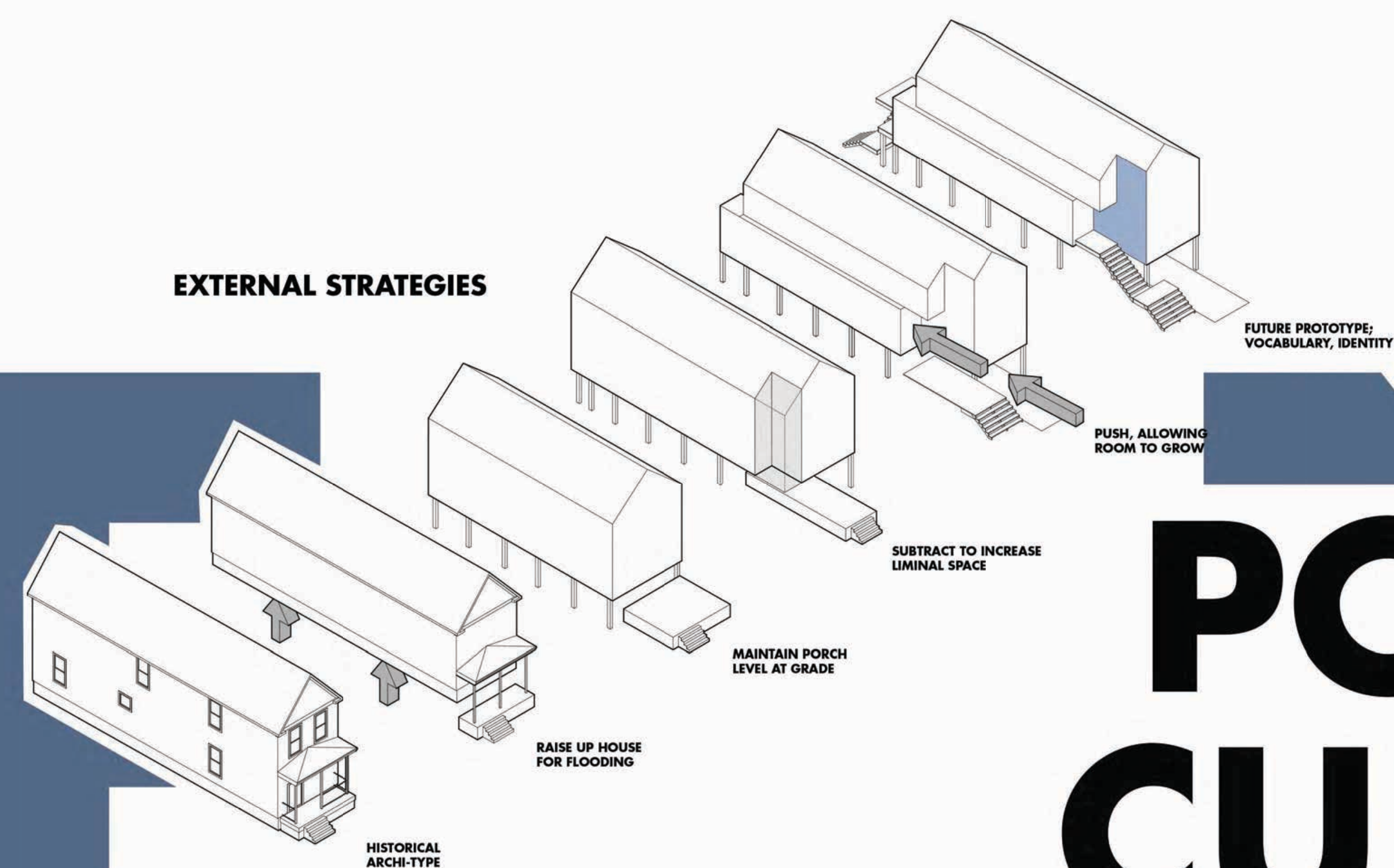




#### EXTERNAL STRATEGIES

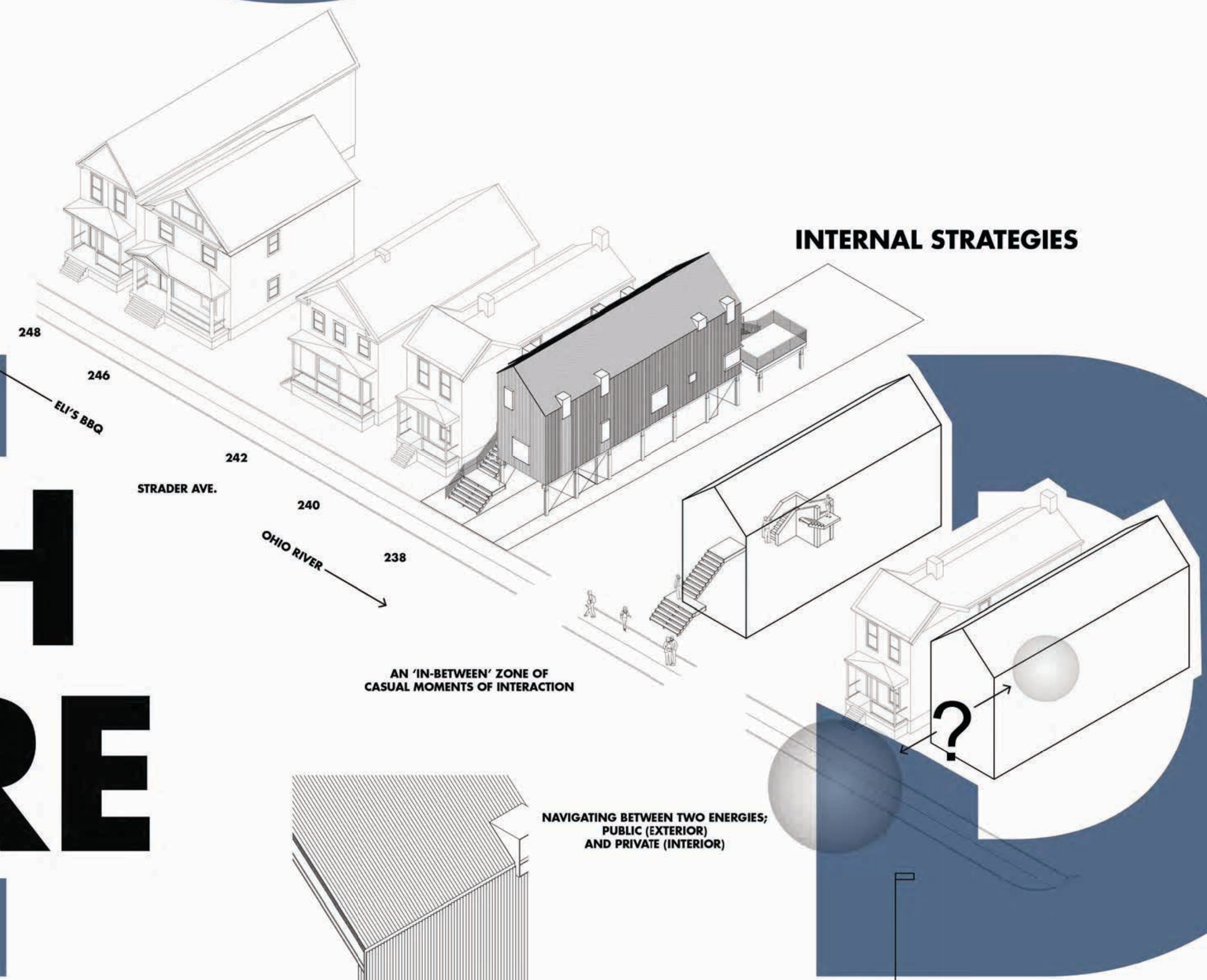


# PORCH CULTURE

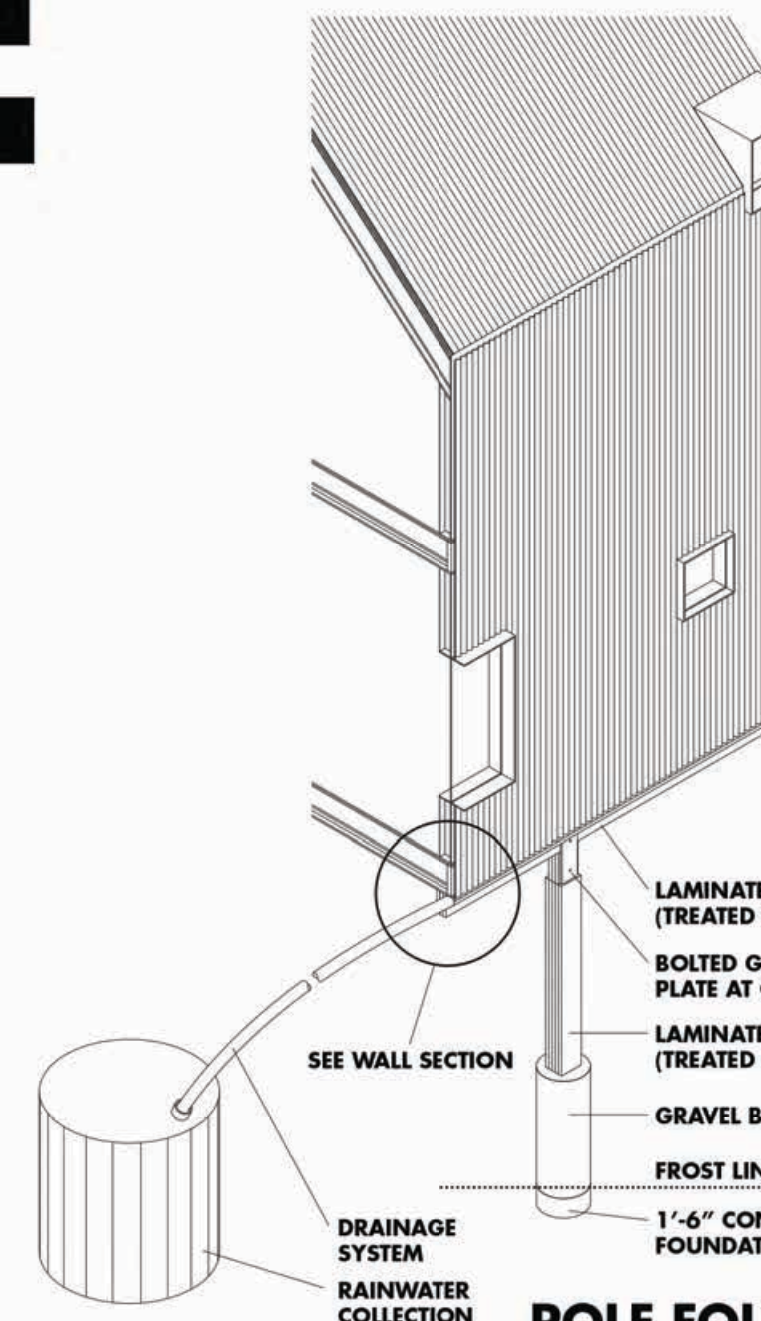
## FLOOD RESILIENT INFILL HOUSING IN THE GARDEN DISTRICT

The development of the East End neighborhood in Cincinnati is as much of a social endeavor as it is an architectural one; just creating beautiful buildings is not enough to turn it into a progressive "prototype" of prosperous community; but learning how to capture the relationship of public and private life, and the space between, can instead accomplish this. The idea of "Porch Culture" stems from the happenings on an architectural element that is already present in the East End typology. The porch is a liminal zone where the energies of both public and private life converge, and it is in this condition where a successful building, and thus successful community, is defined.

