

KYLA DOWLEN

UNDERGRADUATE PORTFOLIO

THE URBAN FARM COMPLEX

Instructor: Ryan Roark

Project Team: Heidi Davari

Spring 2021

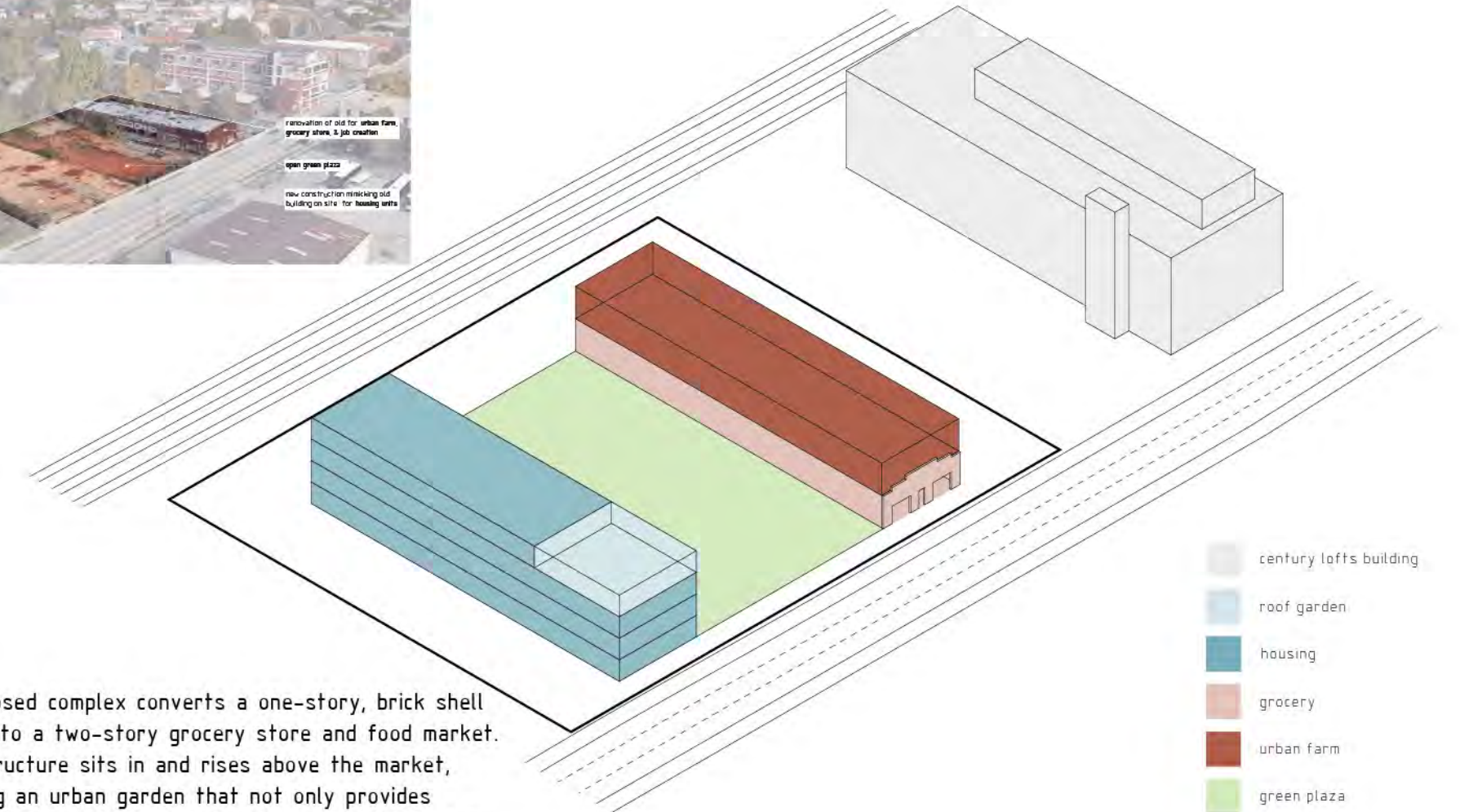
The Urban Farm Complex proposes to convert an empty building that was once a showroom into a grocery store alongside a new residential building in Mechanicsville, a neighborhood just south of downtown Atlanta, GA. Currently, Whitehall Street divides Mechanicsville from the adjacent Castleberry Hill neighborhood and downtown Atlanta. Development of Whitehall is anticipated in the near future and will either continue to divide the neighborhood or offer opportunities of bridging Mechanicville to downtown.

"Mechanicsville needs more affordable housing/living spaces that are affordable."
Steven Adams, Mechanicsville (Glenn Street) resident since 1999

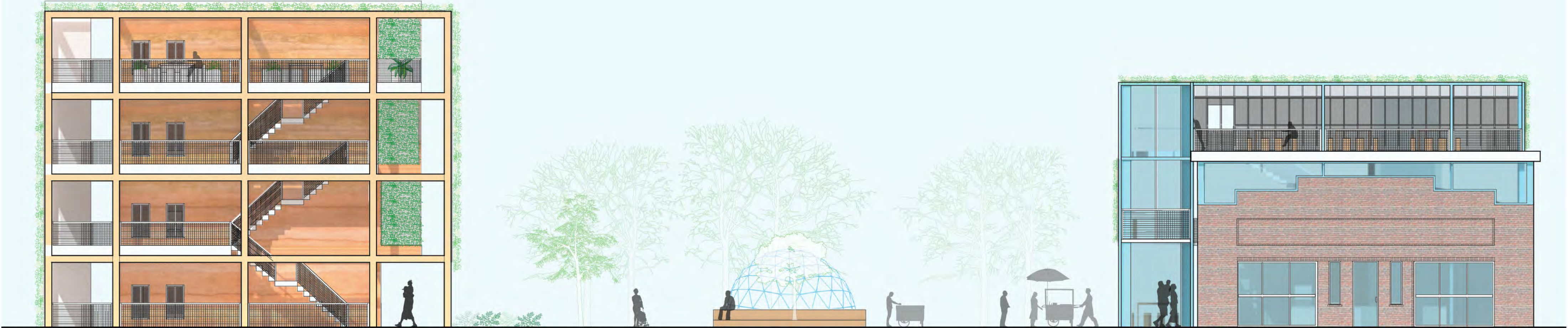
"The biggest change I hope to see in Mechanicsville is more grocery stores developed for residents."
Teresa Dunn, President of Columbia Senior Residents, Mechanicsville



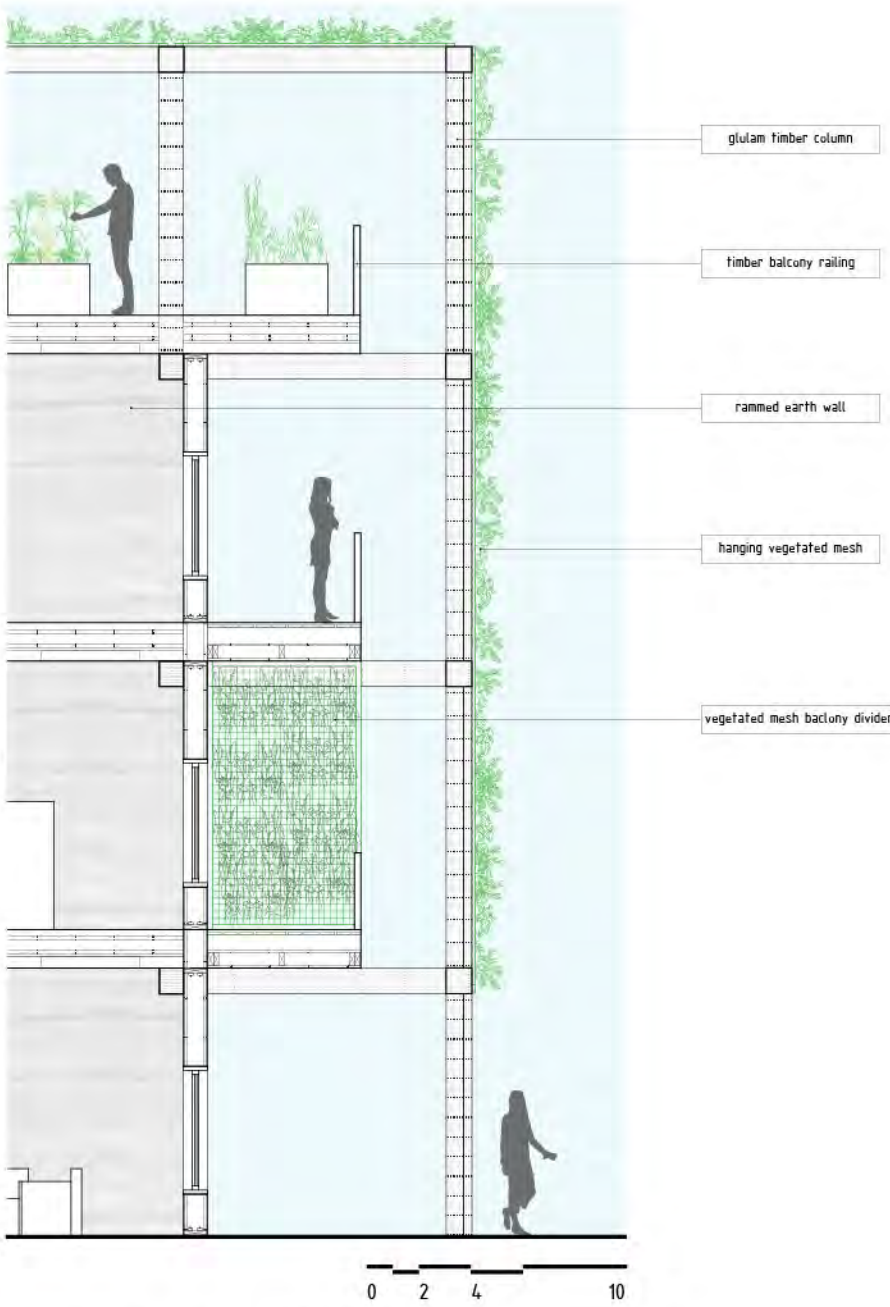
The proposed complex converts a one-story, brick shell building into a two-story grocery store and food market. A new structure sits in and rises above the market, supporting an urban garden that not only provides produce to be sold below, but also an opportunity for visitors to enjoy green canopy and vegetation that is currently lacking in Mechanicsville, but plentiful in other parts of Atlanta. On the other end of the site stands a new four-story housing development joined to the existing building by a public green plaza with both public and private zones.



ELEVATION



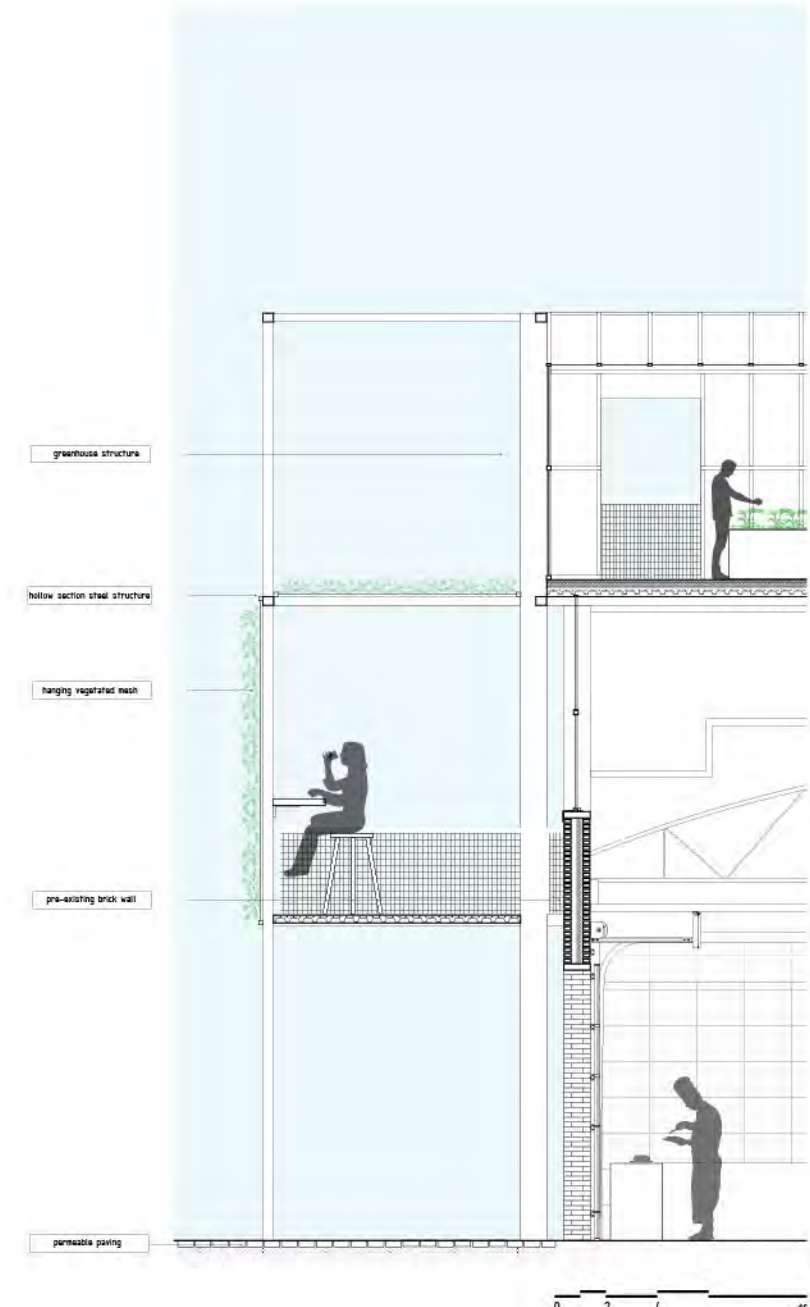
0 4' 12' 20' 36'



