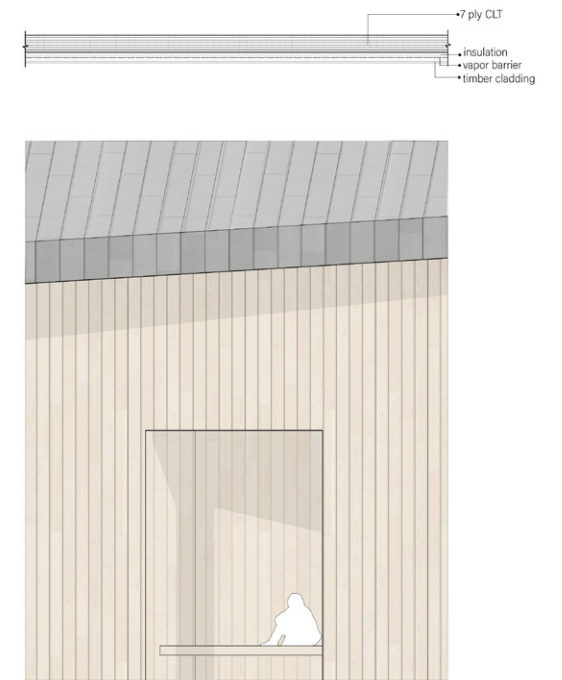
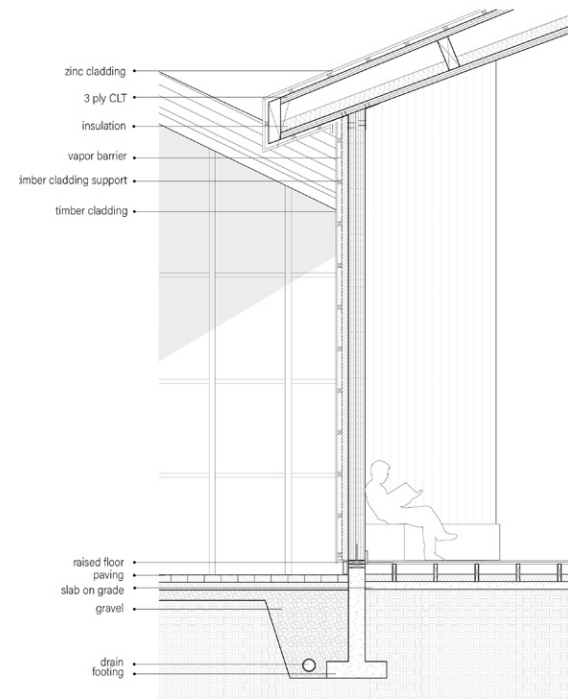
This project for the Upham's Corner Branch of the Boston Public Library sought to exemplify the synthesis of various elements—cultural, and environmental—to create a sustainable and community-centric architectural intervention. Uniquely located next to Dorchester Burial Ground, the goal was to create a space for members of the community to engage with their curiosity through various spaces catering to their needs. Roughly a third of the site was to be dedicated to affordable housing along with another third going towards exterior spaces and lastly a third for the library. By embracing bio-based material, engaging with as well as challenging local context, and fostering inclusivity, the design seeks to reimagine the role of public libraries in the 21st century.



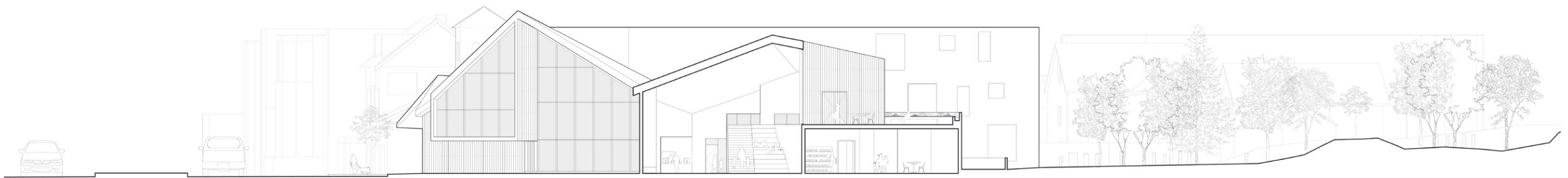
03



Massing



Envelope Details



Section through Columbia Road and the Cemetary

This section shows the adult reading space, the teen space, and the reading terrace. It was important to create access to the outdoors for moments of respite and to pay respect to the burial grounds adjacent.