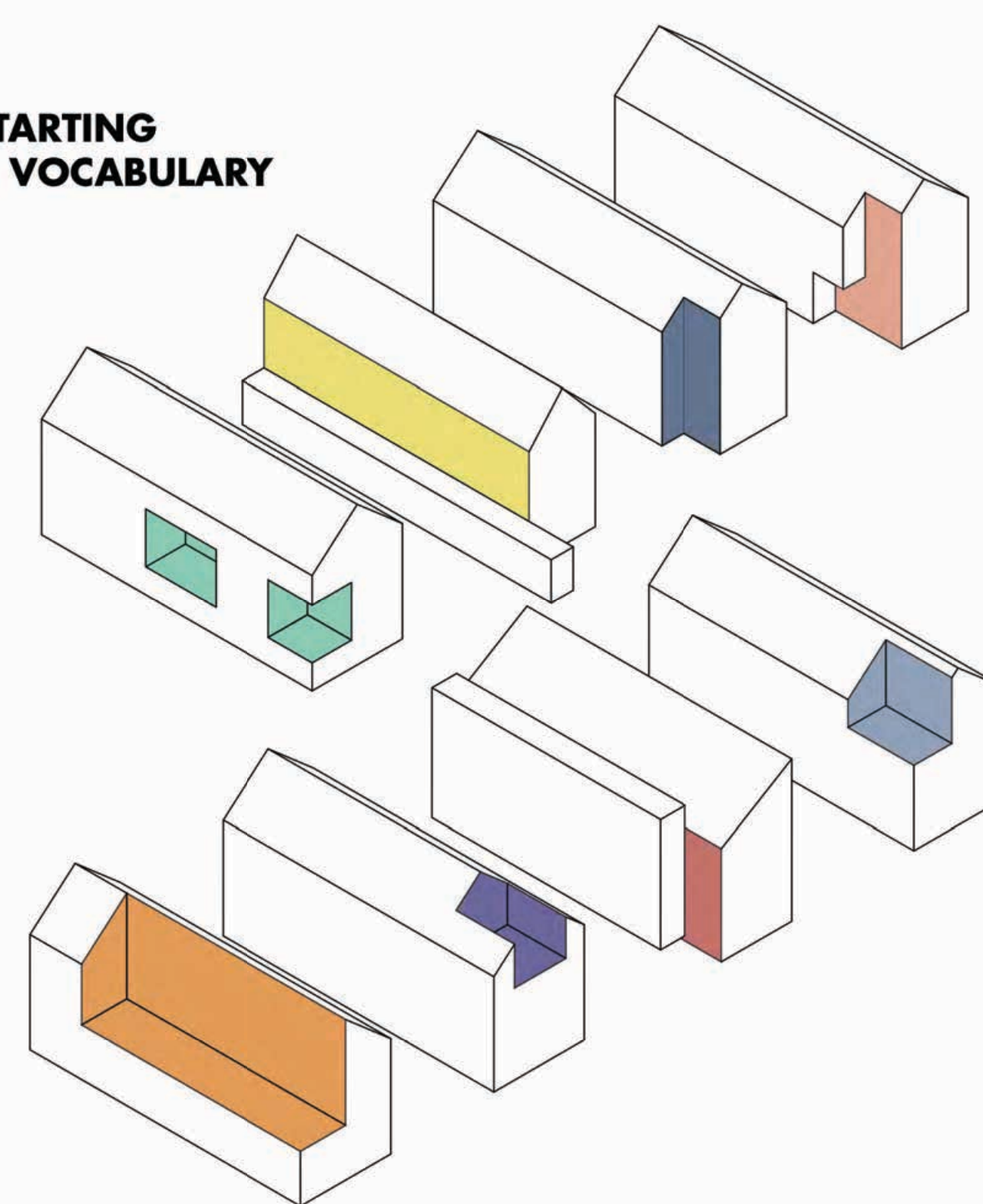
#### INTERNAL STRATEGIES



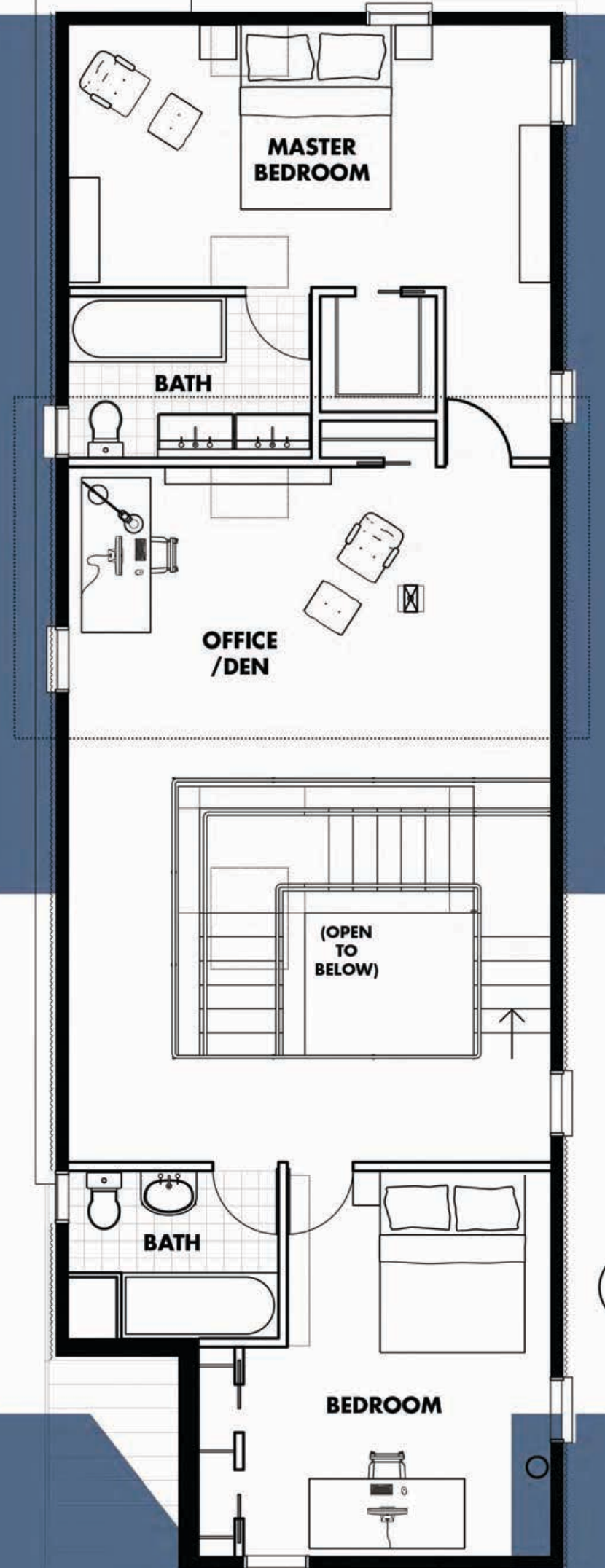
#### POLE FOUNDATION



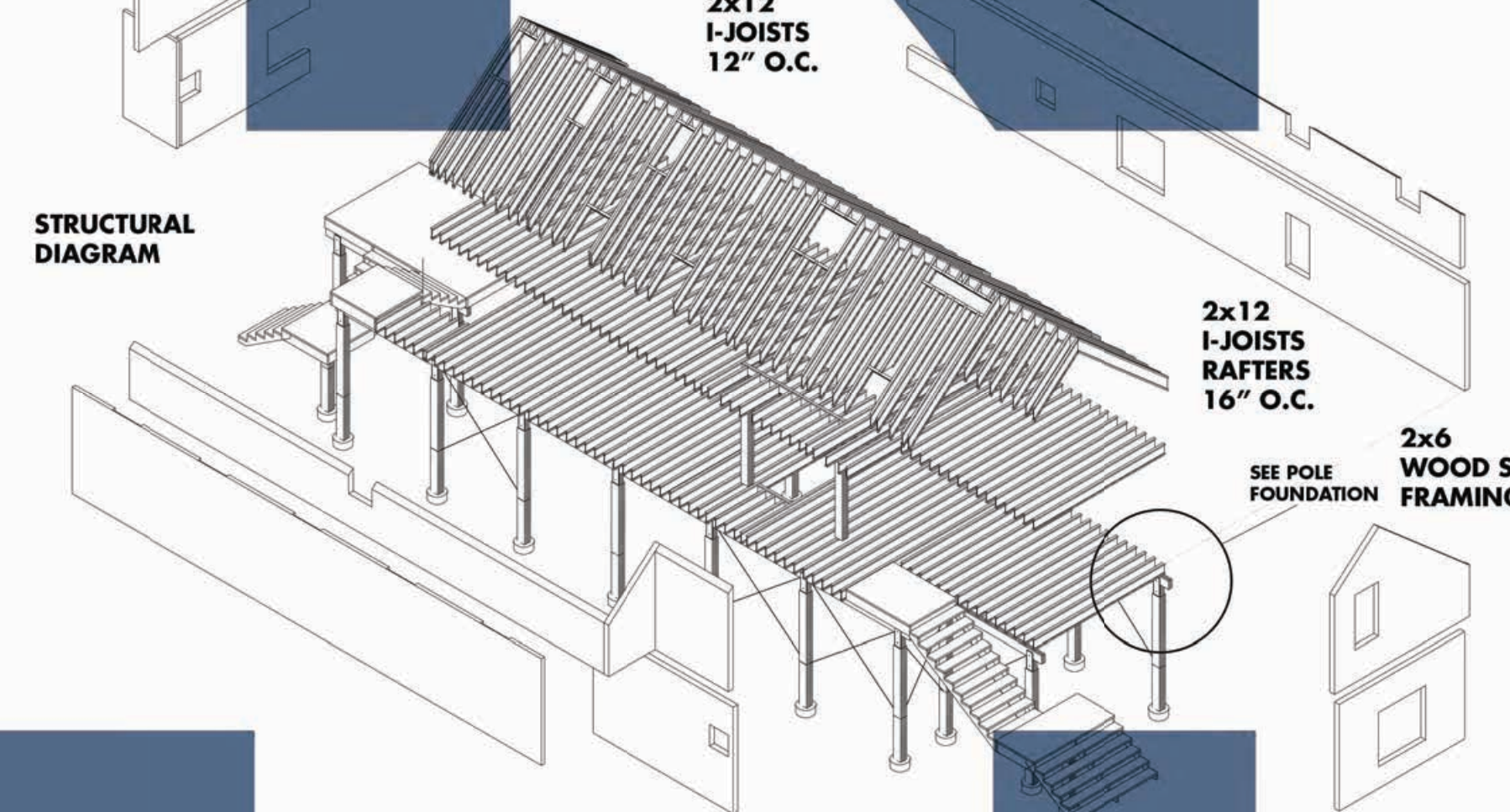
#### STARTING A VOCABULARY



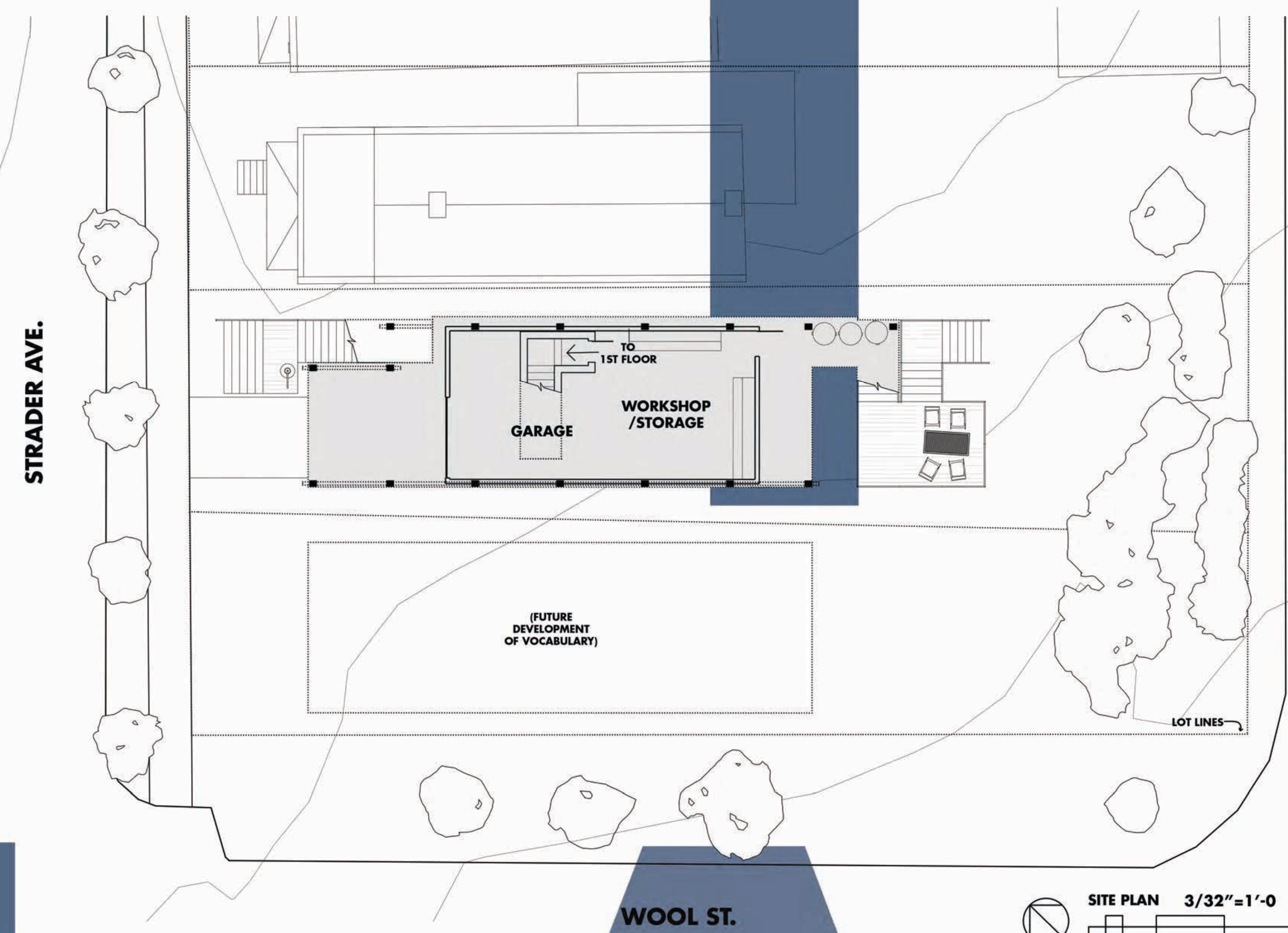
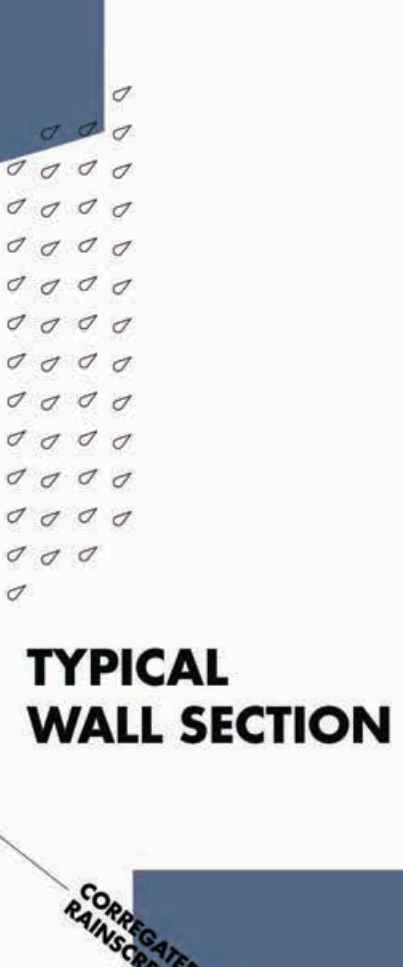
#### ALT. LAYOUT:



#### STRUCTURAL DIAGRAM

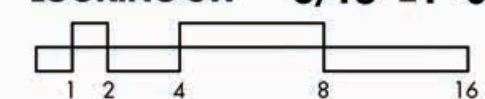


#### TYPICAL WALL SECTION

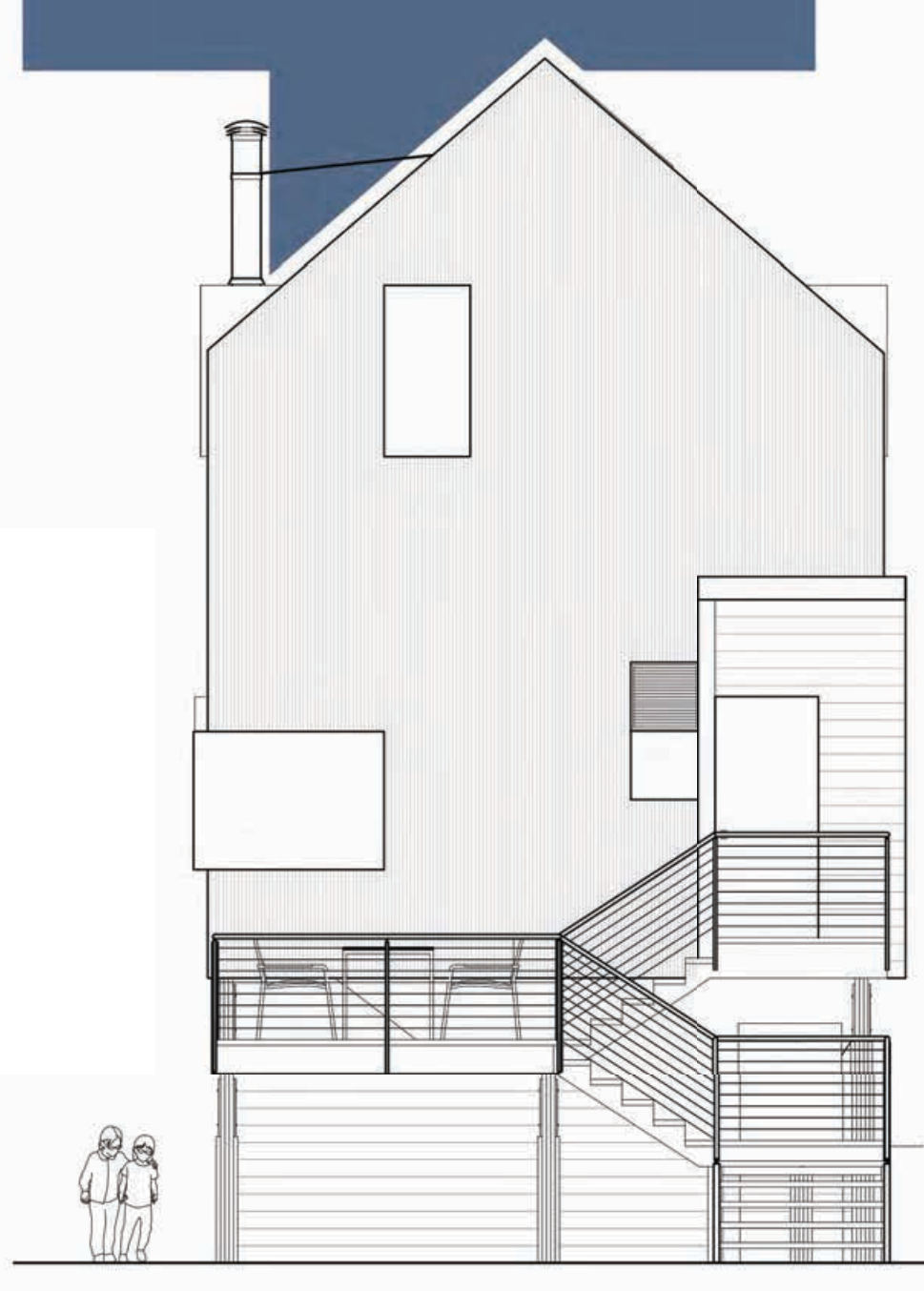


#### NW-SE SECTION LOOKING SW

3/16"=1'-0"