HOUSING WALL SECTION

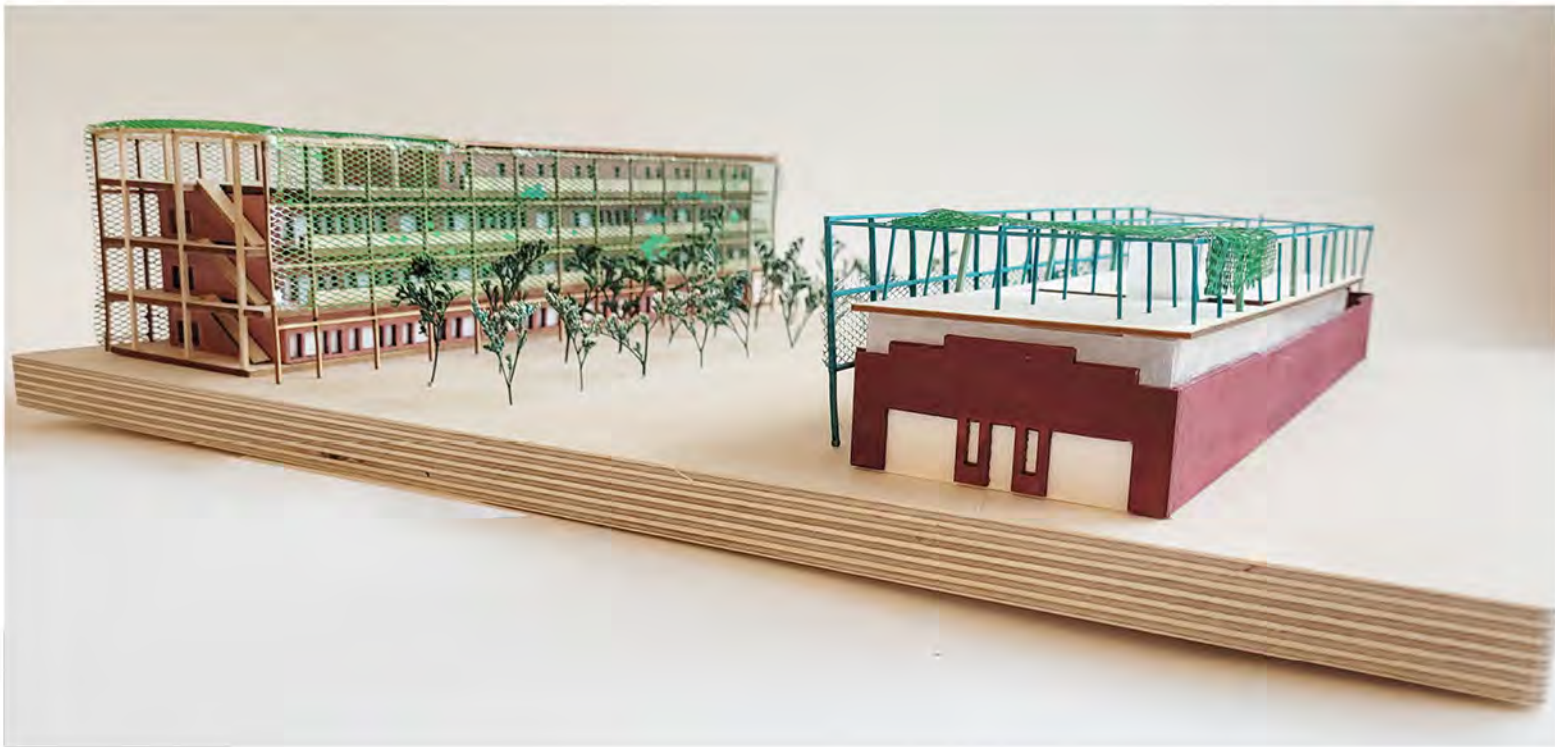
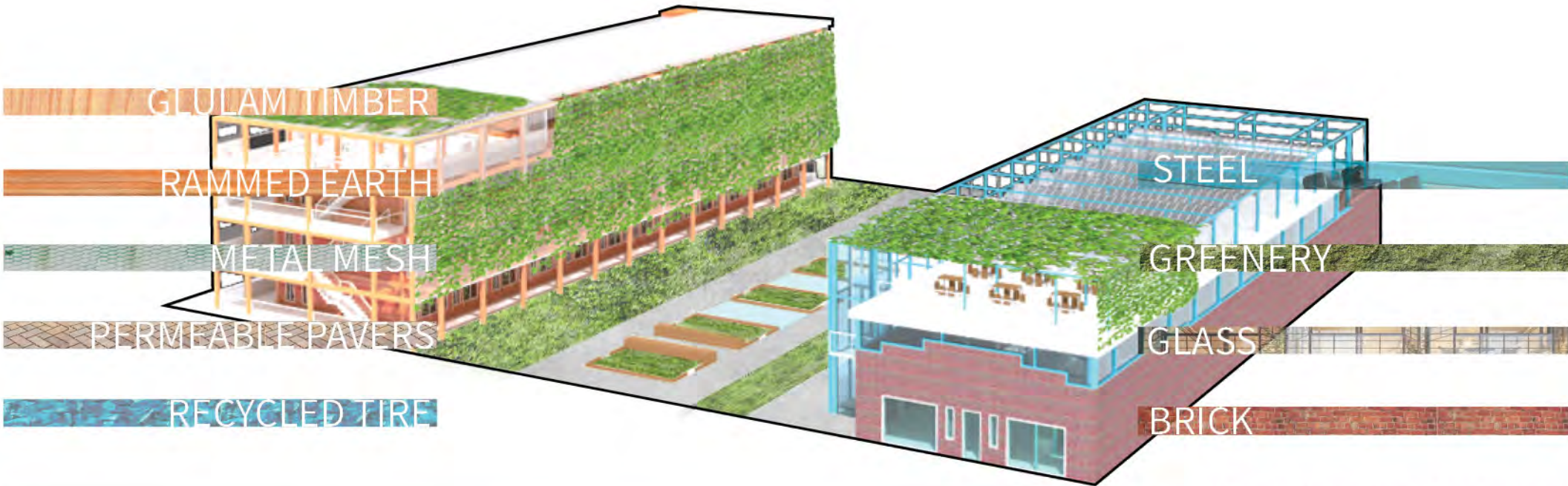


The retention and echoing of the existing building celebrate the deep history of Mechanicsville while bridging to the new dimensionally duplicated development via symbolic materials and structure. The development scales up the density that currently exists in Mechanicsville but maintains a relationship with the existing scale of the neighborhood.



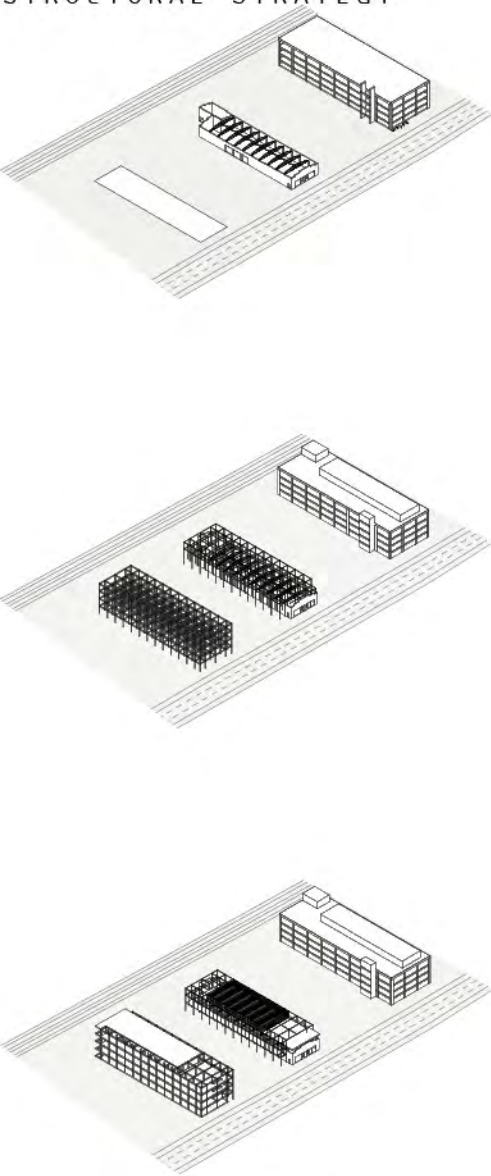
GROCERY WALL SECTION

MATERIAL STRATEGY



The use of rammed earth in the housing development mimics the coloration of the existing brick building but upgrades to a more sustainable material. The existing building's structural trusses are retained and used to inform both the extended steel structure of the grocery expansion and the layout of the heavy timber structure in the new building. By taking the existing fabric and adapting it to current needs, the new development stands as an embodiment of the past while looking towards a more thriving future. Biophilic design ideas are further developed inside the housing development via rammed earth and timber material usage. By using these more natural materials inside of the units, inhabitants are more fully immersed in the biophilic design concepts of the Urban Farm Complex.

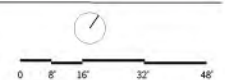
STRUCTURAL STRATEGY



This concept of exposed structure is also present in the adjacent grocery and rooftop urban farm building. Here, steel usage of the existing shell building is further implemented as the primary material in our invented structural system. The Urban Farm Complex utilizes a biophilic design approach that incorporates greenery into the community and new housing and provides much needed food resources in the current food desert of Mechanicsville.