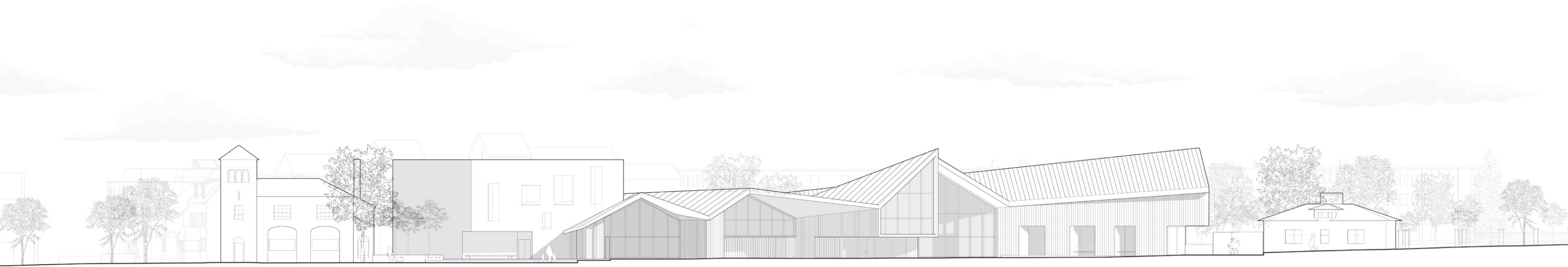




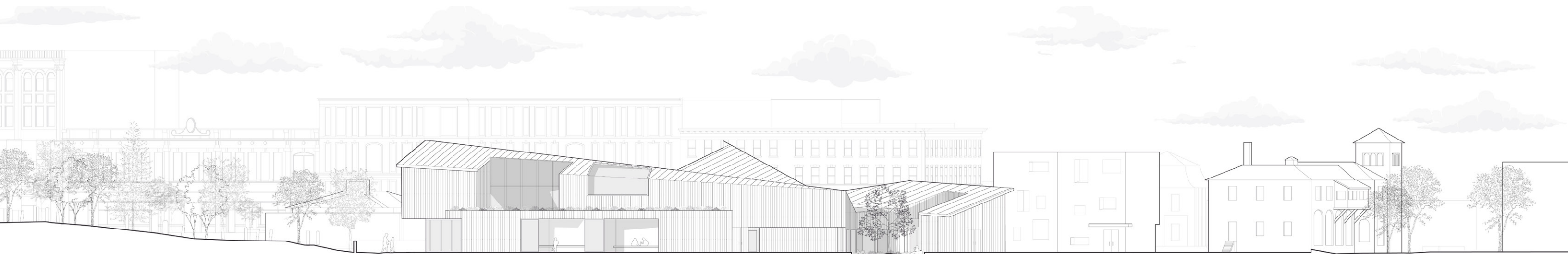
ORGANIZATION

The programming is broken down based on the volumes of the building. The center volume holding the front desk and lobby.

The largest volume holds the reading areas and access to the outside. The third volume contains service spaces as well as the rowdier activity spaces and lastly the community rooms are in the last volume and are connected to the housing block.