#### BACK ELEVATION



#### NE-SW SECTION LOOKING SE

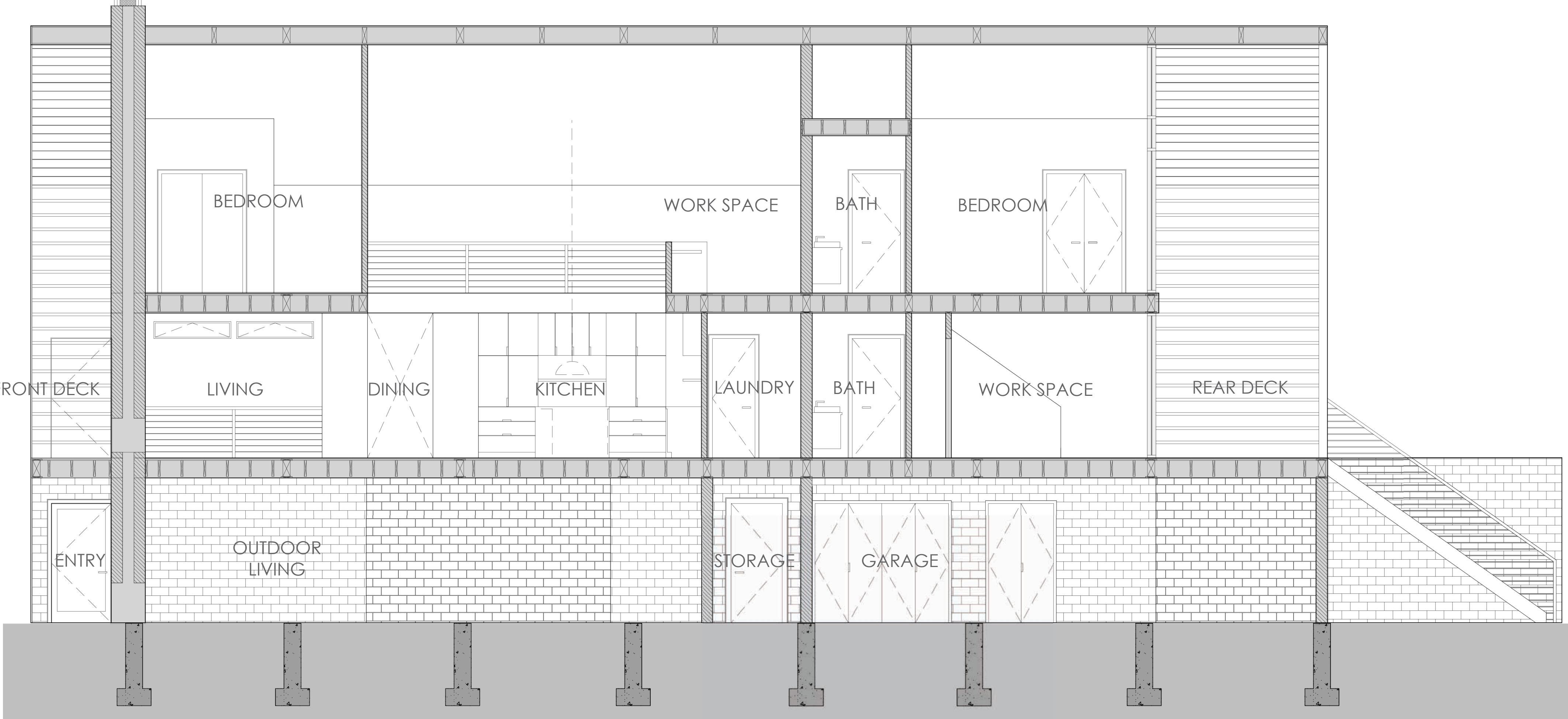
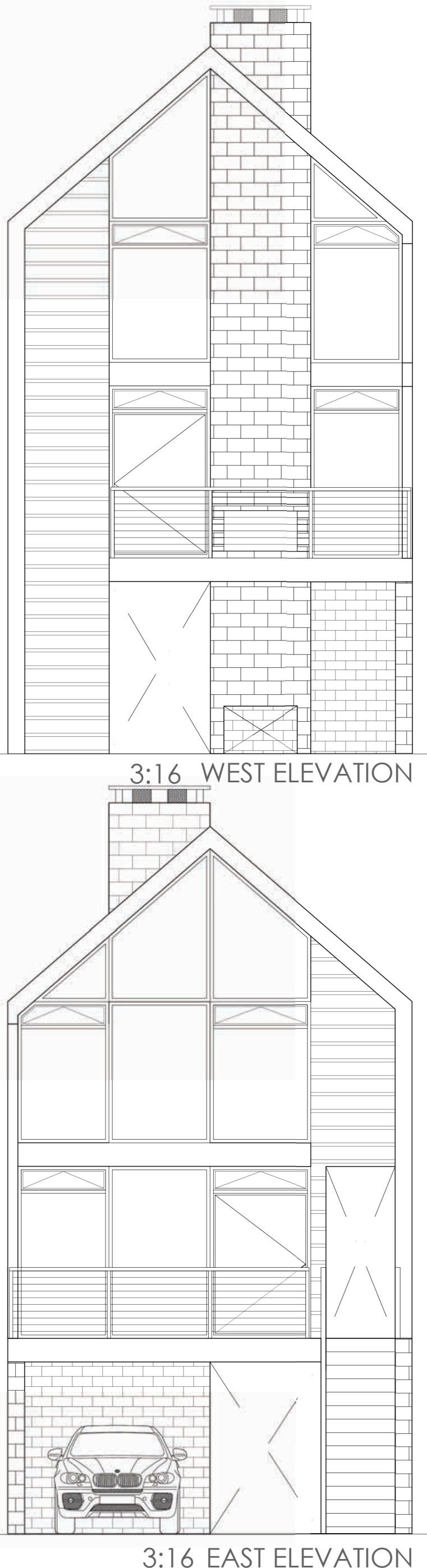
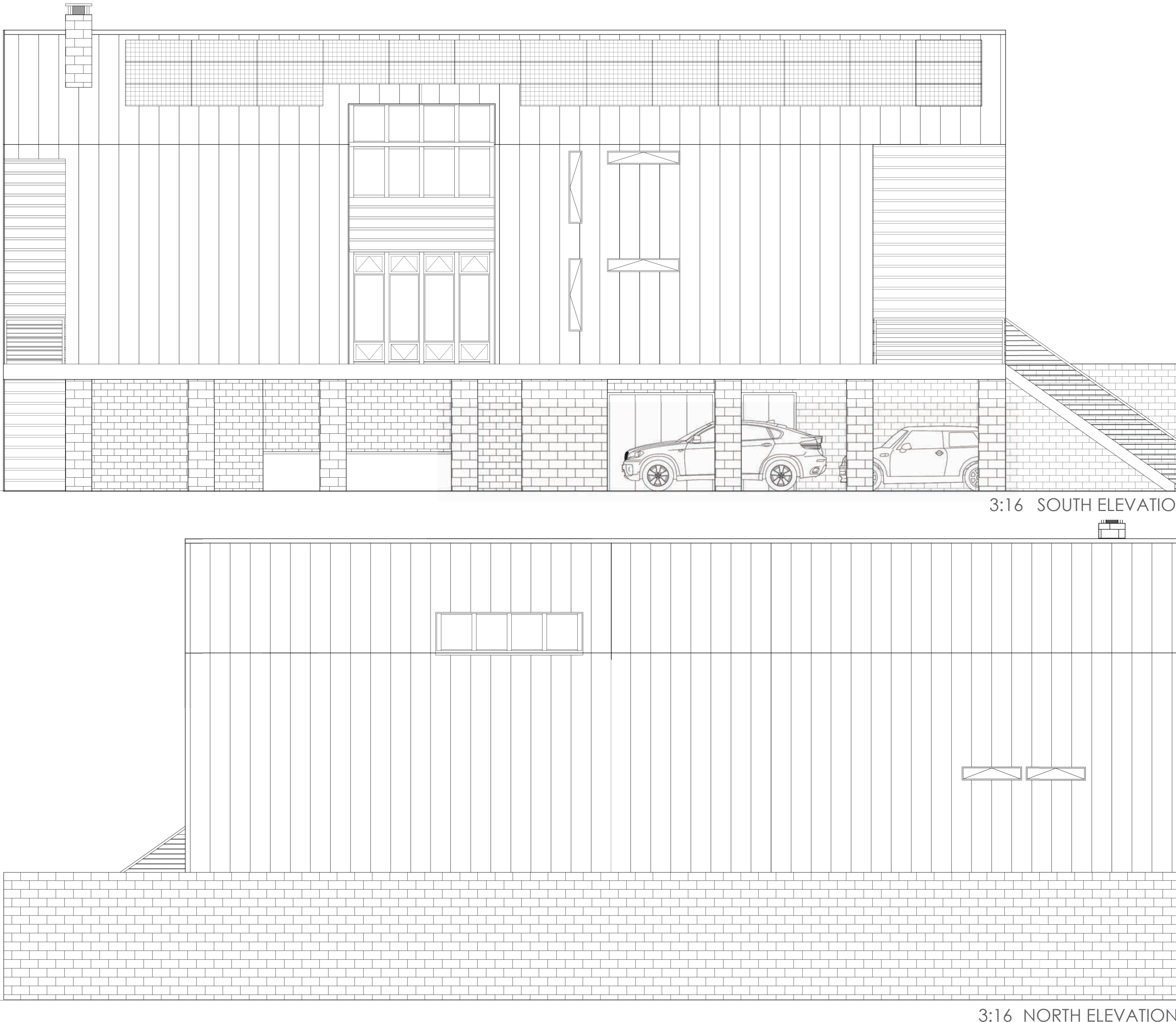
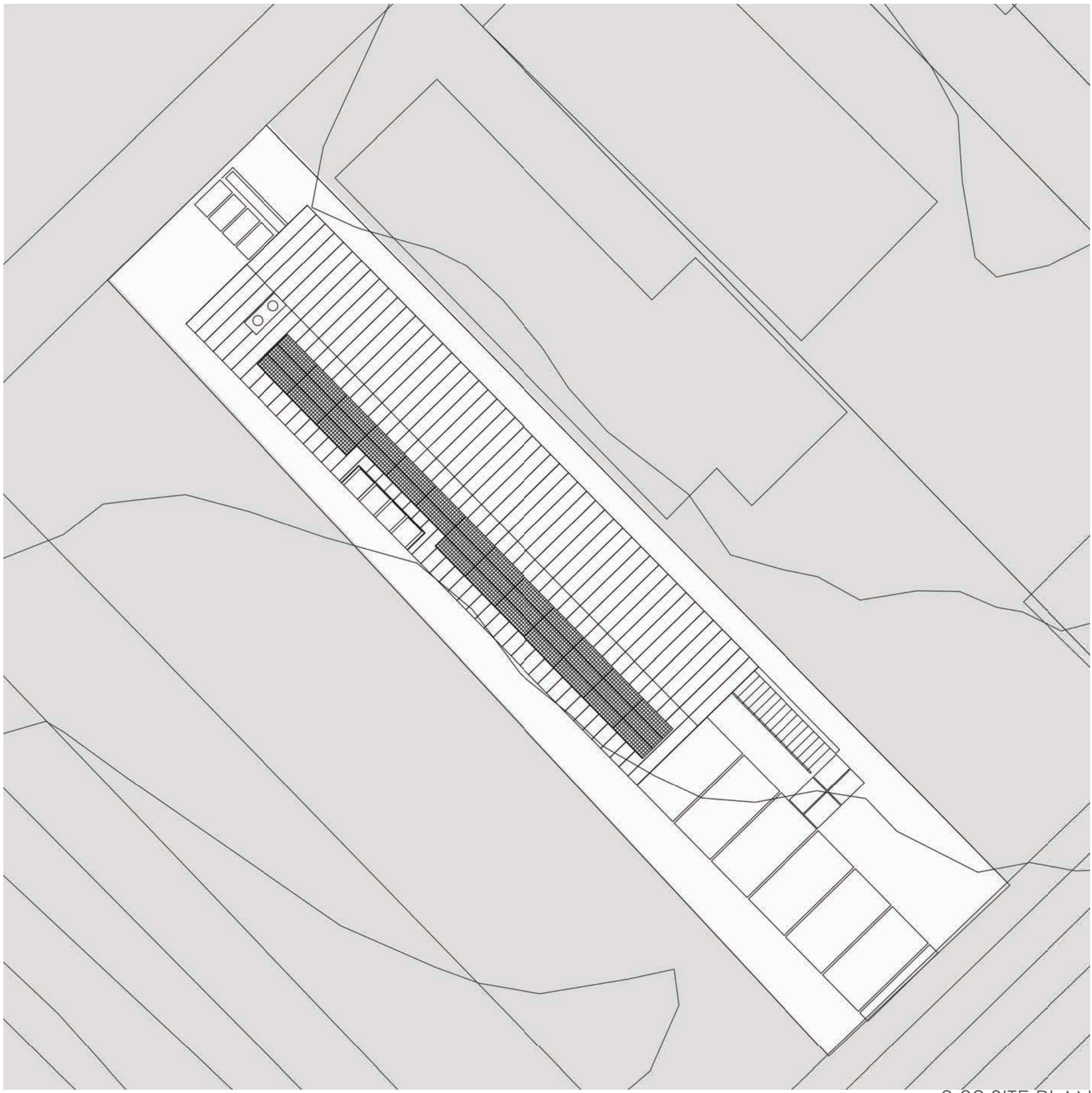
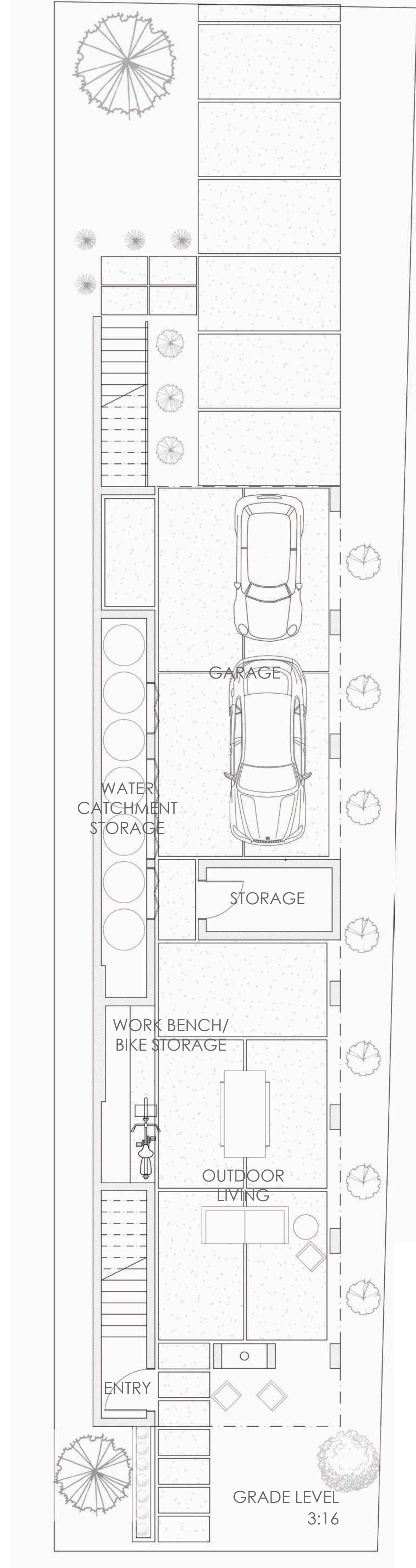
ENTRY 2