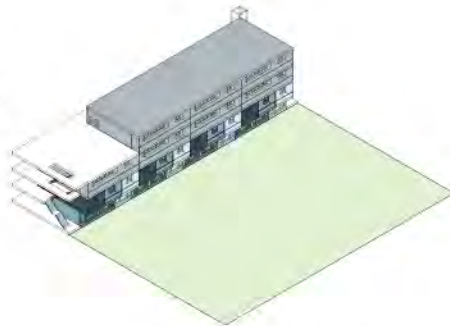


GROUND SITE PLAN



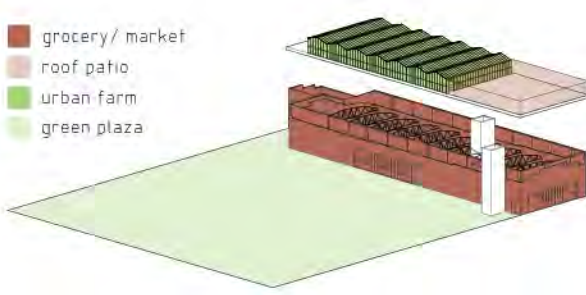
HOUSING PLANS

- studio apartment [four @ 553 sq ft]
- 1-bedroom apartment [four @ 1,106 sq ft]
- 2-bedroom apartment [four @ 1,678 sq ft]
- 3-bedroom apartment [seven @ 1,697 sq ft]
- green plaza

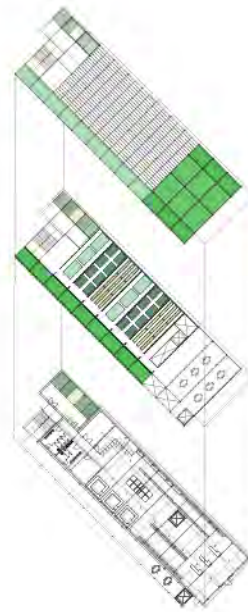
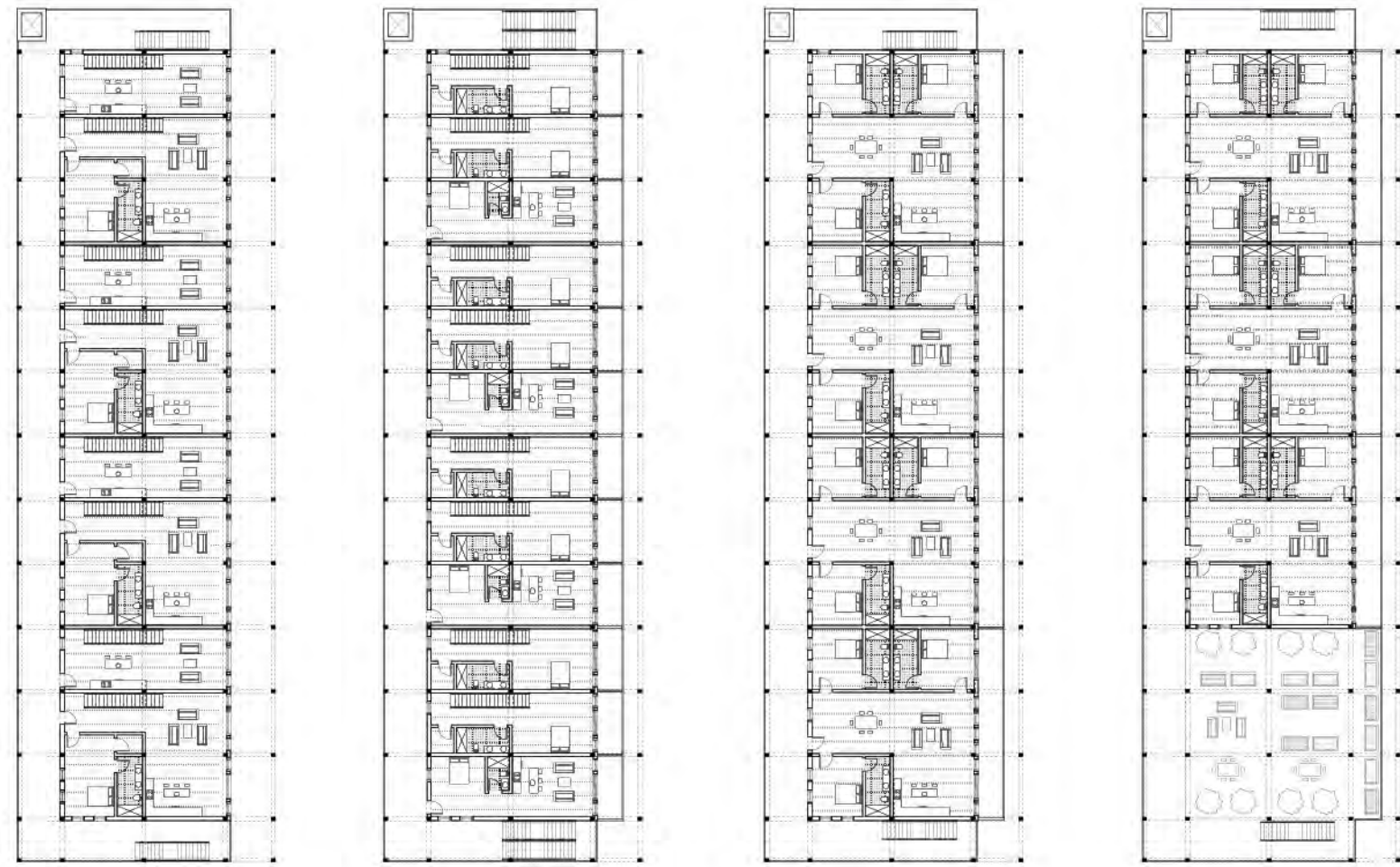


GROCERY PLANS

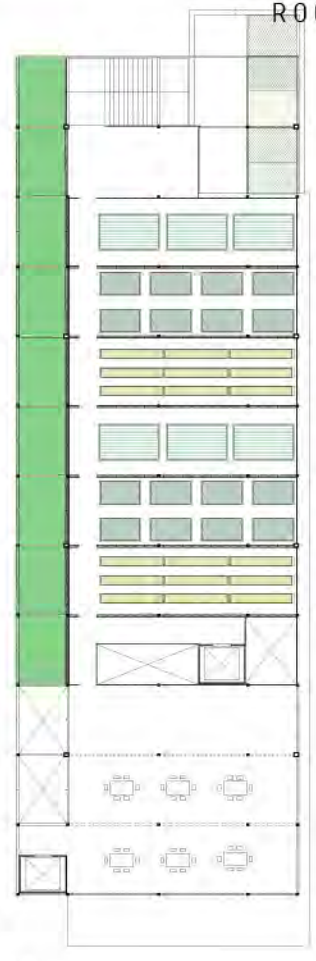
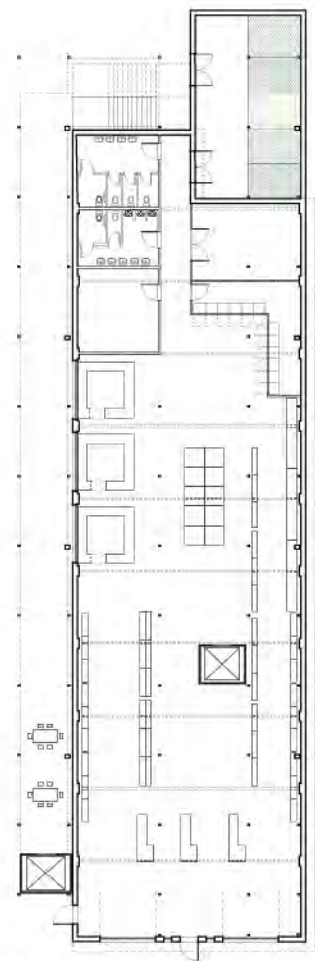
- grocery/ market
- roof patio
- urban farm
- green plaza



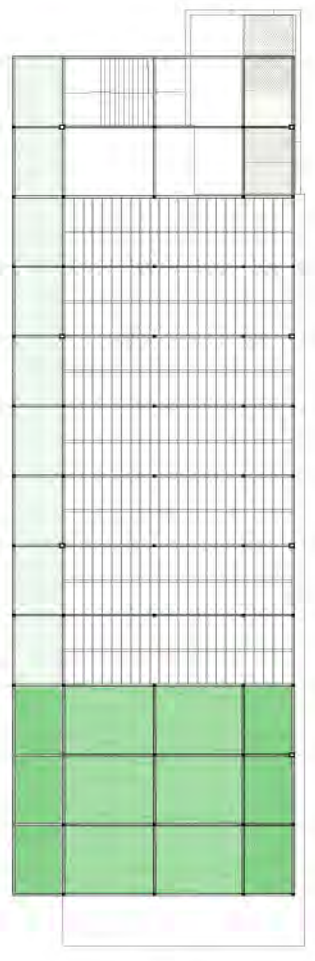
The housing development includes a variety of unit sizes and configurations, to accommodate various living situations, family sizes, and affordabilities. The units on the first two floors are two stories so that no resident has a ground floor balcony off the central plaza, not only provides produce to be sold below, but also an opportunity for visitors to enjoy green canopy and vegetation that is currently lacking in Mechanicsville, but plentiful in other parts of Atlanta. On the other end of the site stands a new four-story housing development joined to the existing building by a public green plaza with both public and private zones.



The grocery store plan has opportunity for typical shopping and retail, but provides space for vendors or small shops to sell to visitors. The booths are placed in front of operable garage doors that open out into the plaza. The second floor plan shows urban farm greenhouses with various planters for growing food to be sold below. A roof patio open to the public faces out into the street and the central plaza to allow transparency within the space and be more inviting.



ROOF PLAN





HOUSING INTERIOR VIEW

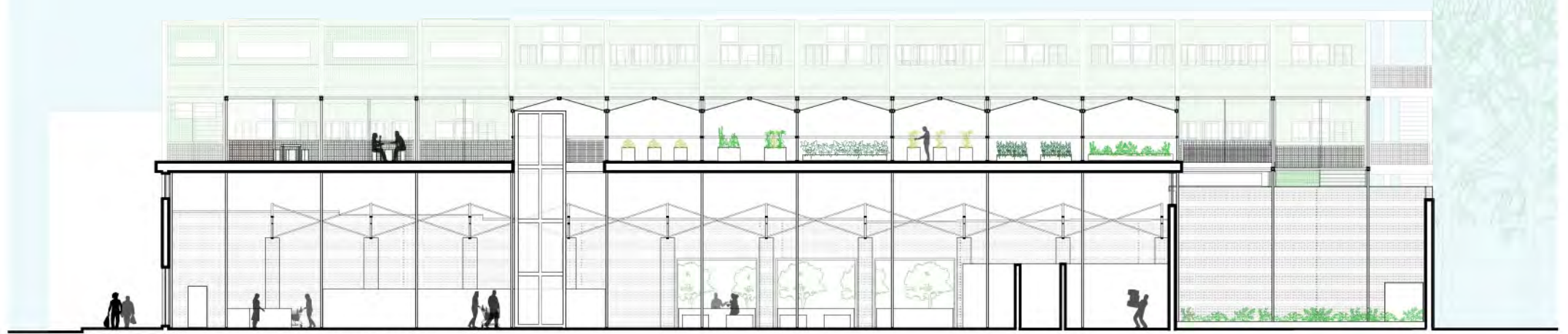


GROCERY INTERIOR VIEW



LONGITUDINAL HOUSING SECTION

0 8' 16' 32'



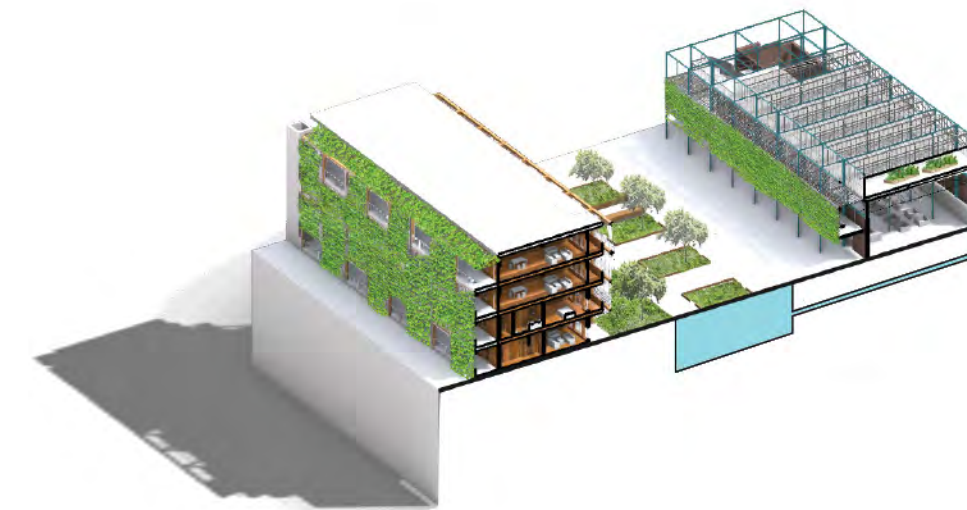
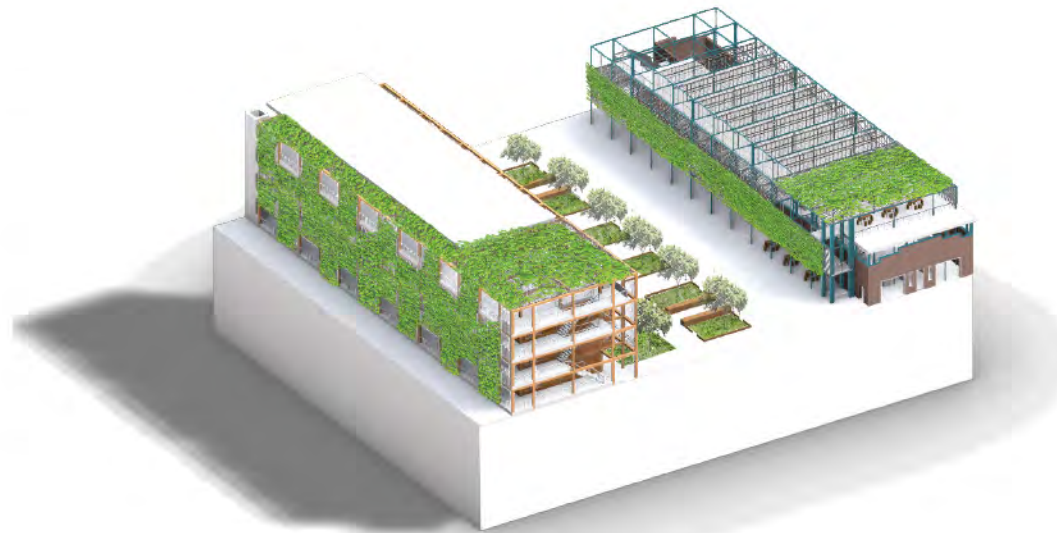
LONGITUDINAL GROCERY SECTION