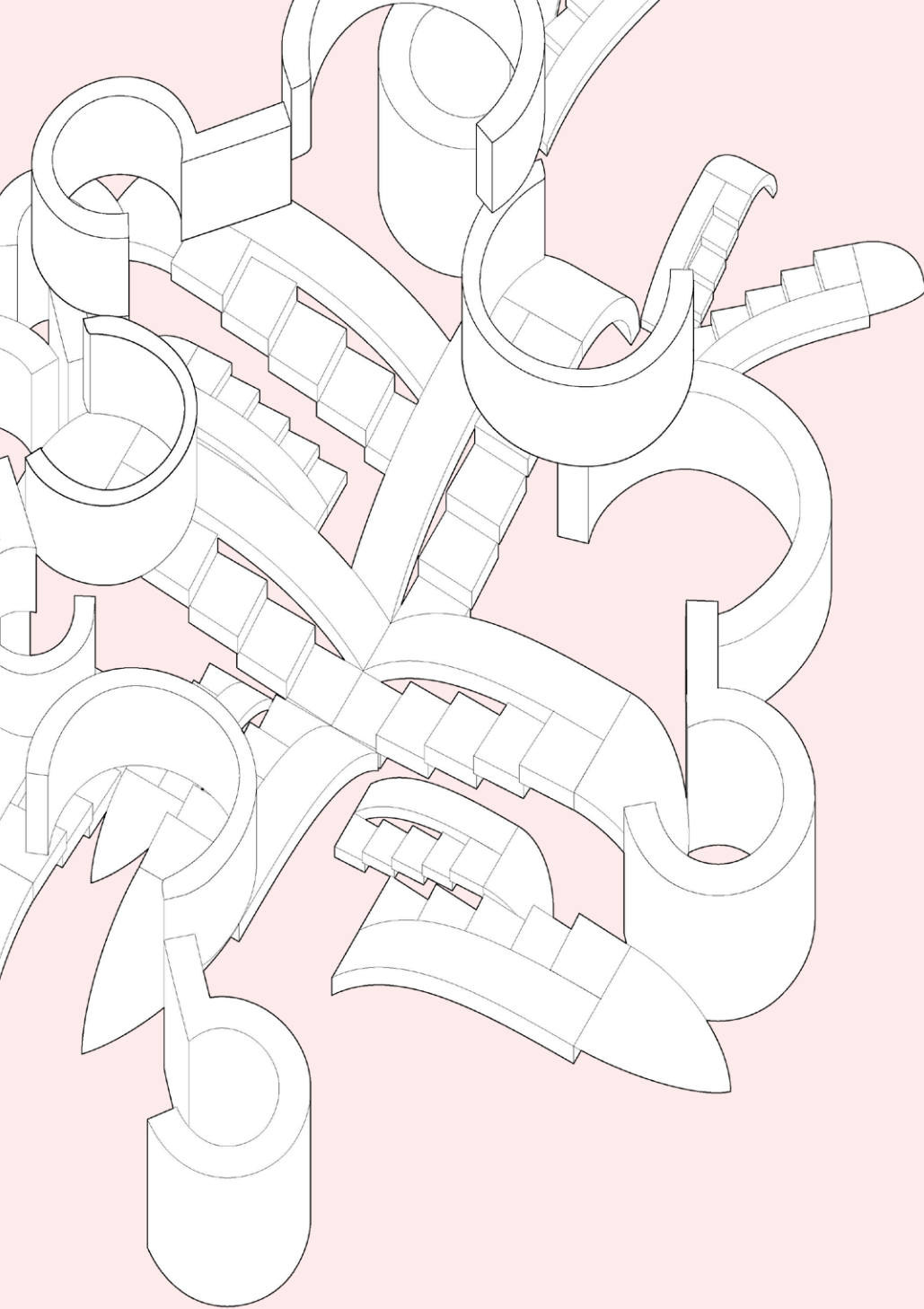


Front Elevation



Back Elevation





GET IN TOUCH
camilam@andrew.cmu.edu
908-577-6581

THANK
YOU