# welcome to the GARDEN DISTRICT

ENTRY # 7

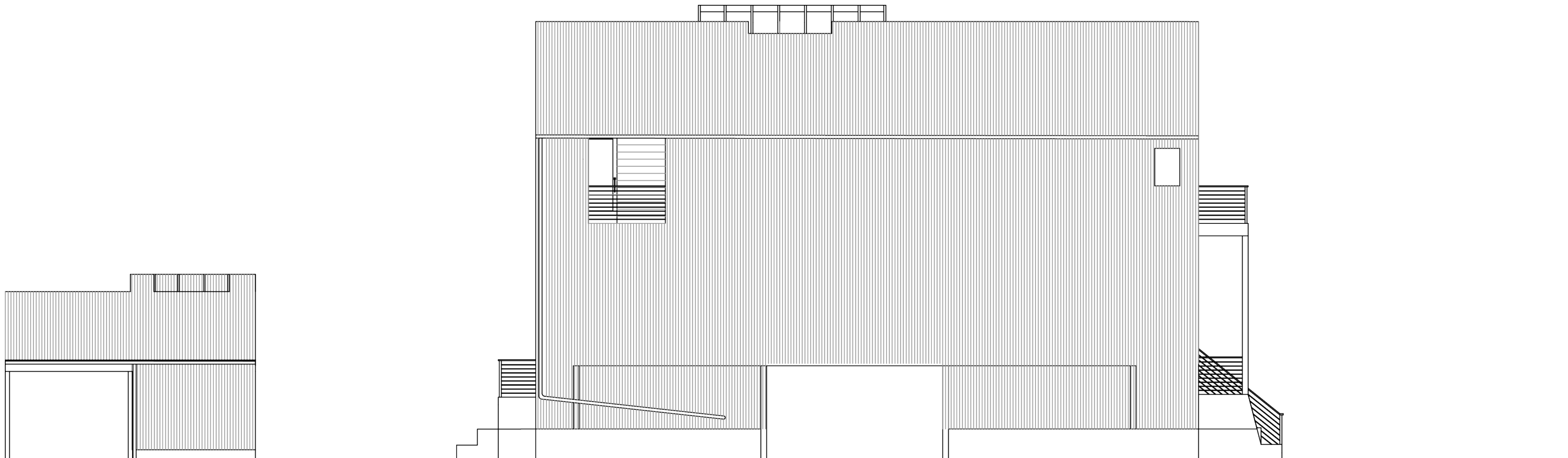
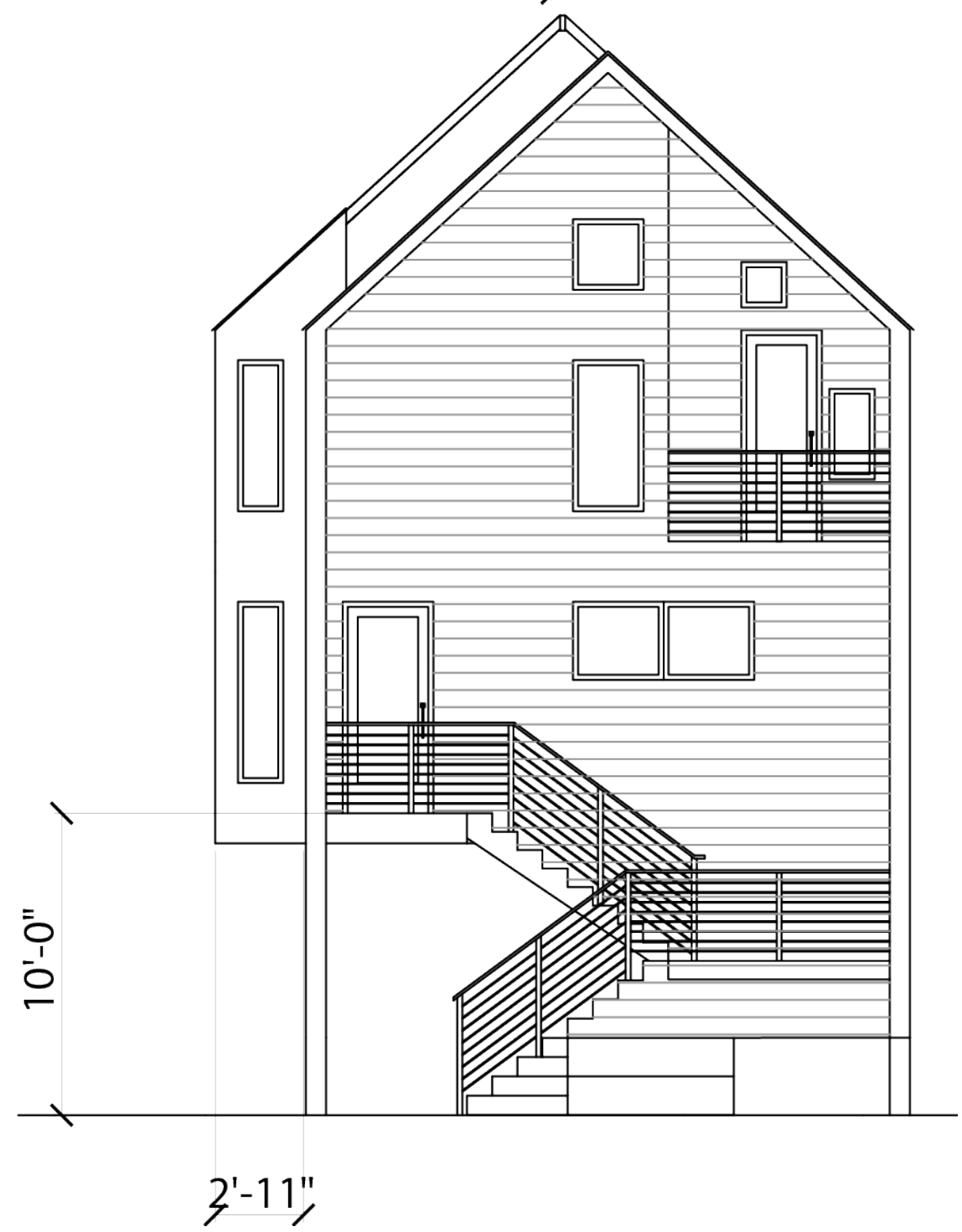
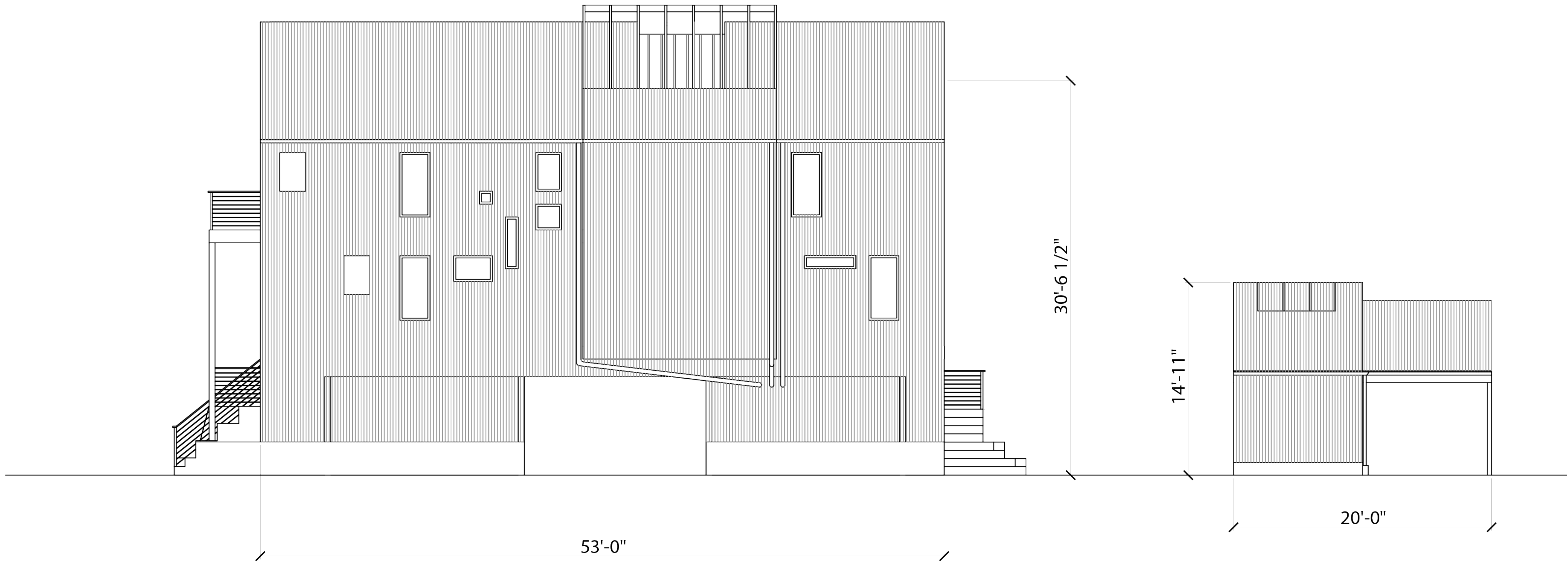
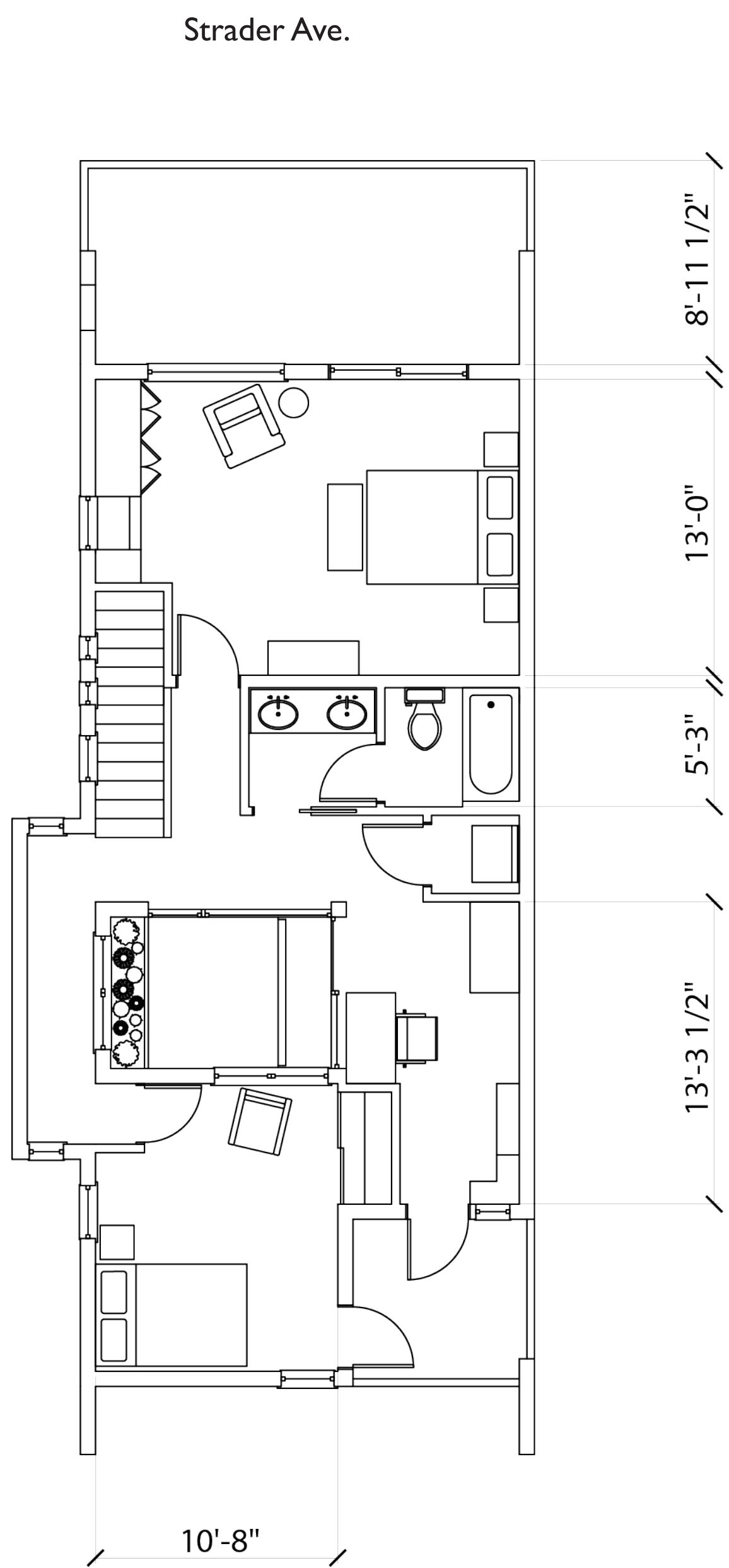
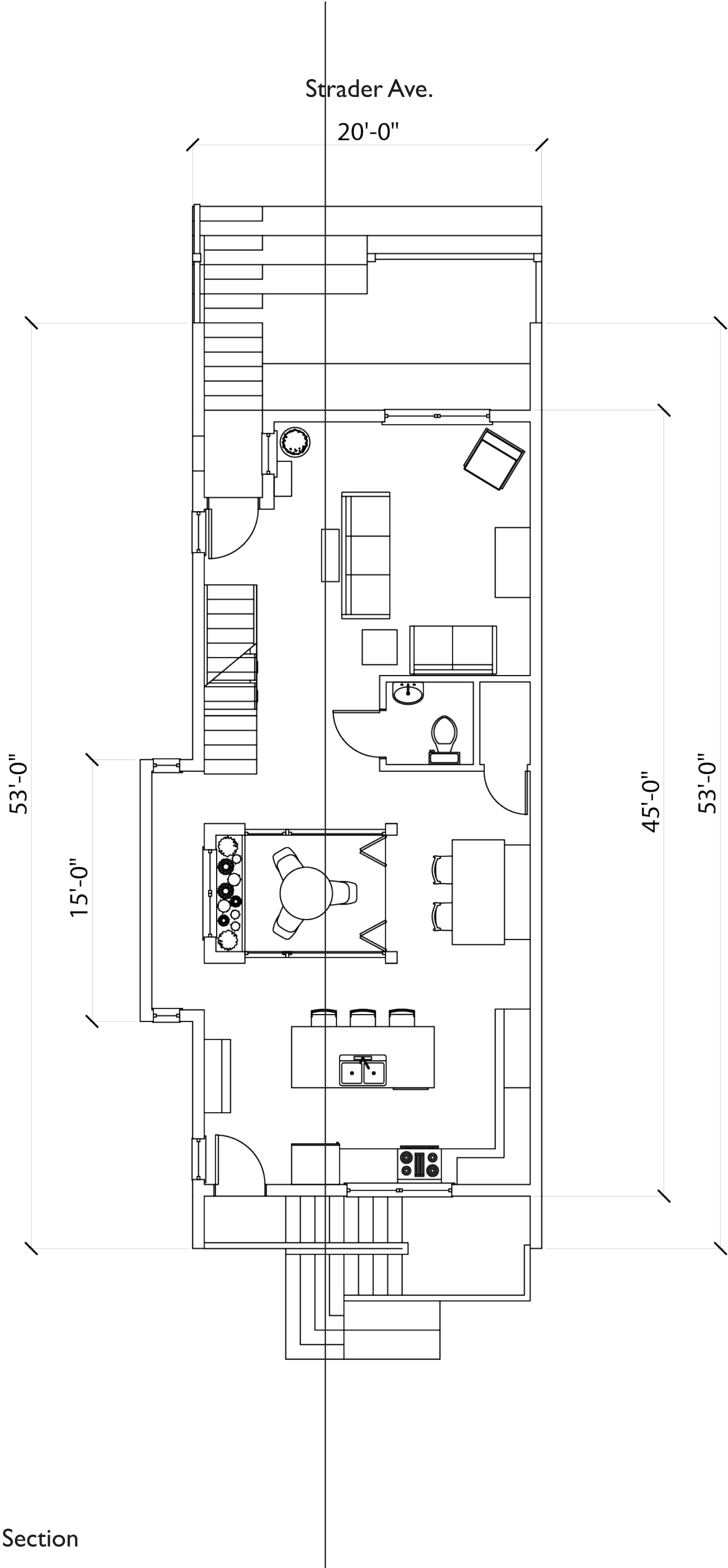
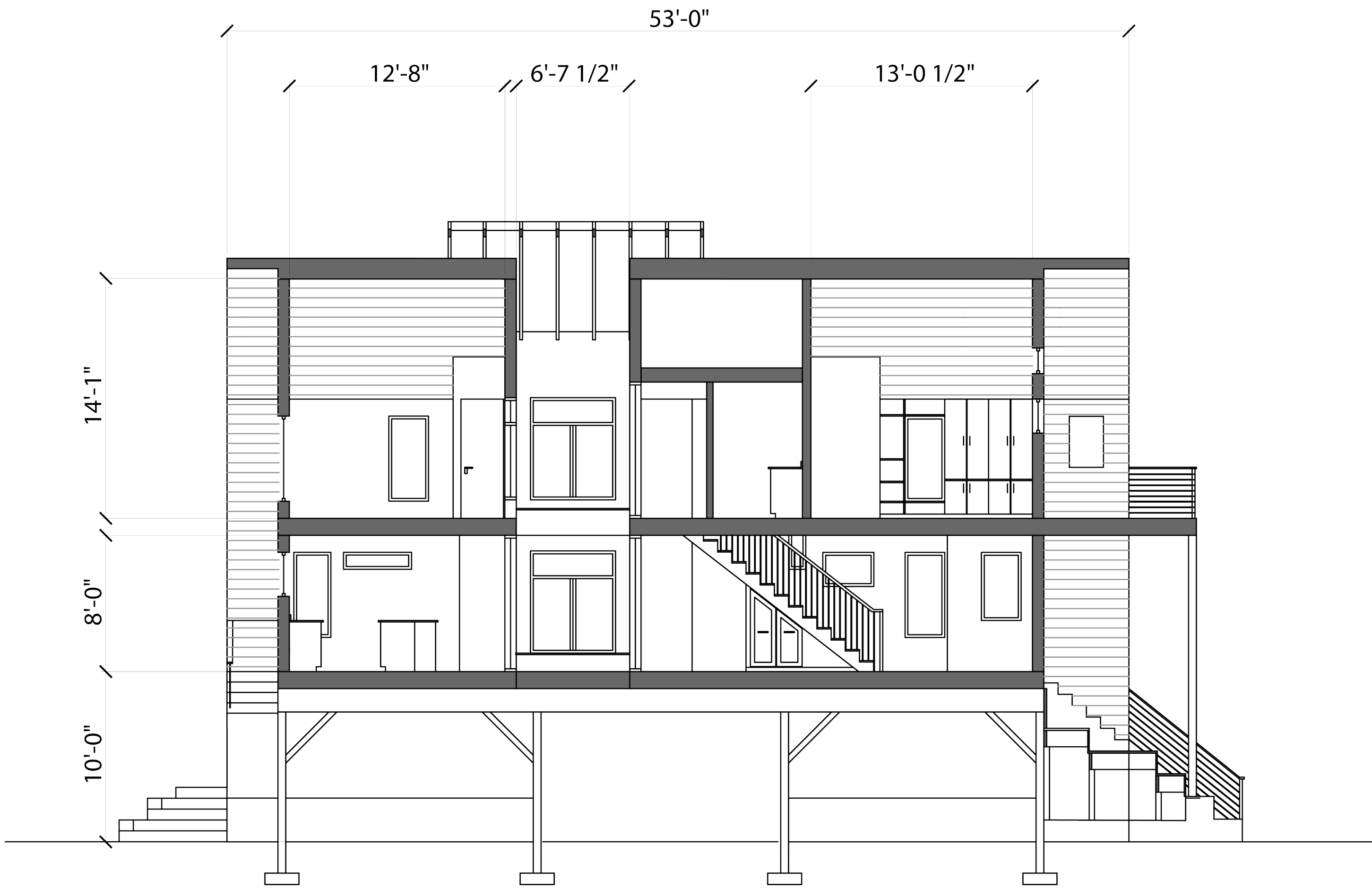