0 8' 16' 32'



SUSTAINABILITY STRATEGIES

The Urban Farm Complex uses biophilic design strategies that incorporate increased vegetation canopies and vistas currently lacking in Mechanicsville. Vegetated screens hang from both the adaptive reuse grocery and the new housing development where greenery provides shade and privacy. The vegetated screens create the sense of an enclosed space, permeable to air flow and natural light. Renovations to the existing building also invite passive airflow and natural lighting by adding operable garage doors and windows and lifting the roof to add a clerestory. The urban rooftop farm is a visible food network in a food desert, incorporating passive cooling and using stormwater captured on site below the central green plaza. The large central green space preserves the current sense of openness on Whitehall, which is a consequence of disuse, but which creates opportunities for activated, publicly accessible plazas and green spaces. Currently, there are many open lots in the area with potential to be revitalized as open spaces for community members to enjoy.



Adaptive Reuse

- reuse of the steel structure and brick facade
- lift the roof and added clerestory for natural lighting
- operable storefront for passive air flow

Urban Farm

- visible Food Network
- food Desert Oasis
- vegetation
- passive cooling

Roof Garden

- biophilia
- social capital
- vegetation

Vegetated Screens

- biophilia
- vegetation
- sun shading
- privacy

Public Open Space

- permeable surface
- social capital
- heat island reduction
- vegetation

Stormwater Management

- stormwater catchment for water reuse through irrigation



EXTERIOR VIEWS



SHRINE + SHED

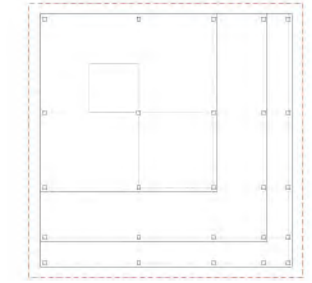
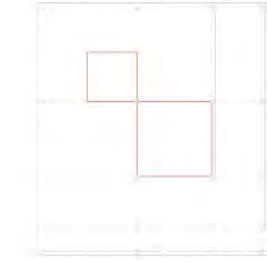
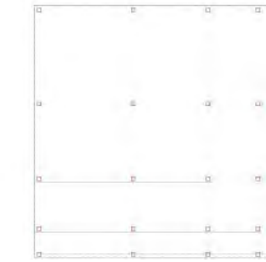
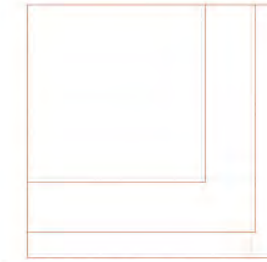
Instructor: Sabir Khan
Fall 2020

The shrine and shed is a project for Georgia Tech's mascot the Ramblin Reck. This car has historic value to the campus is placed in the hands of the Ramblin Reck Club to maintain. This project locates a site on the campus that is most suitable to house a shrine and shed for the Ramblin Reck. The area chosen is between Tech Walkway and the Transportation Hub, south of the campus green lawn. The significance of this site for the shrine and shed is that it is located at one of the campuses four entrances. Additionally the Reck can be displayed to the audience walking through Tech Walkway and around Tech Green. The chosen site contains a grove of old trees which will be undisturbed with the introduction of this pavilion. Instead the pavilion is able to use the trees to its advantage both as a means of passive cooling and a aesthetic scene.

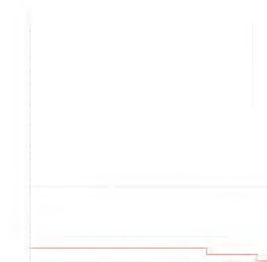


CONCEPT ANALYSIS

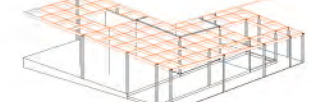
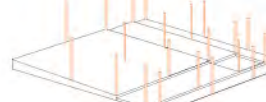
plan



section



axonometric

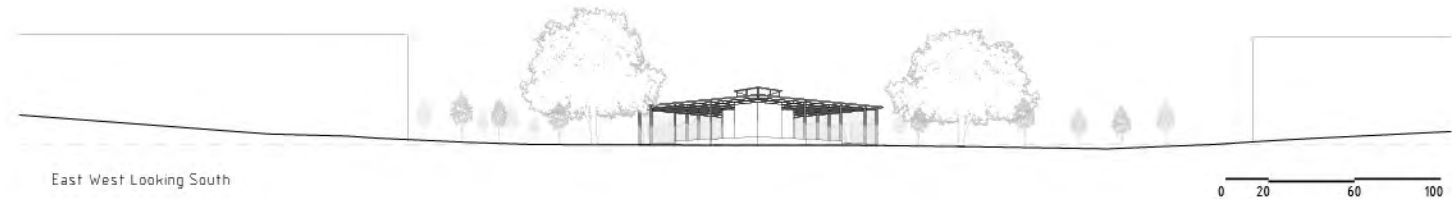
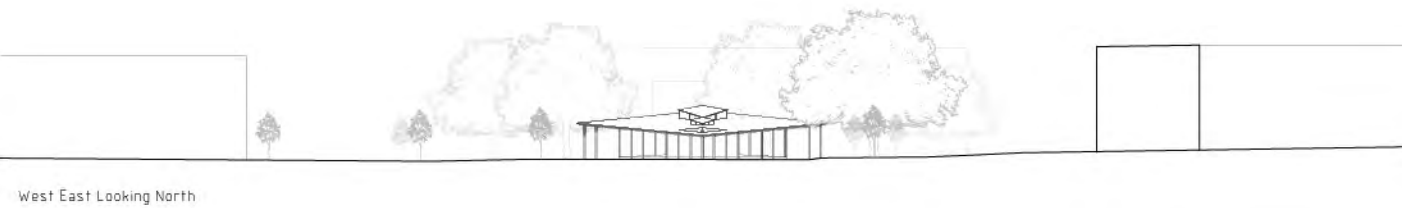
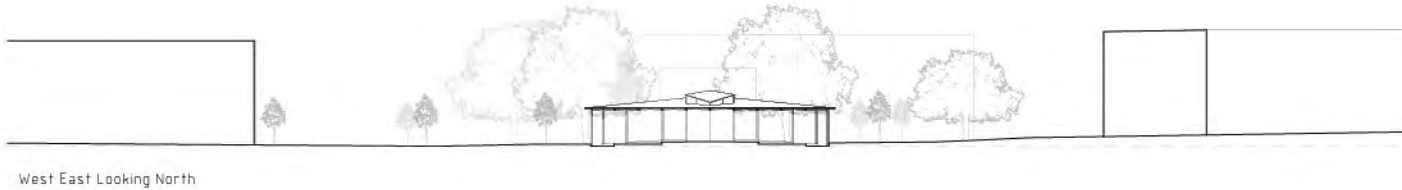
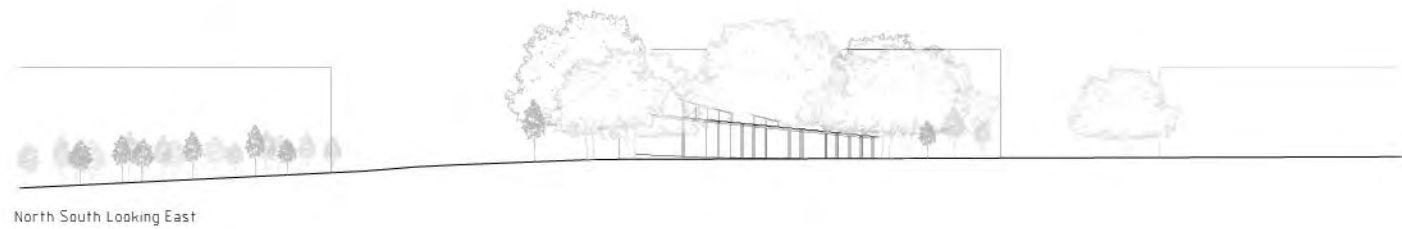
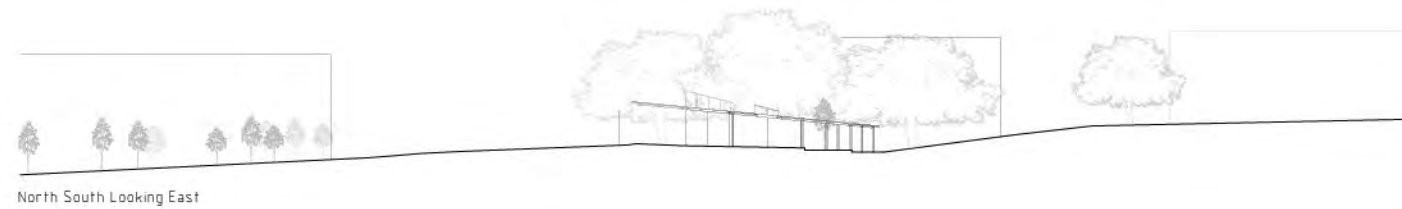


mound

structure

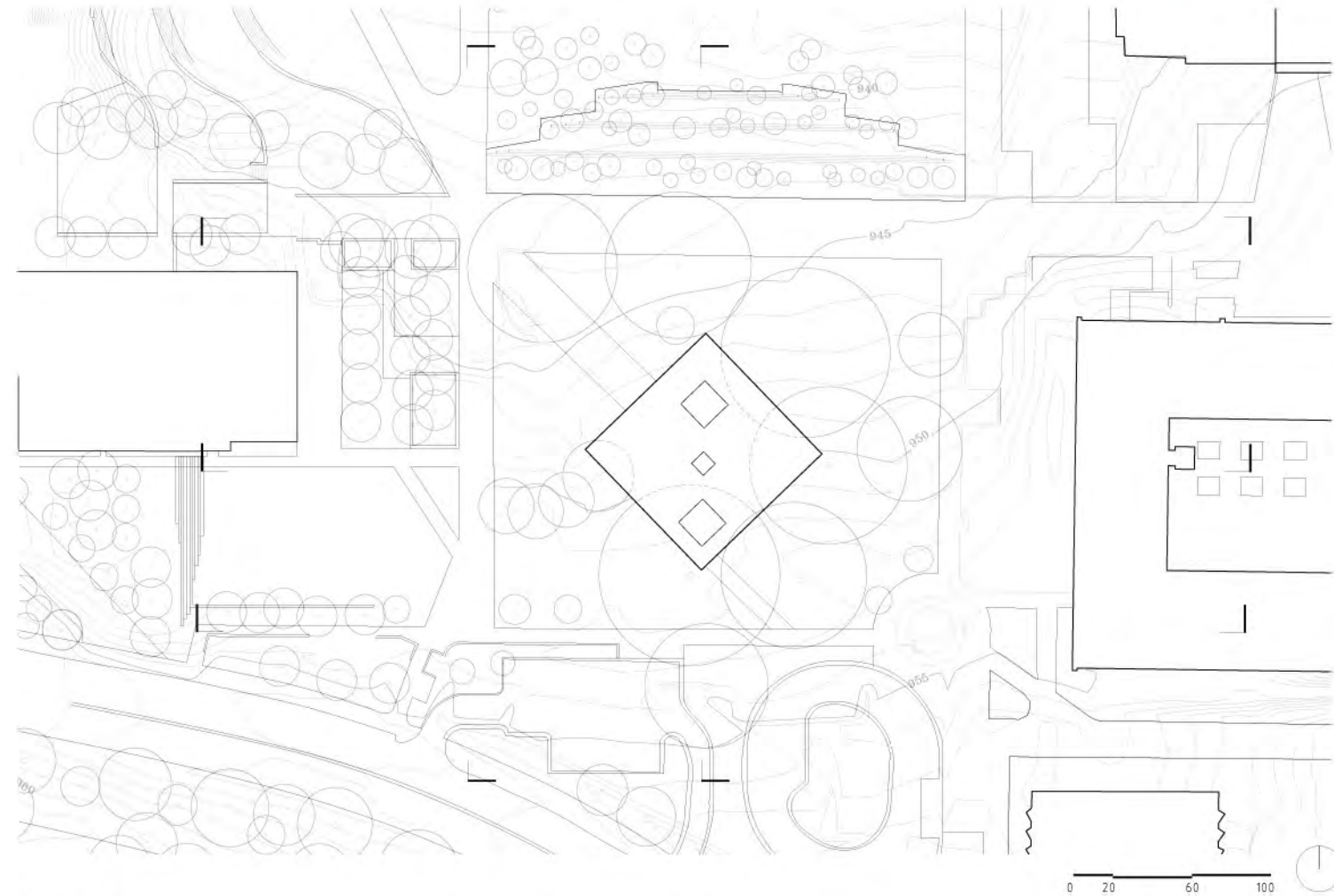
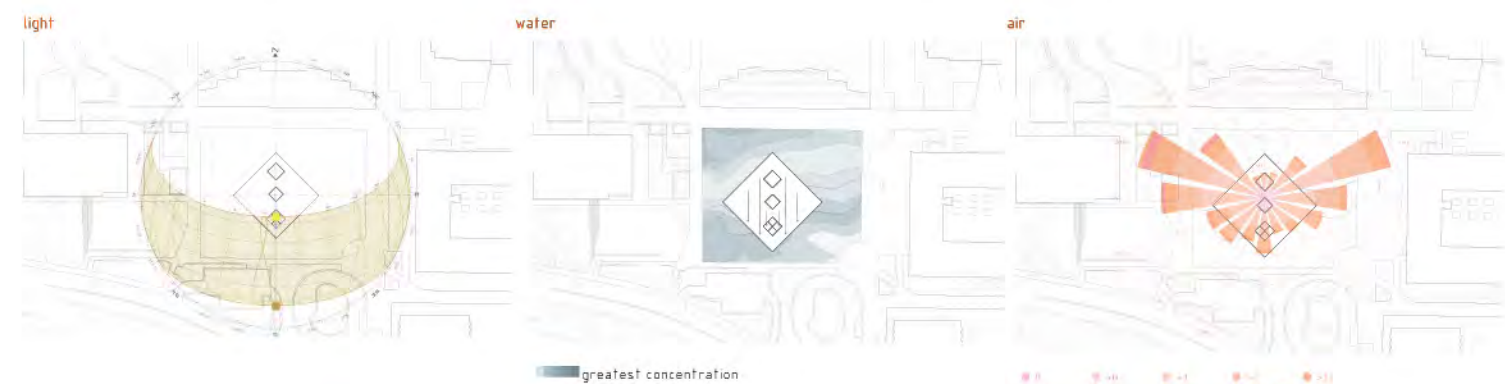
enclosure

roof



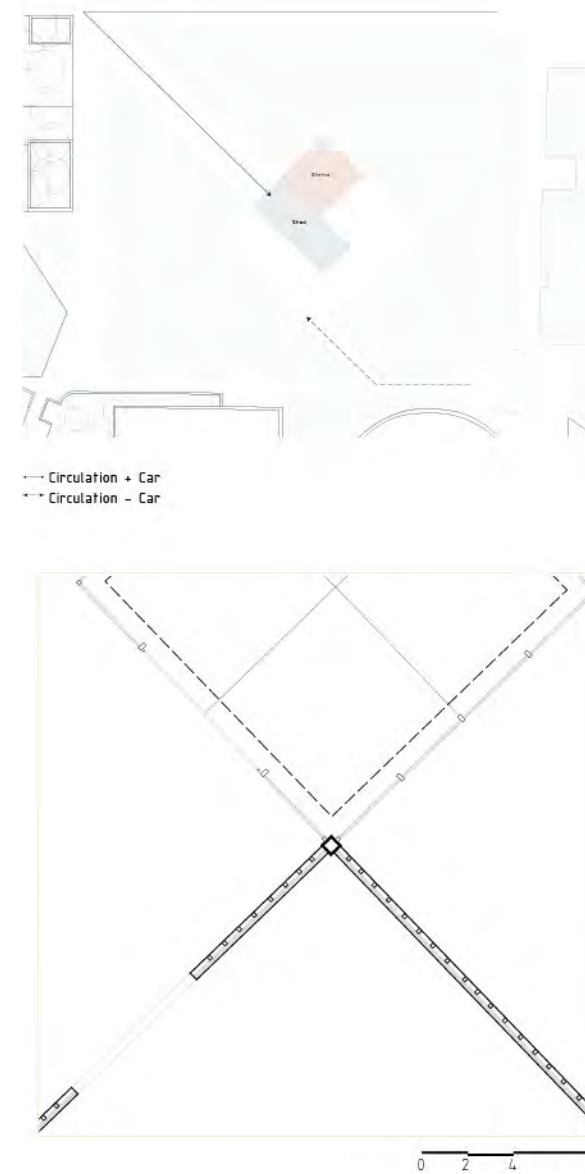
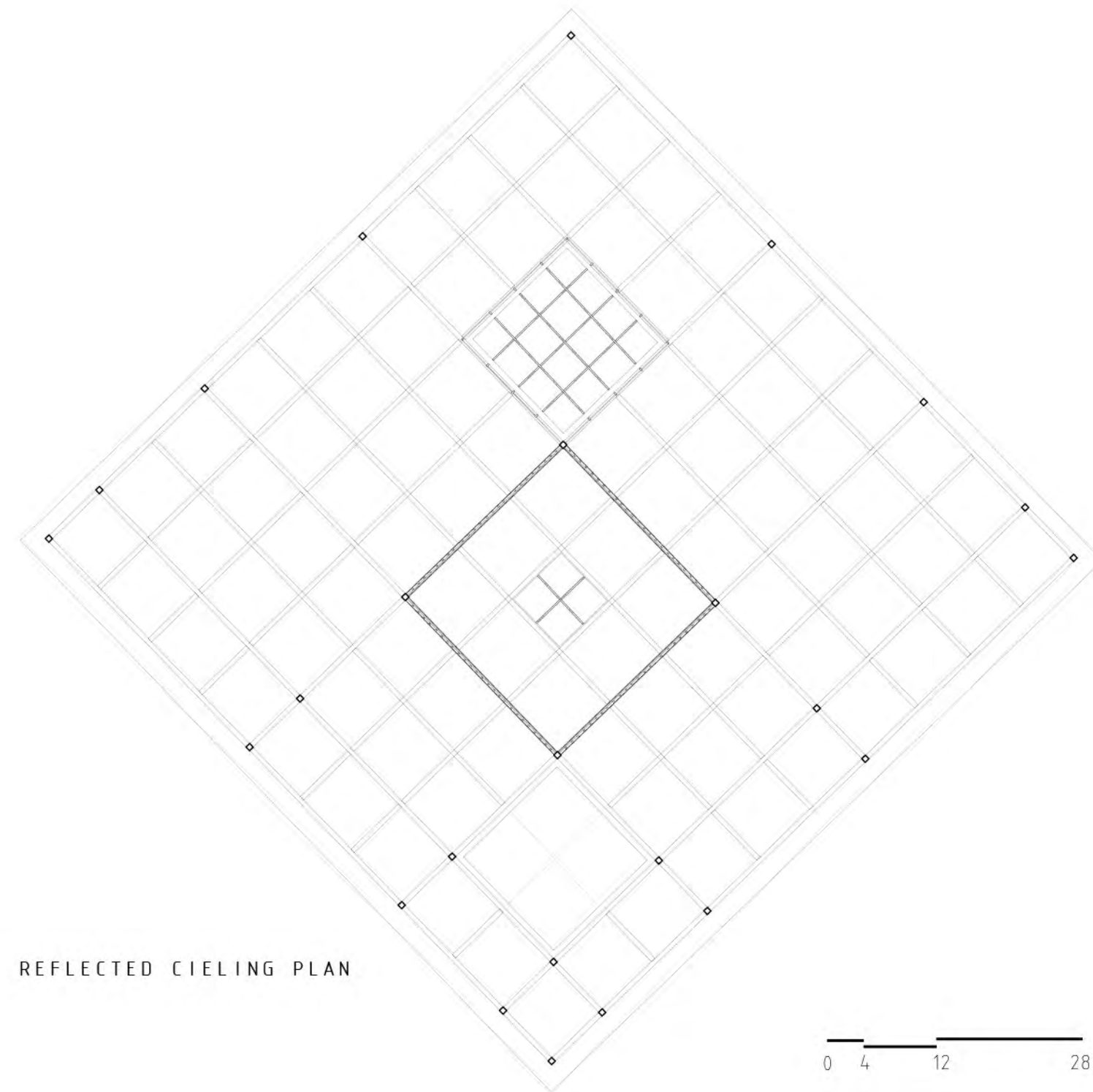
0 20 60 100