MATERIALS: METAL SIDING, CONCRETE MASONRY BLOCK, RECLAIMED LUMBER SIDING



an atypical home.  
for an atypical place.

Contestant II





# EAST END INFILL HOUSING

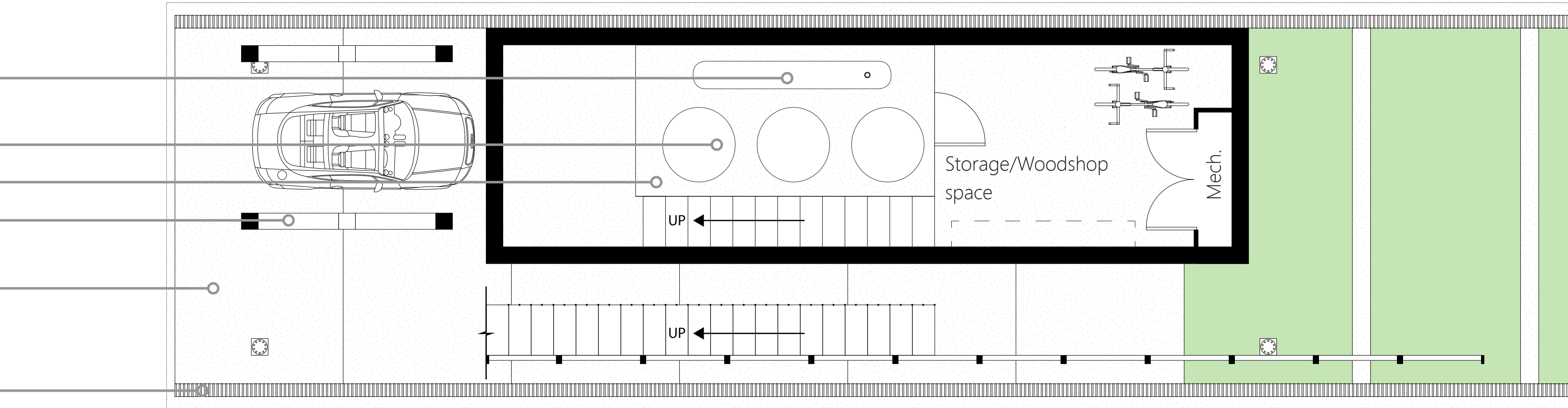
Here at the East End Neighborhood, there is a great sense of closeness amongst the neighbors, so it was especially important to maintain that intimacy with the new design. In this new single family house, I am proposing a new entry sequence to the house and also a replicated housing layout that will enhance the social interaction amongst the community even more. The overall form of the building is a shotgun massing with a wooden shell around it. The gesture of the wooden shell begins at the ground level and begins to rise as it proceeds to the end of the façade to create this S-Shape. This gesture was appropriate for the design because it played a vital role in having a strong dialogue with the ground and the elevated habitable spaces. The wooden shells proceed to continue to wrap around the massing, but without it coming back down to the ground to really accentuate the lift of the building from the other side. Functionally, the wooden shell acts as a privacy and shading devise and also protection from debris from the flood prone region. The S-Shape façade was also determined by the fact that the new entry sequence actually begins on this 'S' side of the façade. So when a reproduction of this house is built south of this existing lot, the replica will actually be rotate 180 degrees. This is done because now by having the entry sequence internally between these two homes, the neighbors will continue to grow the strong social interaction that the community has as they enter their homes. Another unique aspect to the design is the buoyancy foundation. The reason for this method as opposed to stilts is because stilts become meaningless once the flood level reach its elevated height. And floods over the minimum elevation height has occurred multiple times in the past in this region. The foundation consists of a concrete "tub" that holds the buoys (Styrofoam blocks attached to a framing system) that are connected to 10 telescoping guides. The idea is that when the region floods, the flood water will flow into the tub and simply elevate the building as the telescoping stilts are there to guide it that guarantees the house from being damaged or obliterated.



3/32" = 1'  
0' 8' 16'

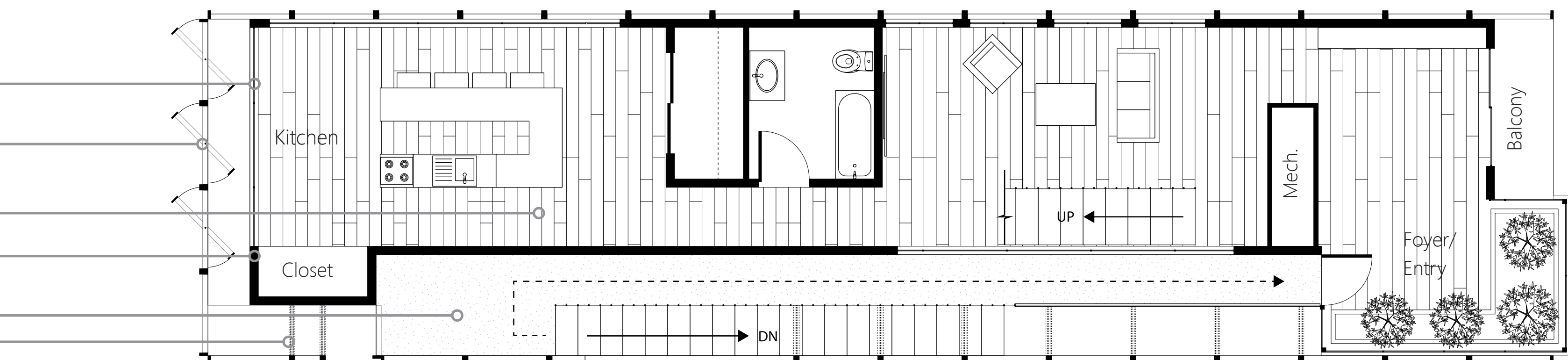
## GROUND LEVEL

- Horizontal Water Treater
- Water Collecting Tank
- Concrete Finish
- 12" Steel Columns
- Permeable Paving Slab
- 12" Gutter Relief



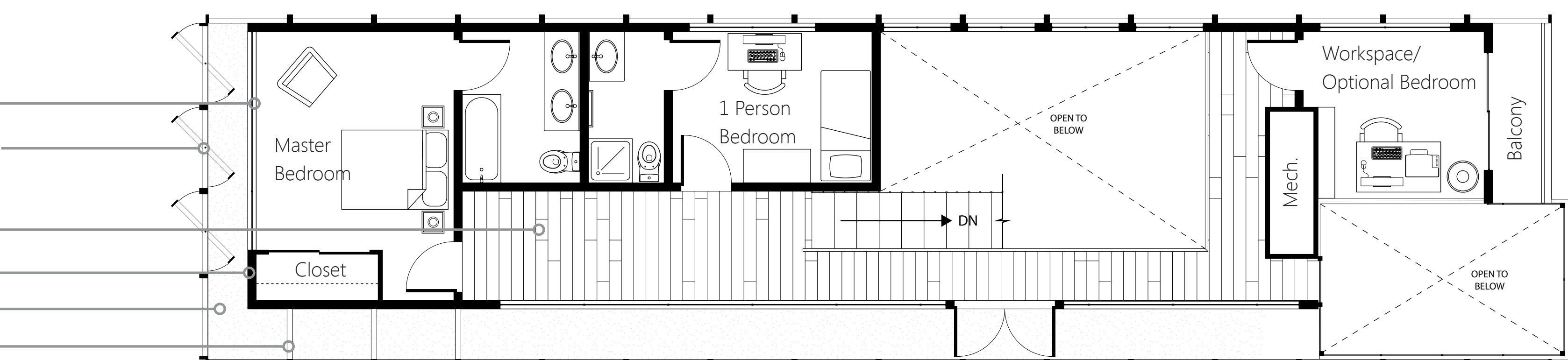
## LEVEL 2

- Glazing
- Operable Wood Louvers
- Hardwood Floor Finish
- Gypsum Finish w/ Studs 16" O.C.
- Concrete Finish Path
- Wood Shell Tieback