SITE SECTIONS

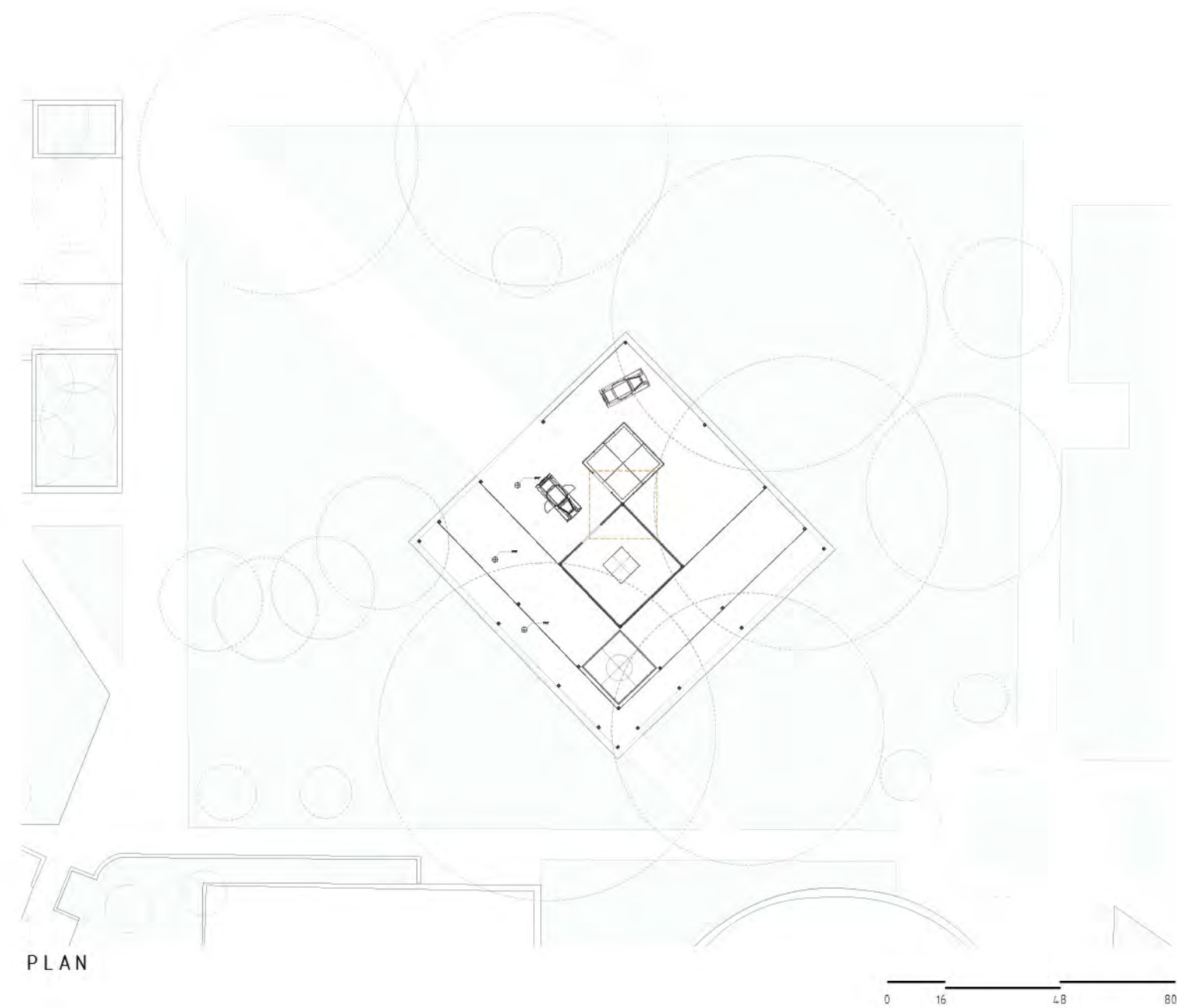


SITE PLAN

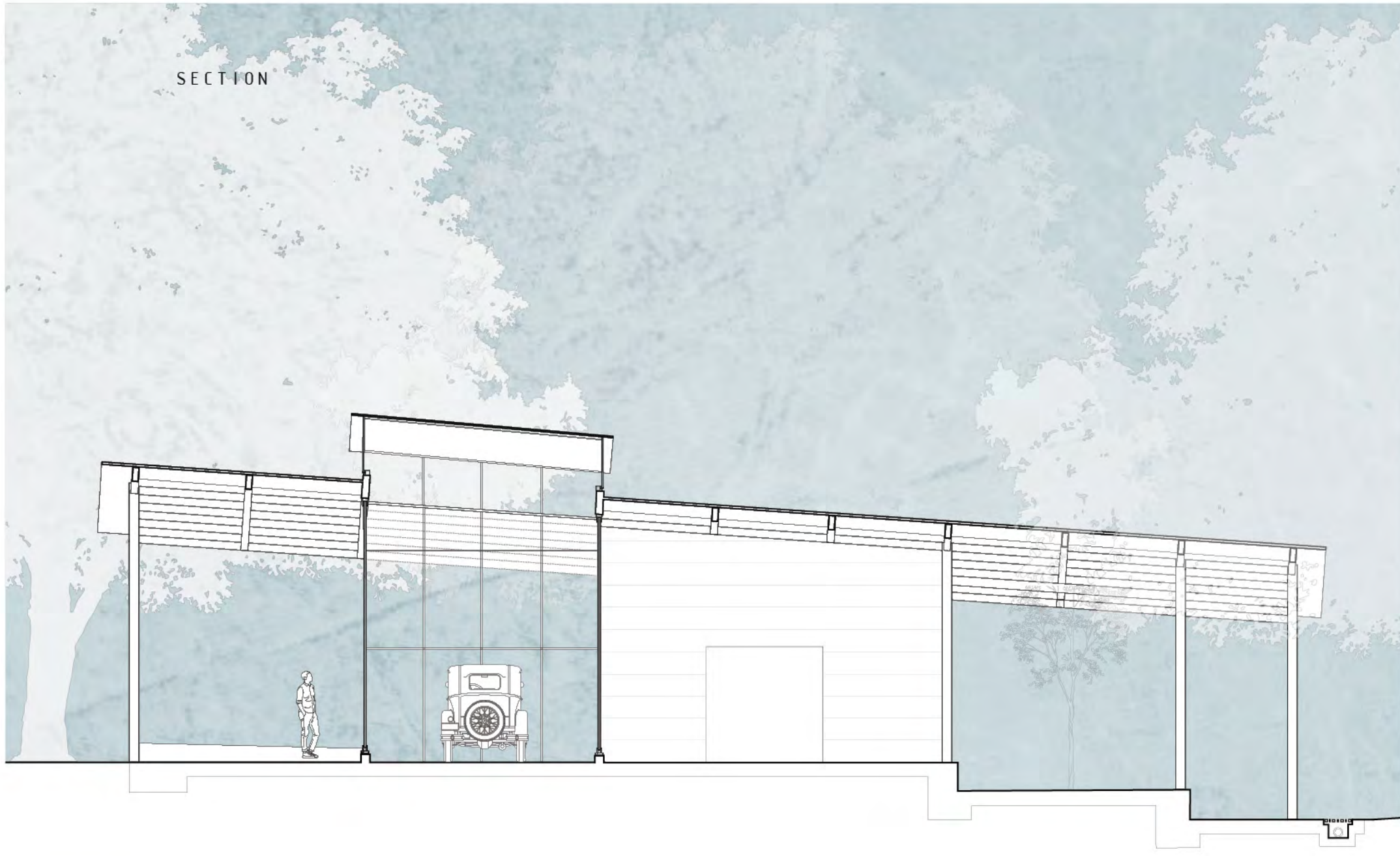
REFLECTED CIELING PLAN



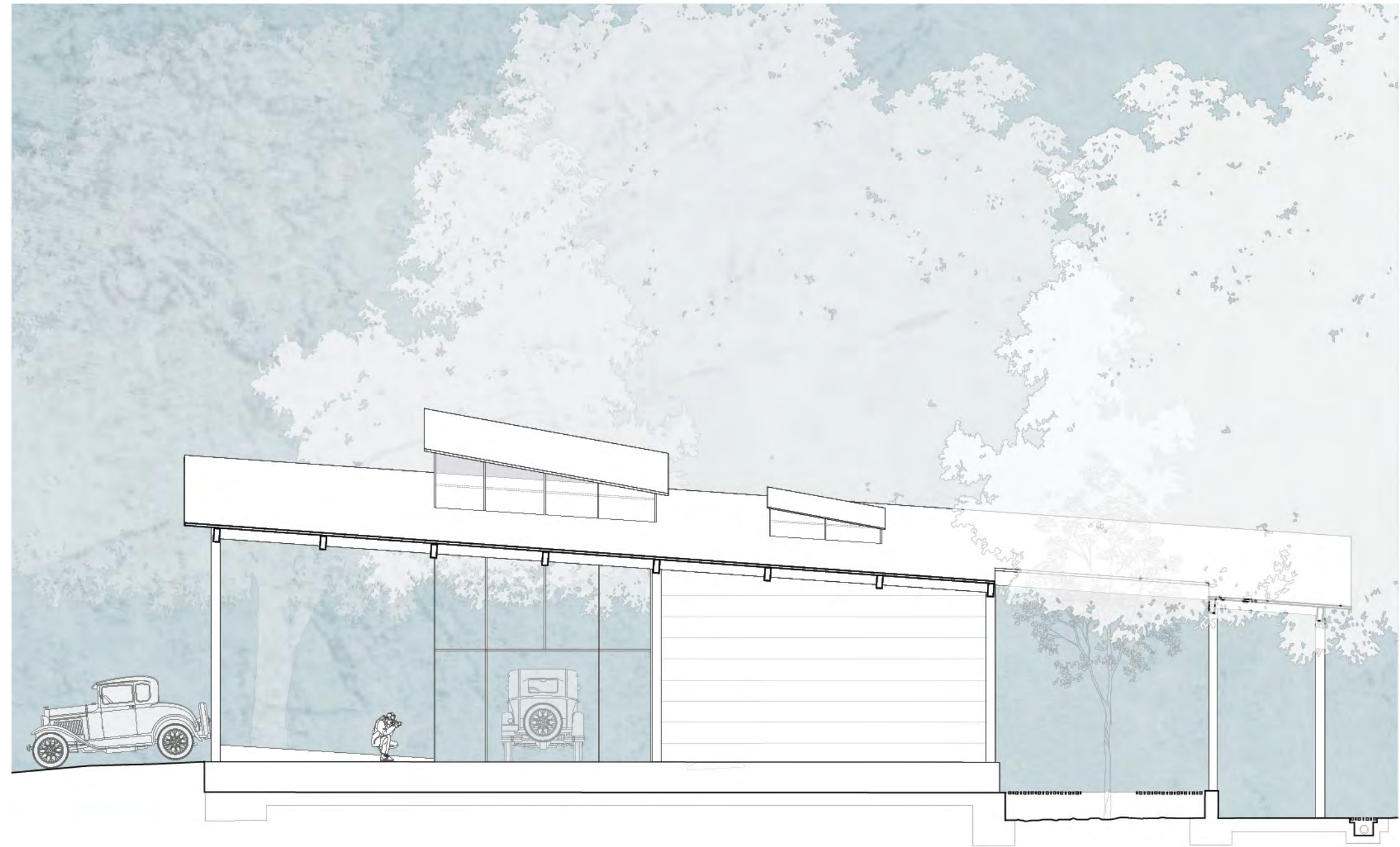
PLAN



SECTION



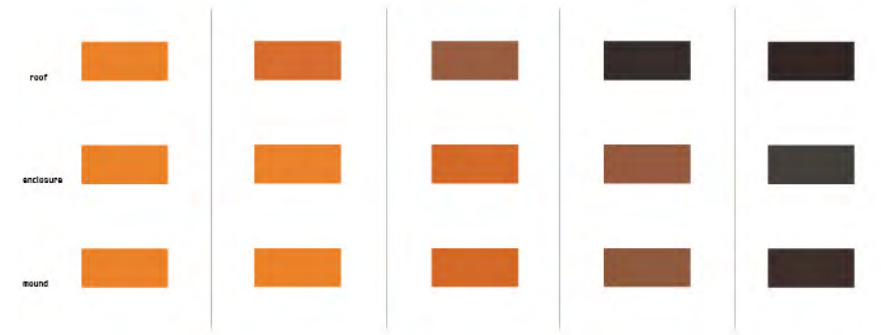
0 4 8 16



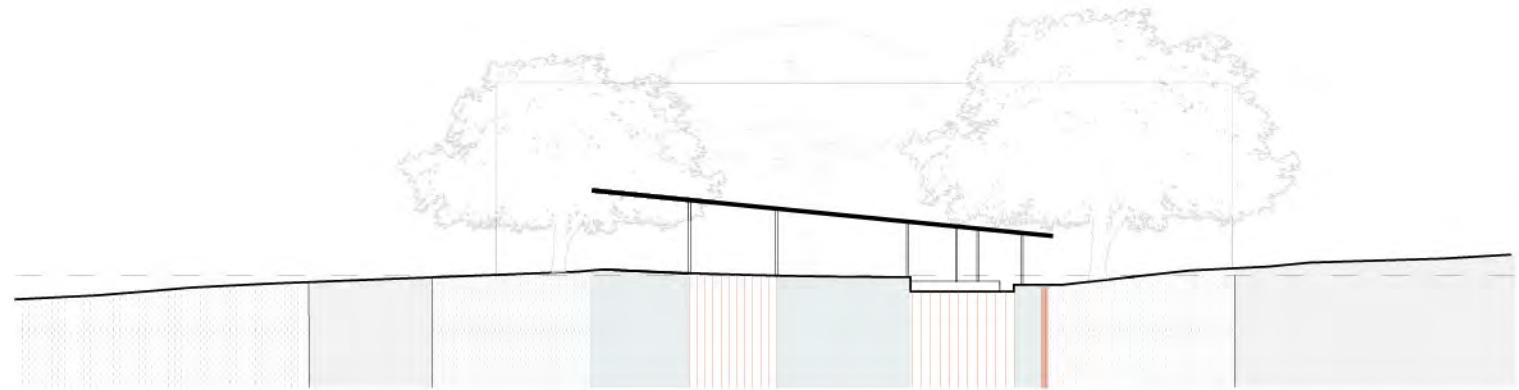
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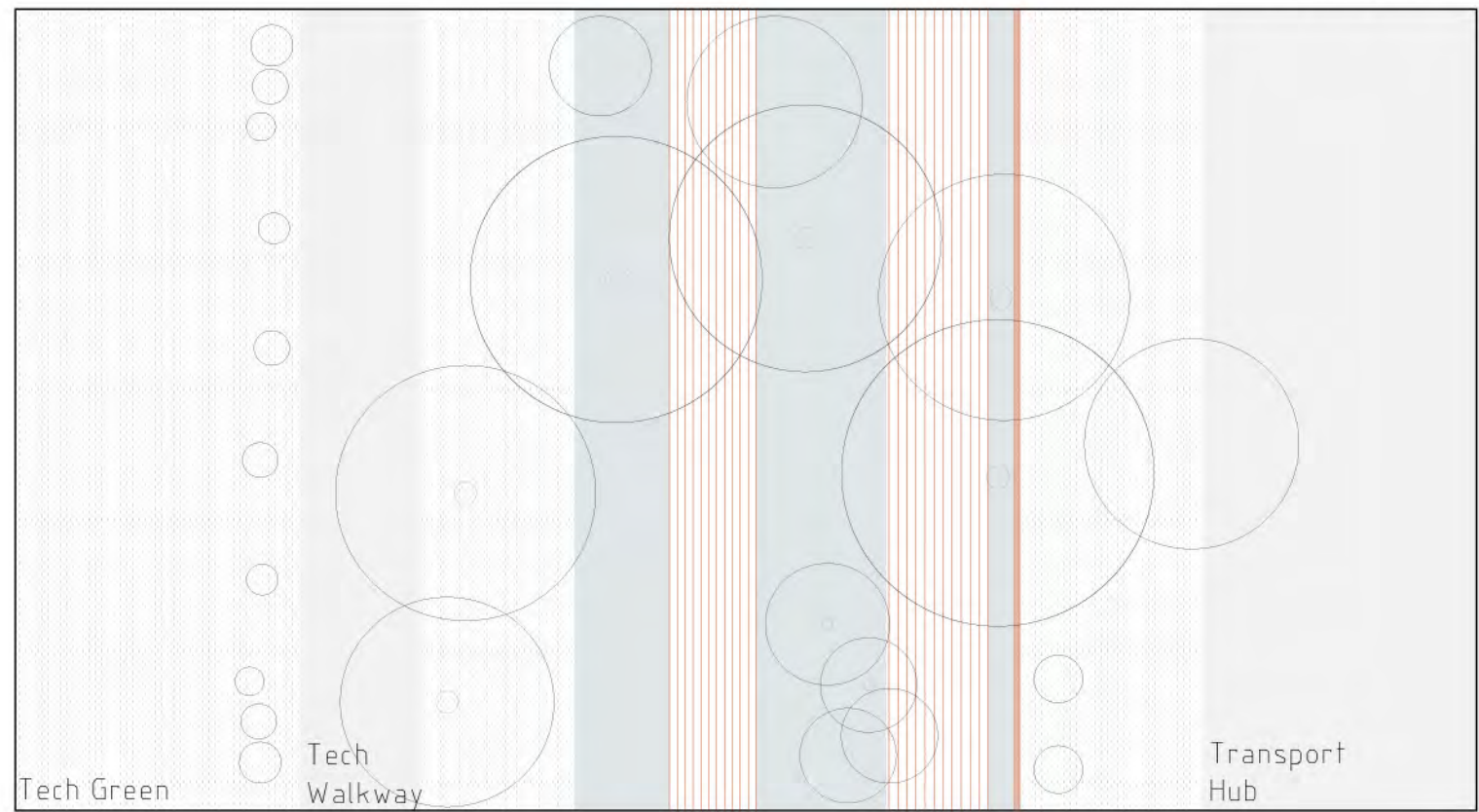
MATERIAL STUDIES



Corten steel has been selected as the main material due to its resistance to corrosive elemental effects by forming a coating of dark brown oxidation over the metal, which inhibits deeper penetration and negates the need for painting and costly rust prevention maintenance. The weathering of the metal is a visually interactive experience that inhabitants of the building can witness through the passing of time. This enhances the characteristic of the Ramblin Reck which is seemingly ageless. This material will cause some staining to the concrete foundation however. In addition to the time enhanced quality, corten is a common material used in sculpture, so the garage could serve as a building and sculpture simultaneously.

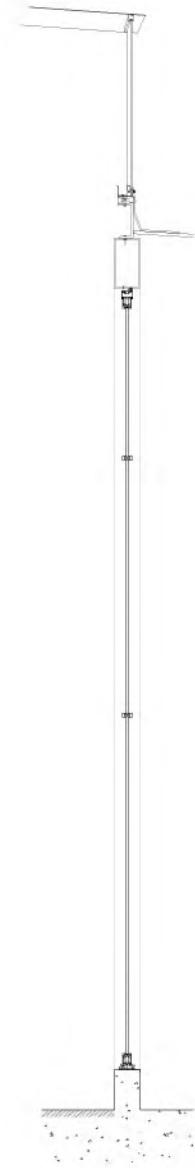
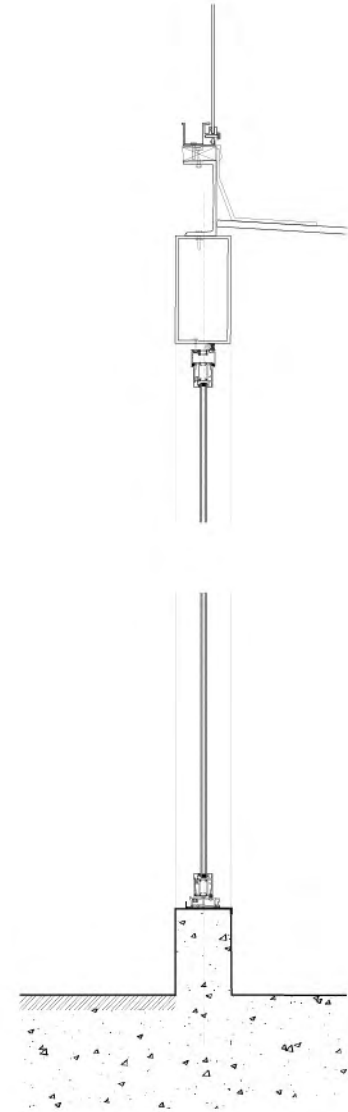
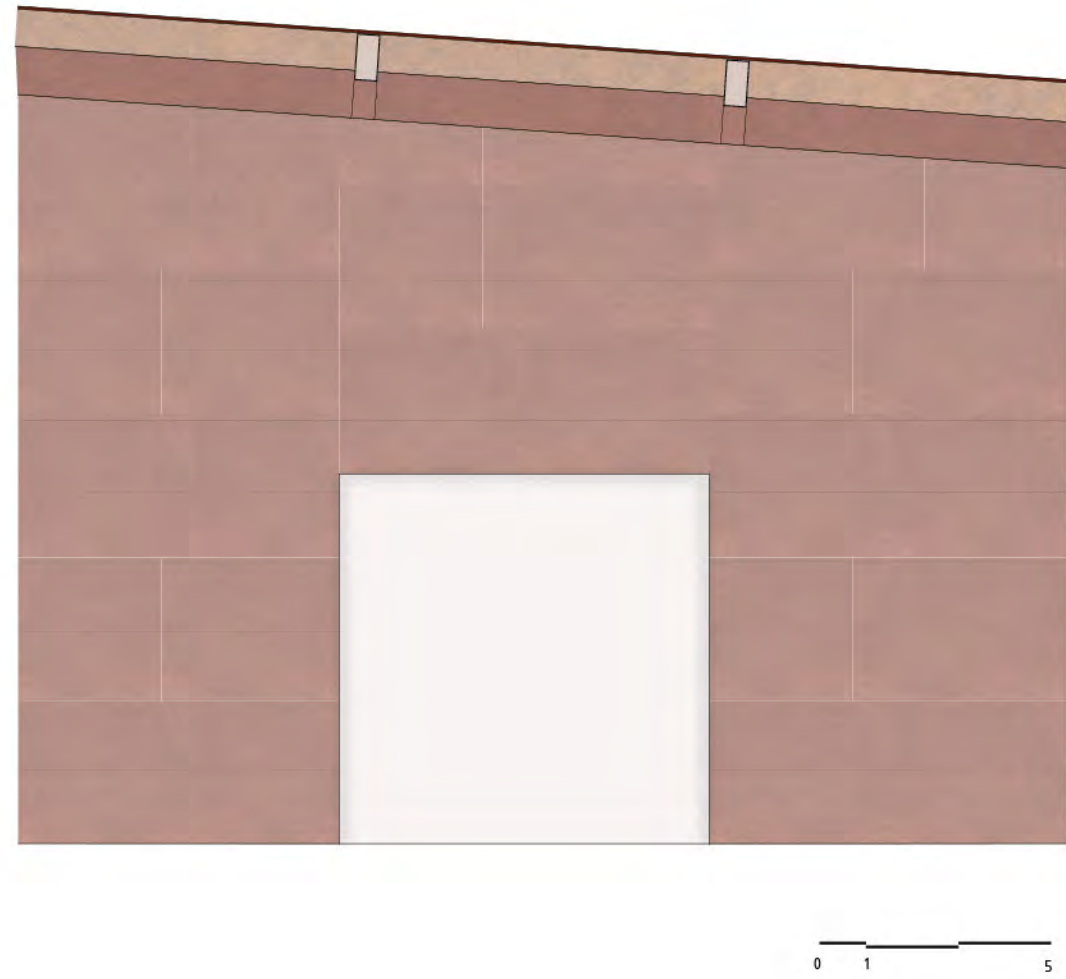
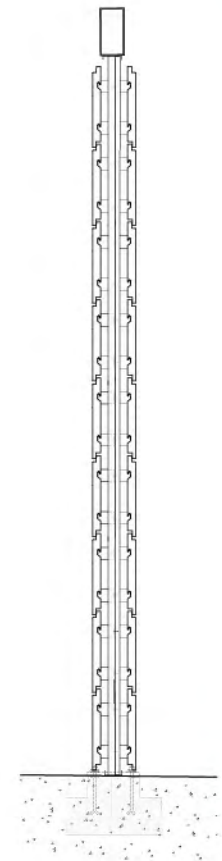
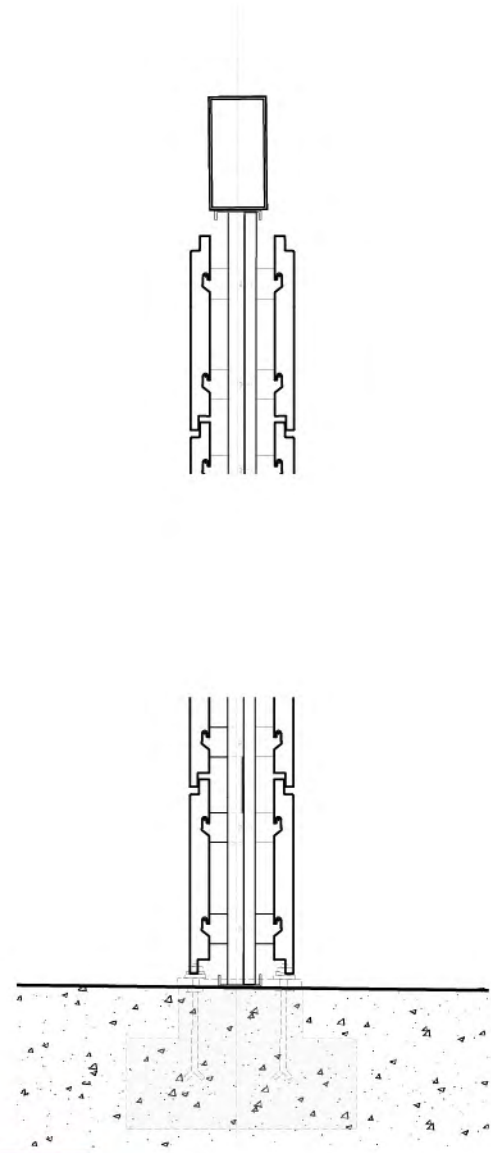