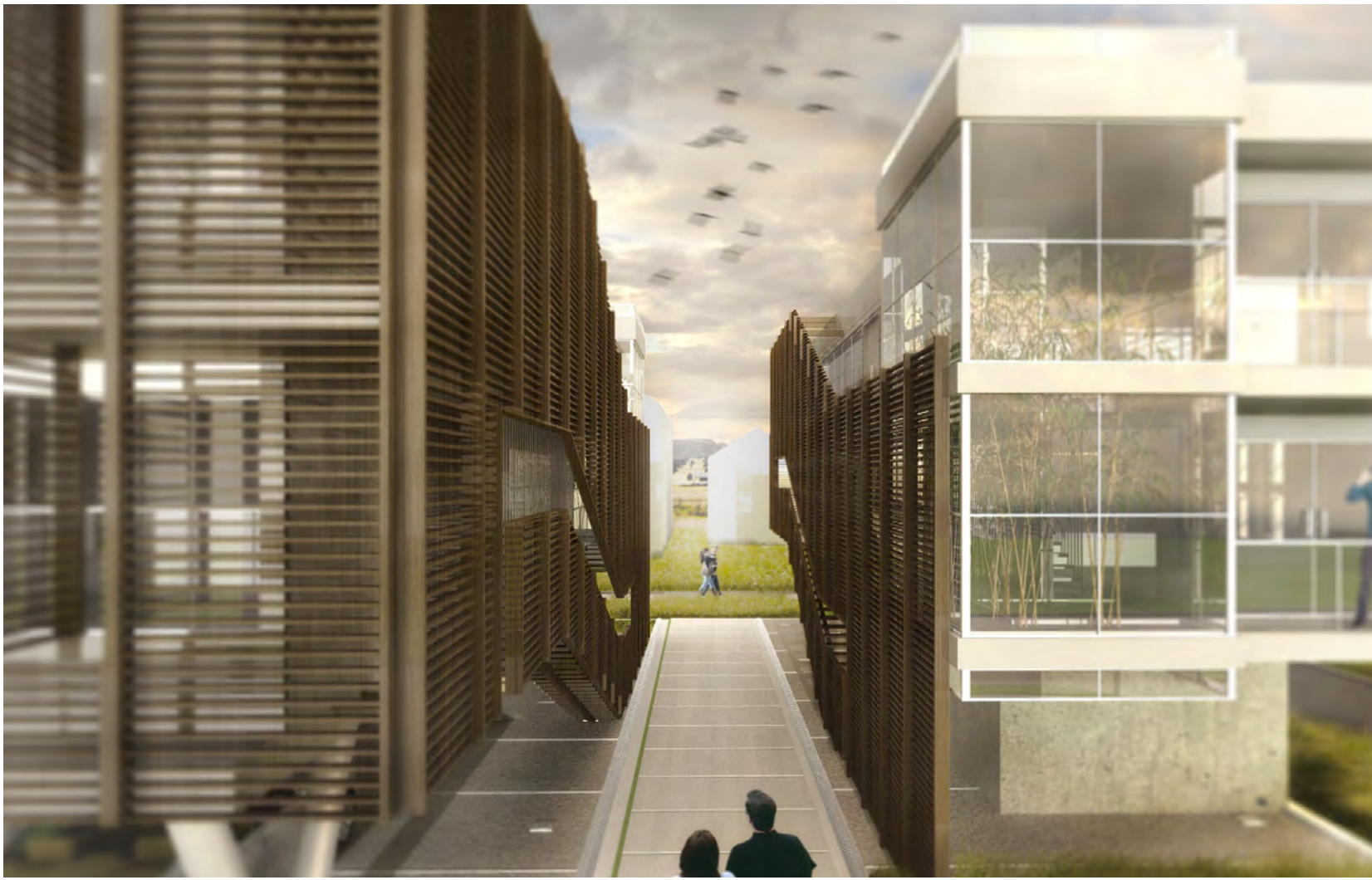
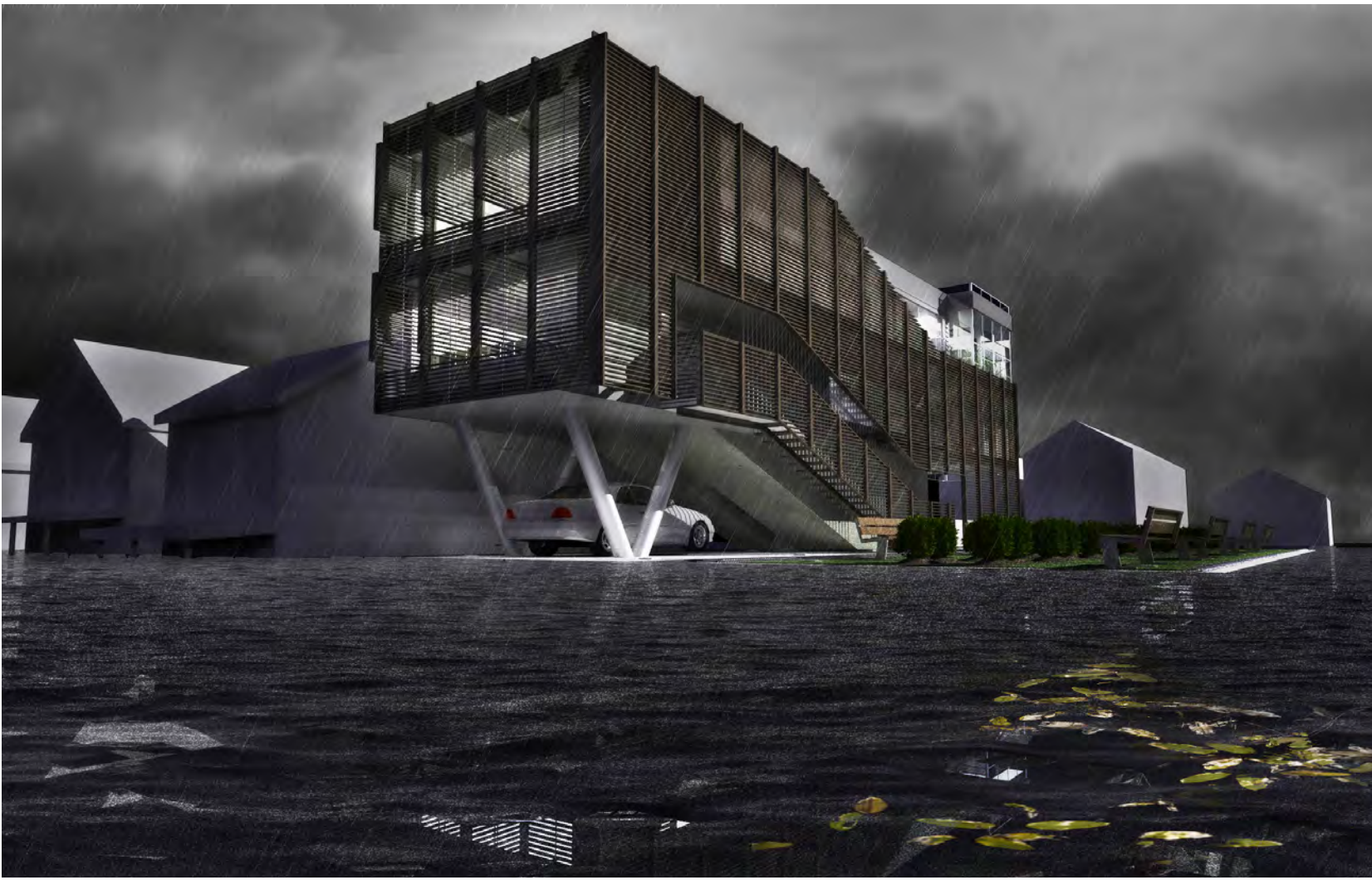


## LEVEL 3

- Glazing
- Operable Wood Louvers
- Hardwood Floor Finish
- Gypsum Finish w/ Studs 16" O.C.
- Concrete Finish Path
- Wood Shell Tieback

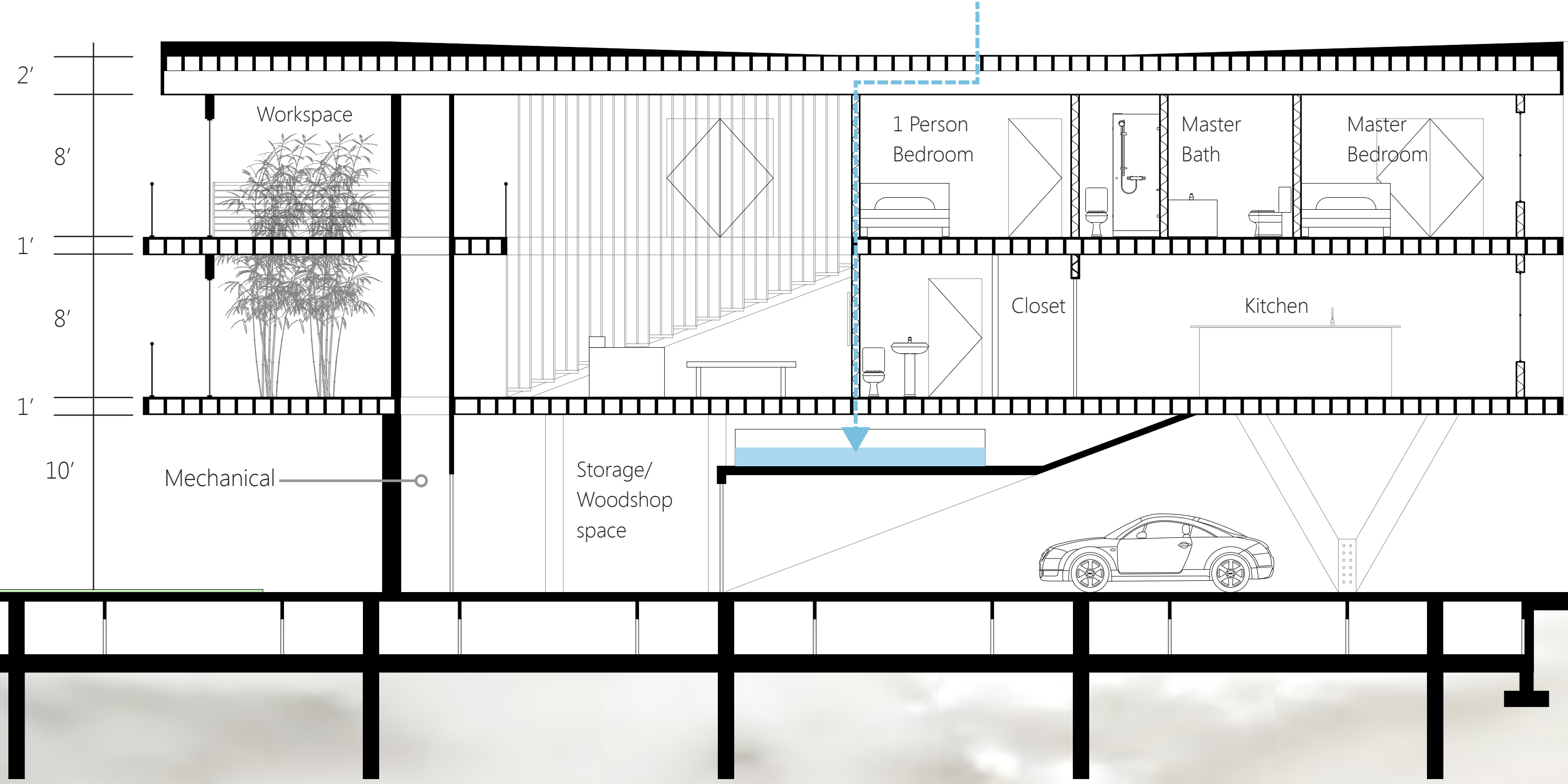
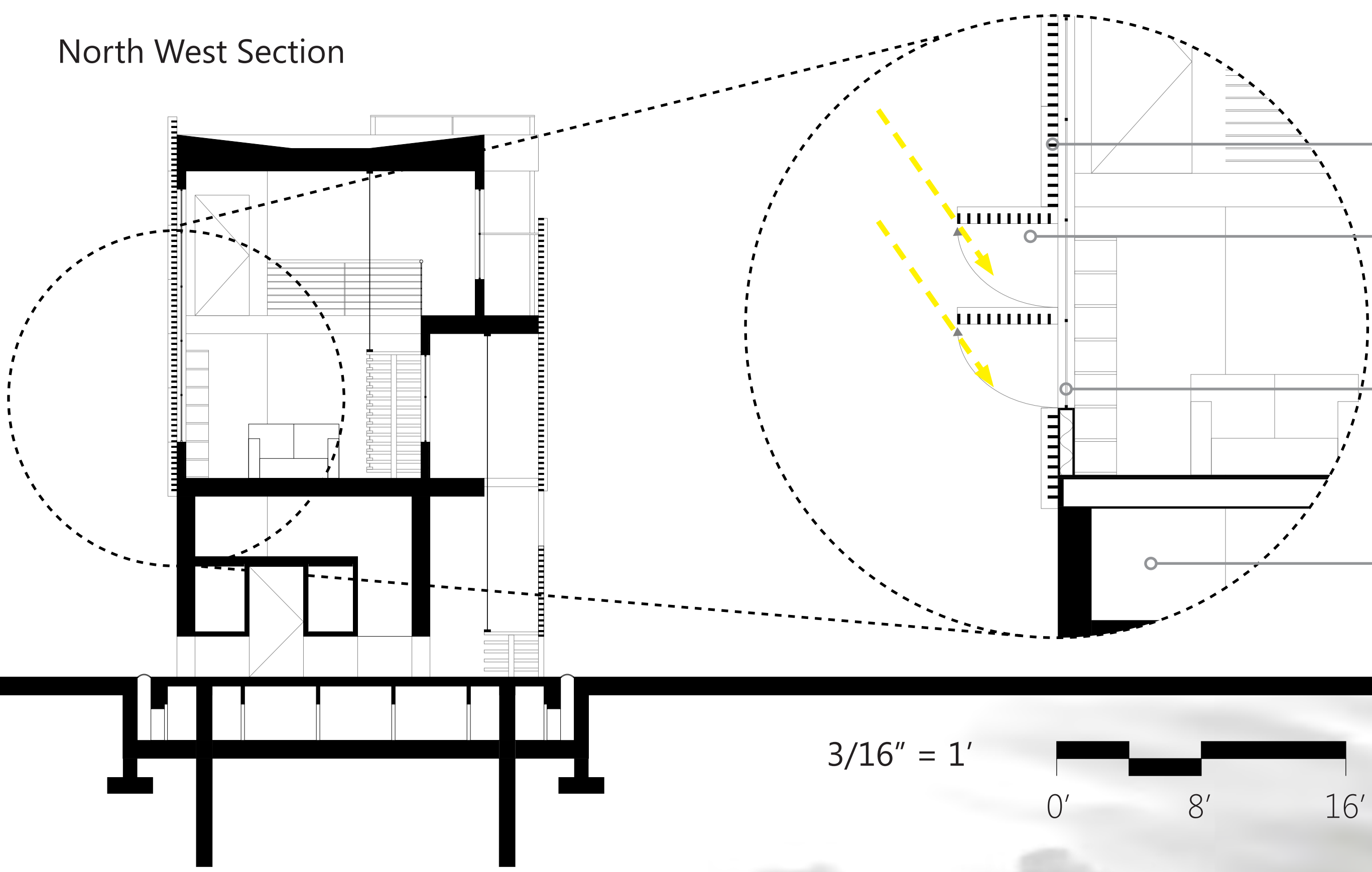


5' Modules  
3/16" = 1'  
0' 8' 16'



North West Section

North East Section



North West Elevation

North East Elevation



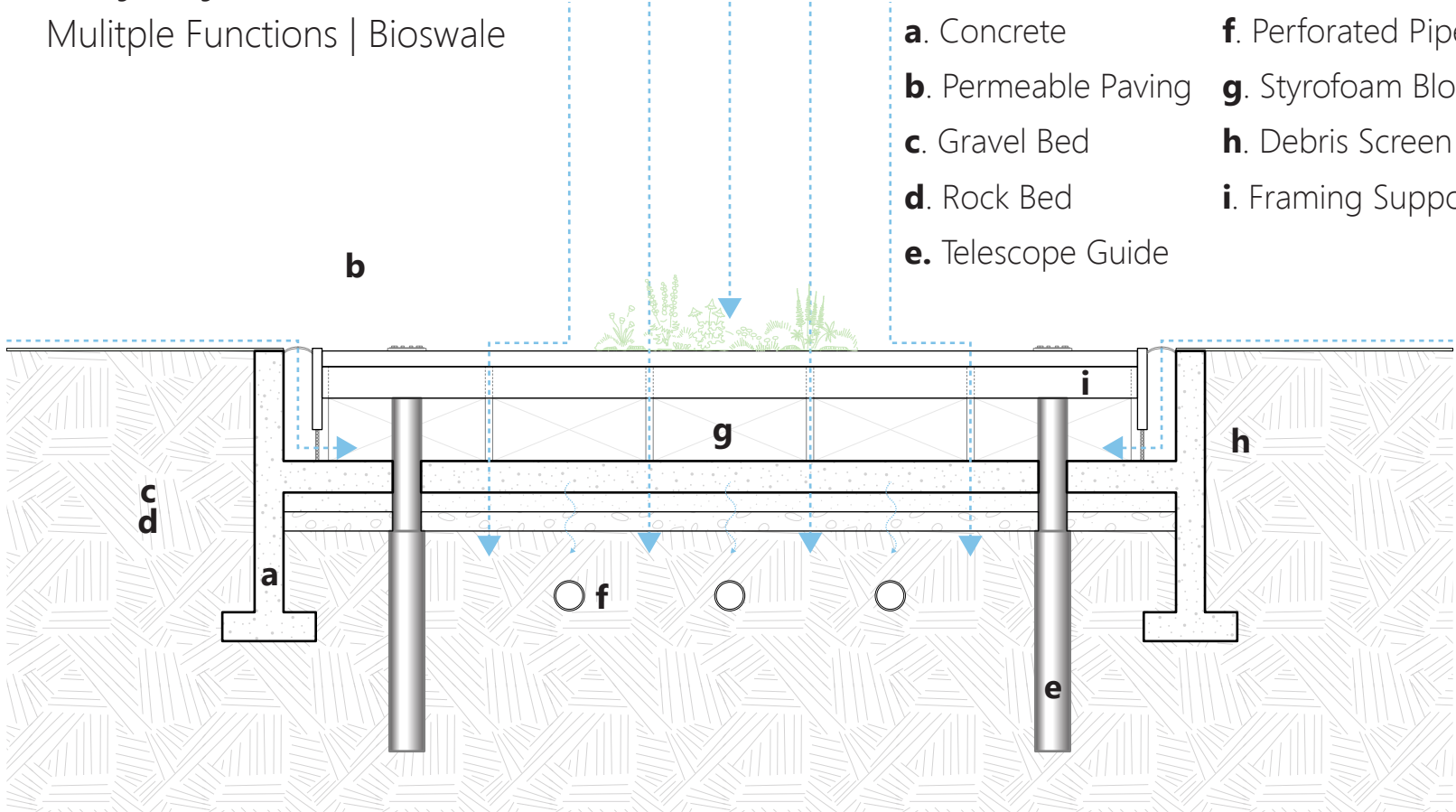
3/16" = 1'  
0' 8' 16'

South West Elevation



## Buoyancy Foundation

Multiple Functions | Bioswale



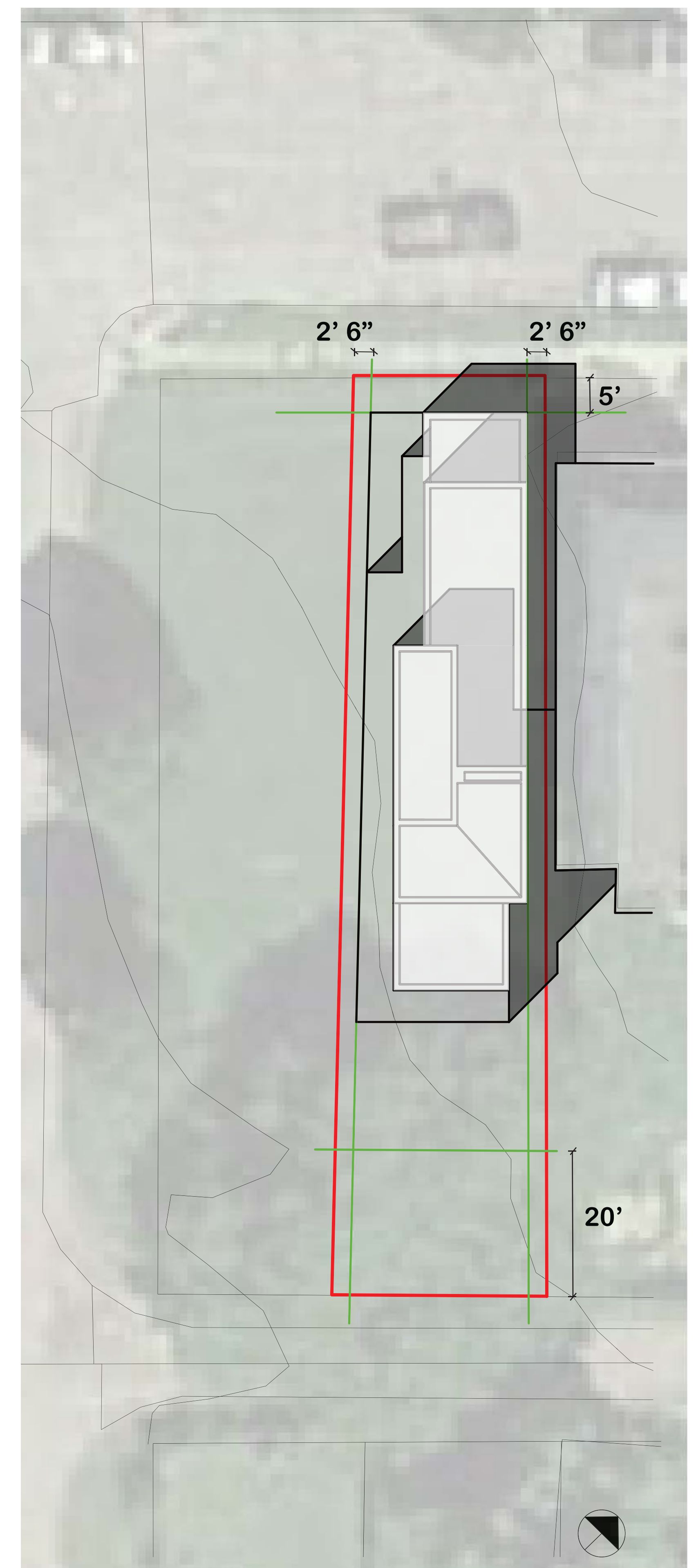


## STEP UP House

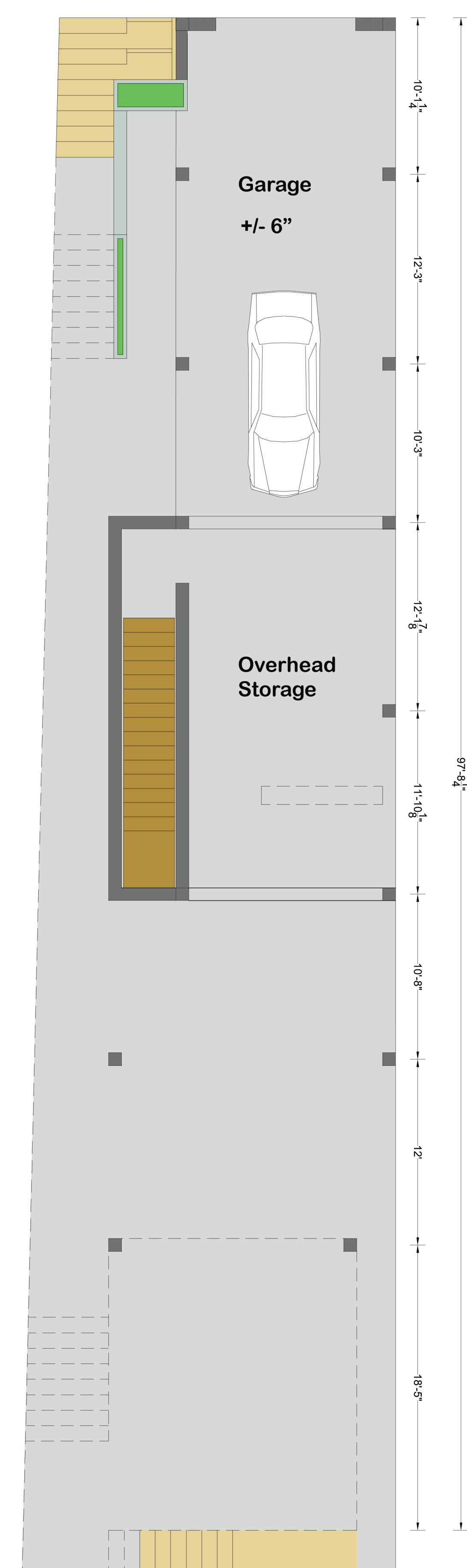
**Take a step-up in your views and take  
a step-up in your living**



## Perspectives

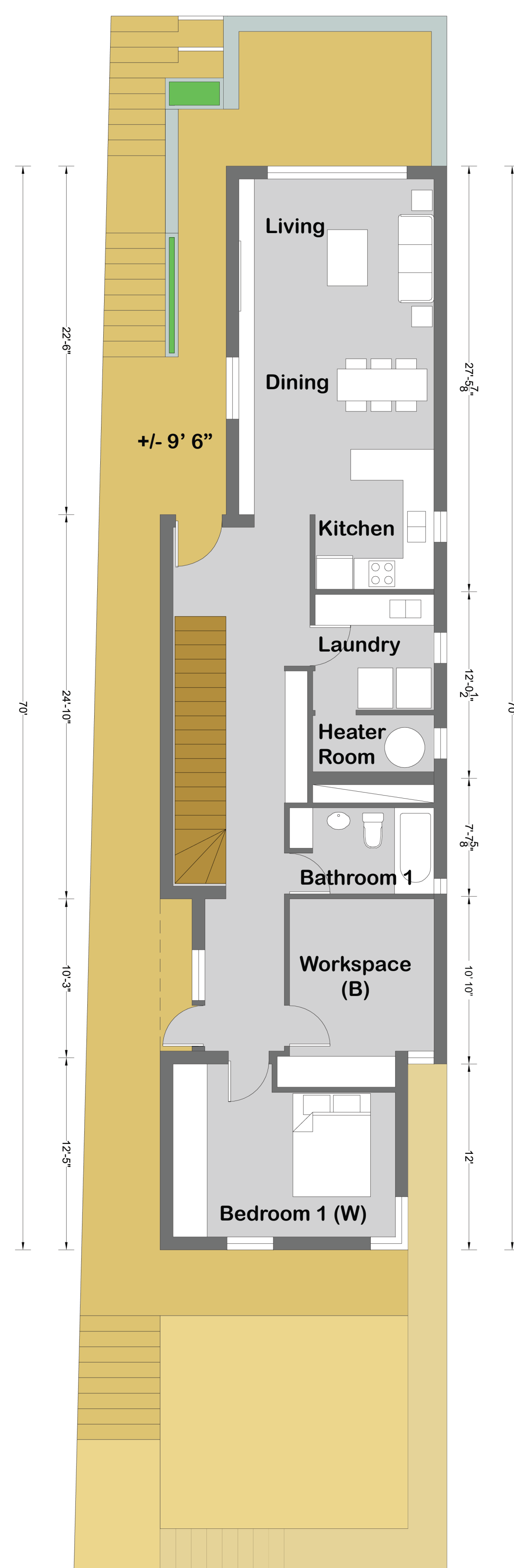


**Site Plan**  
scale 3/32"= 1'



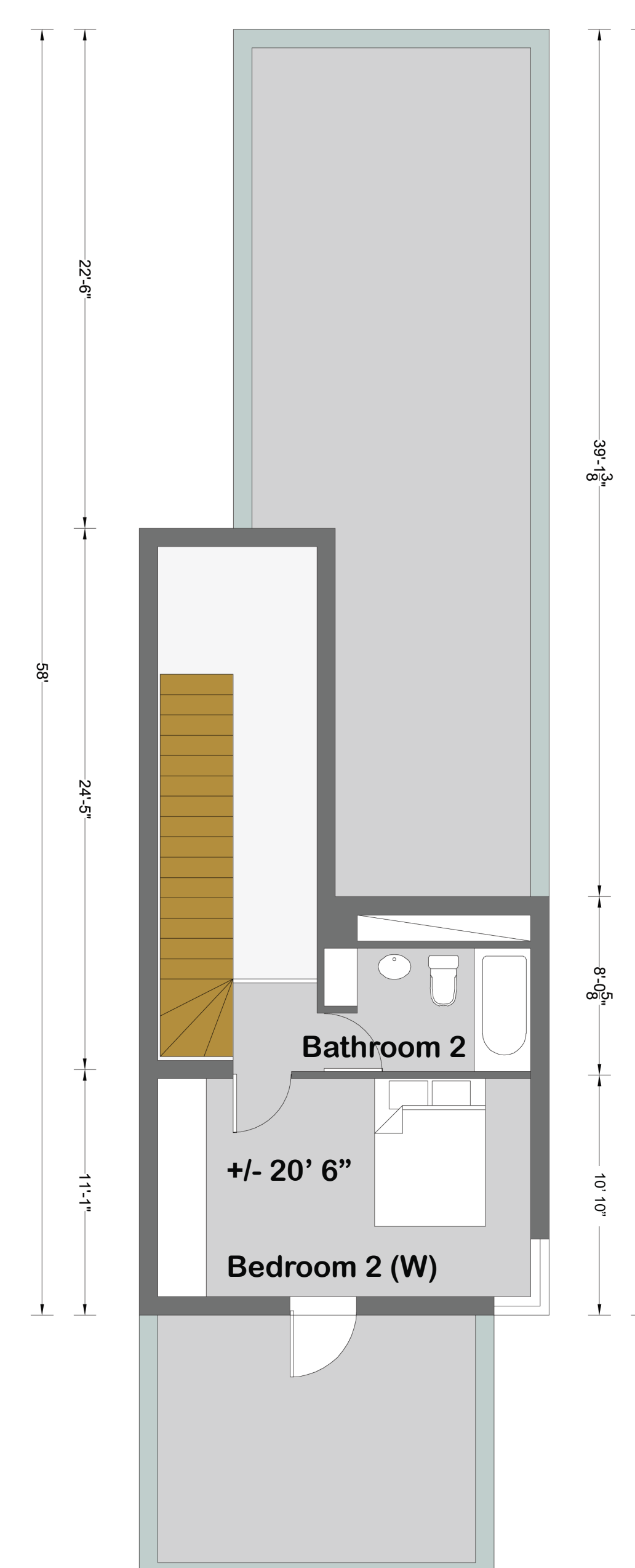
## First Floor Plan

scale 3/16"= 1'