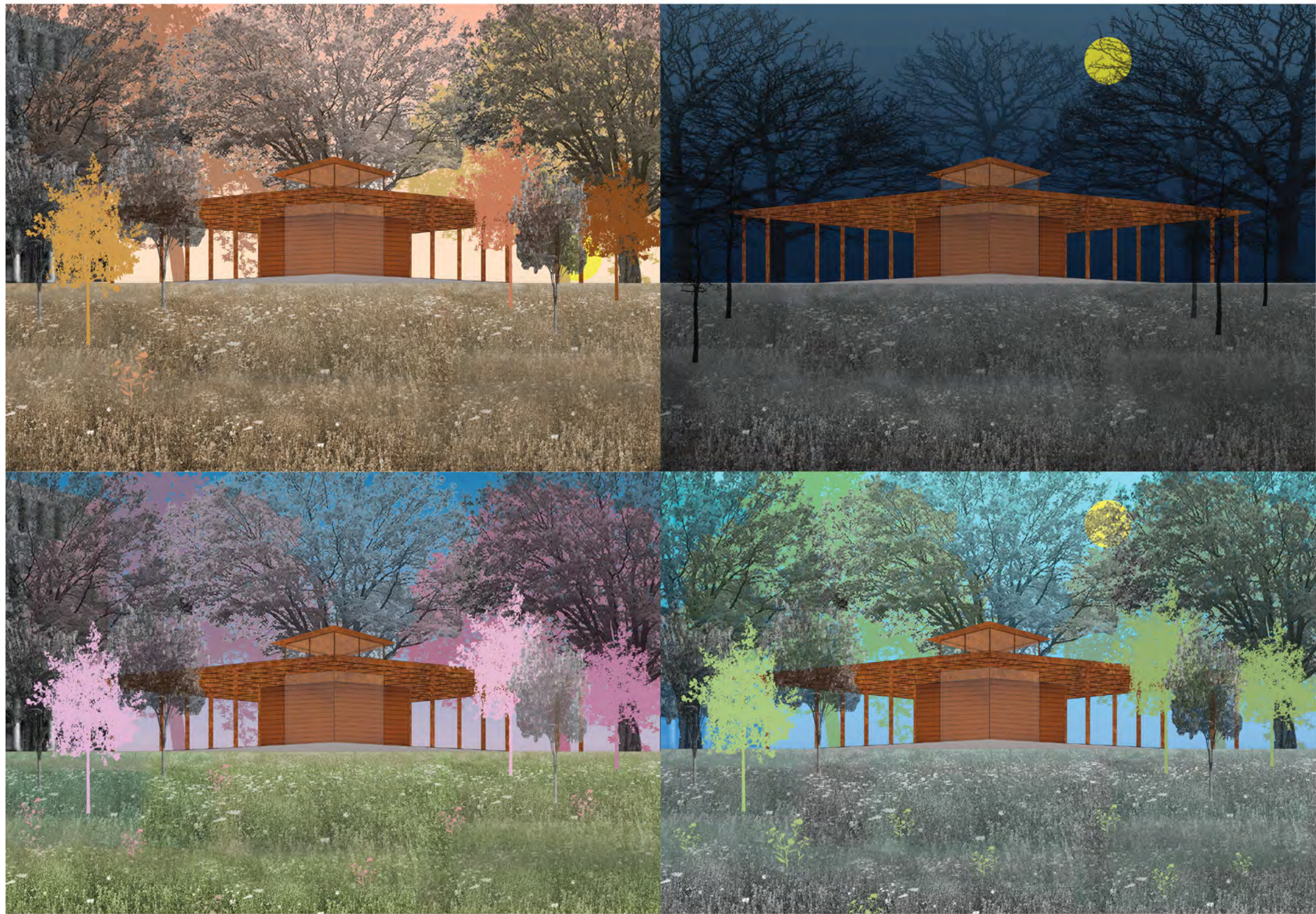
North South Looking East



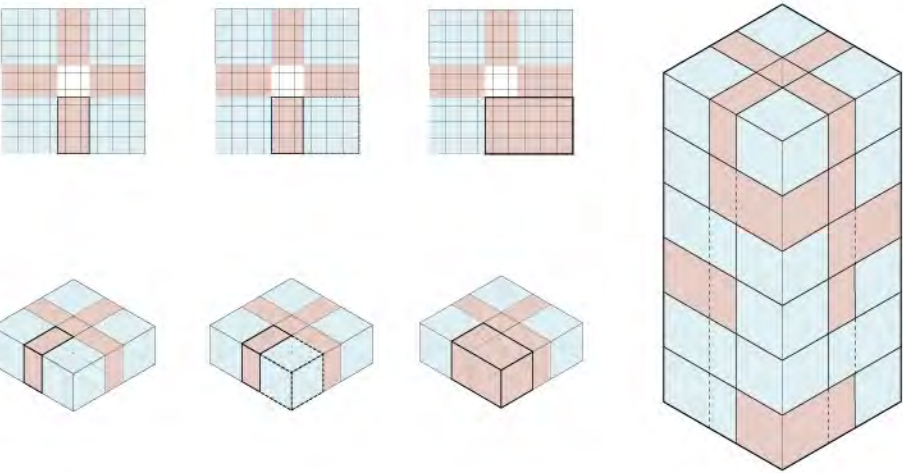
- Grass
- Pre-existing Paving
- New Paving
- Corten

SECTION DETAILS



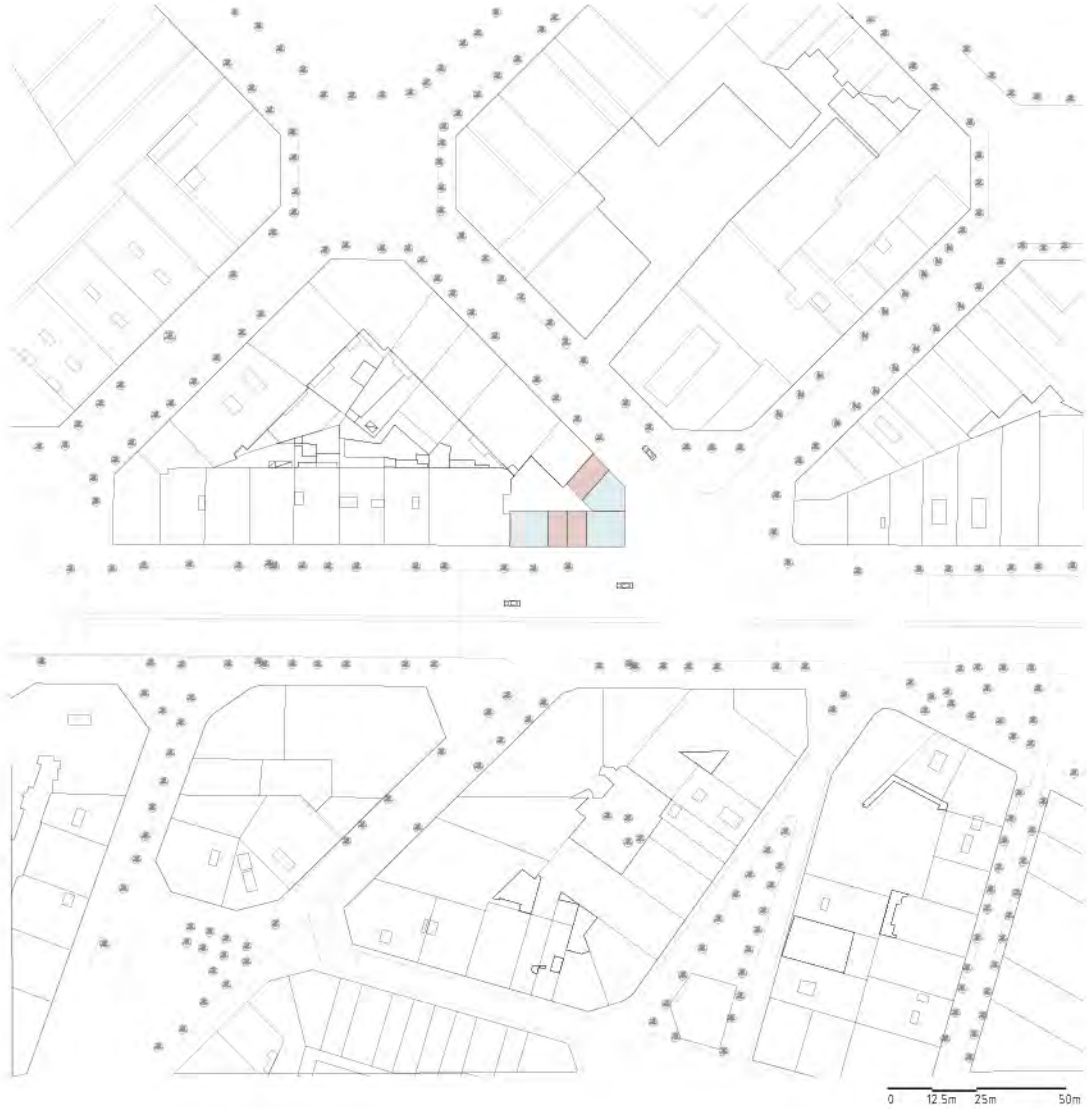


The design of Avinguda 134b needed to be one that was capable of expanding and retracting for residents with growing or shrinking families. Figure 9.1 illustrates the approach to this problem which was to create alternating spaces large (blue) and small (red). This allows for large spaces to be used independently or in conjunction with one or two smaller spaces on either side. On the contrary, smaller units are available which are capable of expanding into larger units. With this system, the arrangement of units can vary from floor to floor.



Spatial Concept

Figure 9.1



Spatial Concept on Site



SITE AXON



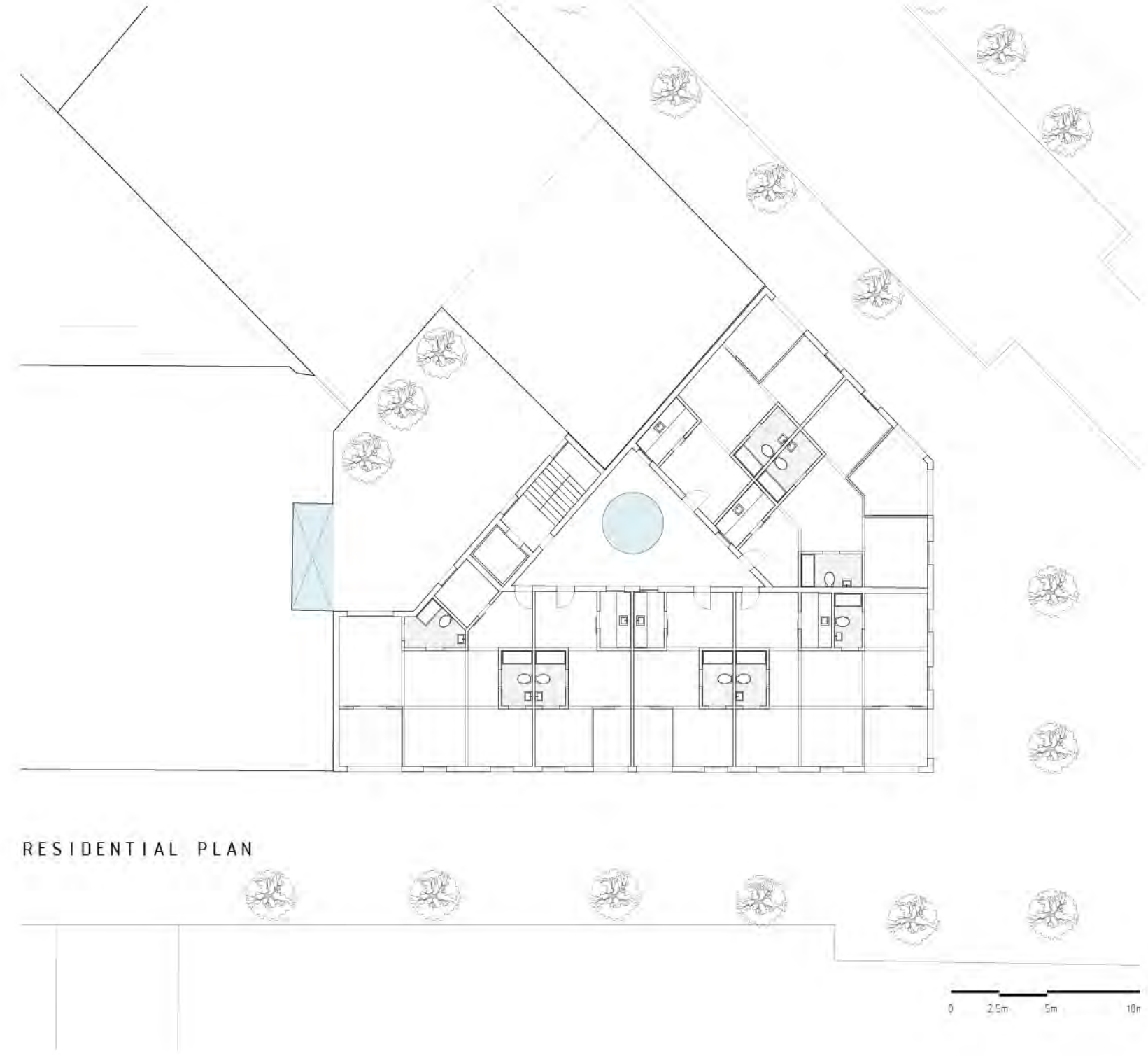
GROUND PLAN

LONGITUDINAL ELEVATION



TRANSVERSE ELEVATION







TRANSVERSE SECTION



TRANSVERSE ELEVATION



LONGITUDINAL SECTION