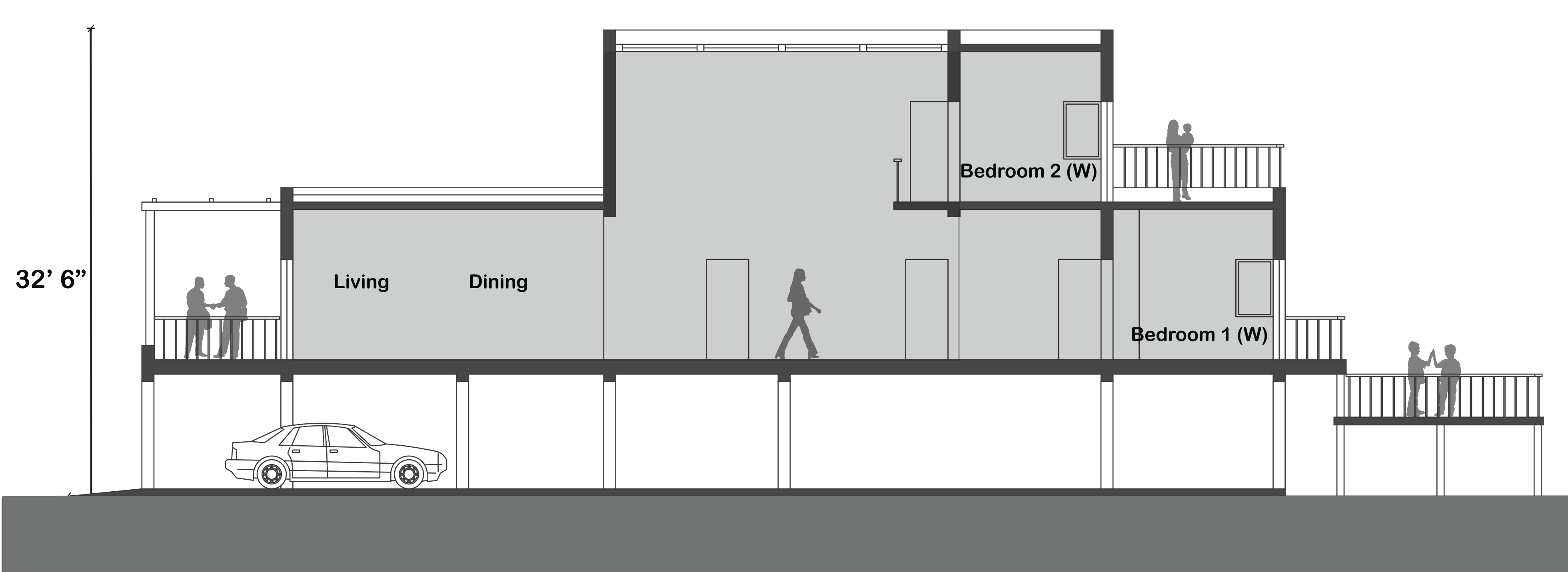


## Second Floor Plan

scale 3/16" = 1'



### Third Floor Plan



## Longitudinal Section

scale 3/16" = 1'



**Elevation**  
scale 3/16"= 1'

## Step Up House Ideas

### ● Feasibility in Flood Plain

The livable space is 9' 6" elevated from the ground.

- **Visual Appeal and Contextuality**

The Step Up house develops based on the concept of a “big stair”, where upper floors are away from the street, so they fit to the existing scale.

The terraced access and porch area, along with materials such as local stone and metal cladding, contribute to integrate the building to its context.

- **Affordability**

Traditional construction - 1,372 sf

- **Livability and Flexibility**

- **Bedrooms and living/dining areas face the front and back facades with spectacular views. The workspace area is suitable and flexible to be located in any bedroom space.**

**A mechanical/services area is efficient and conveniently located at the center of the house.**

- **Reapplicability**

**Reapplicability**  
In the Step Up house the client can easily “mirror” the layout based on particular orientations.

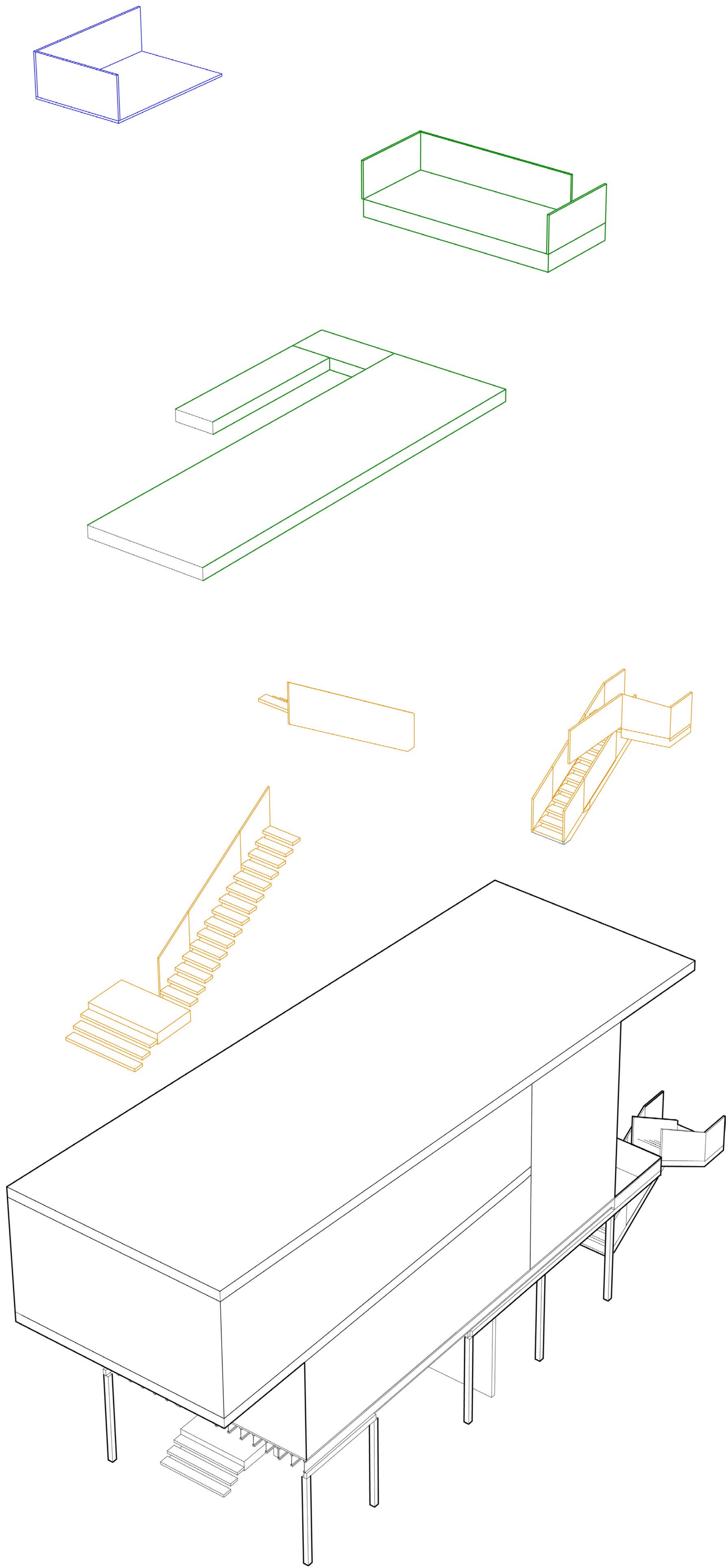
● **Sociability**

- **Sociability**  
The front porch area was chosen as the arch. element for sociability

● Sustainability

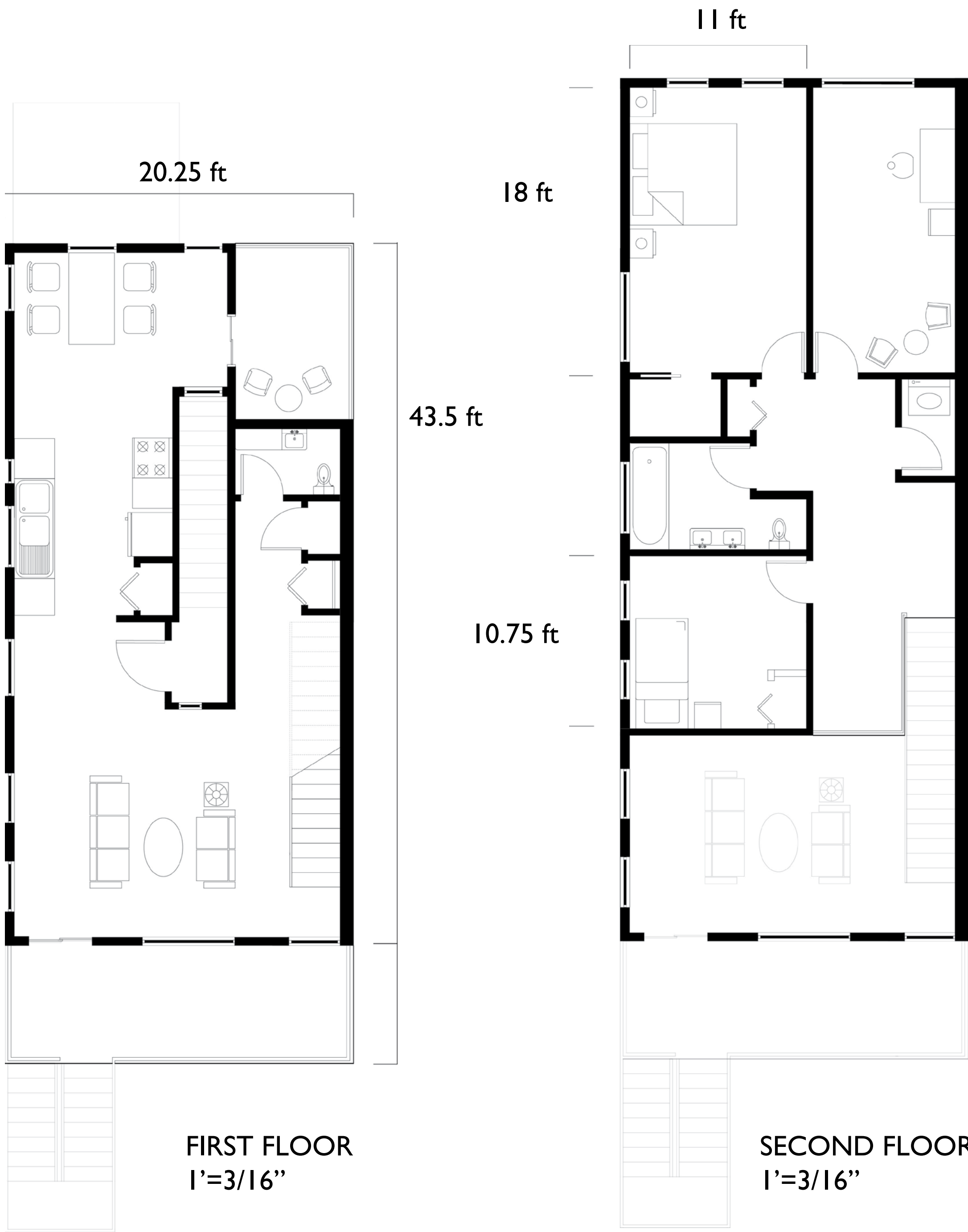
- **Sustainability**  
The layout of the program is designed based on suitable orientations for each space, in order to reduce the amount of energy necessary for comfort conditions. A green roof is proposed too.





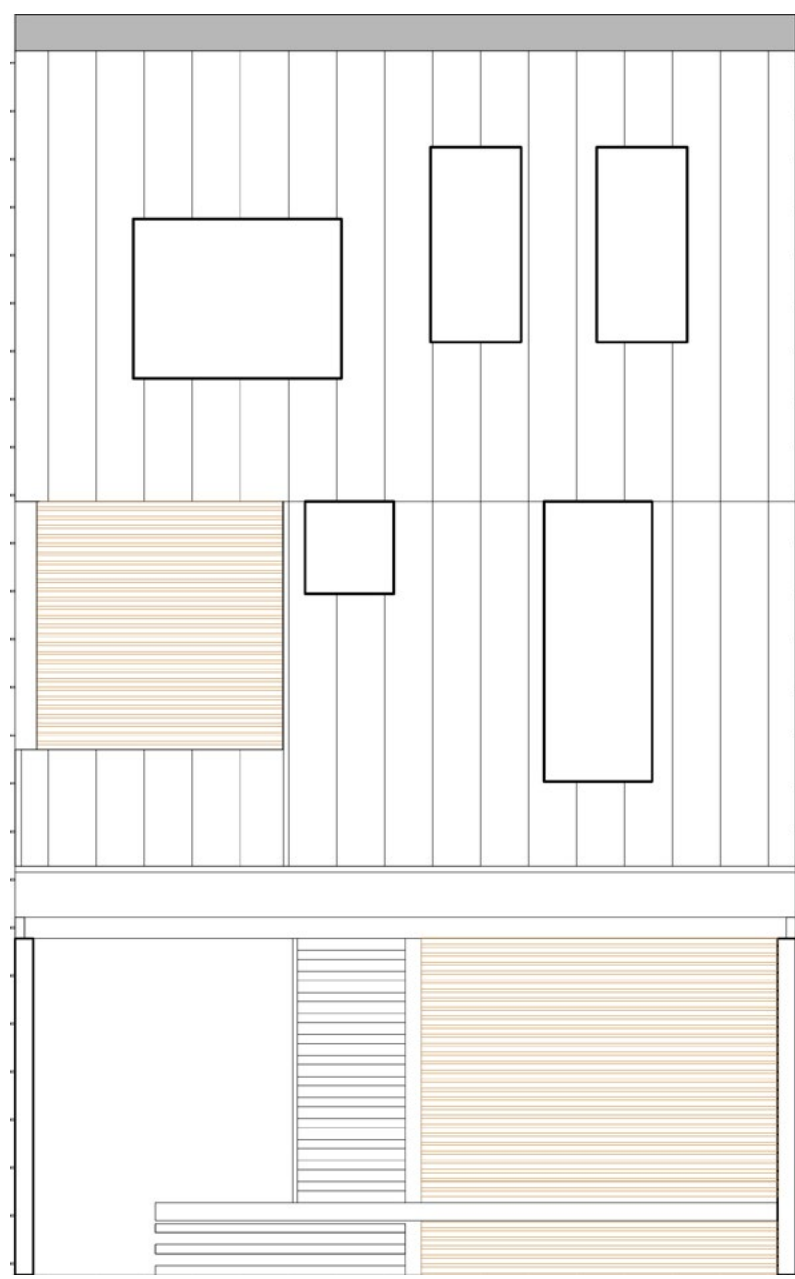
EXPLODED AXON

FROM BOTTOM TO TOP  
CIRCULATION  
PUBLIC OUTDOOR SPACE  
PRIVATE OUTDOOR SPACE



FIRST FLOOR  
1"=3/16"

SECOND FLOOR  
1"=3/16"



FRONT ELEVATION  
1"=3/16"

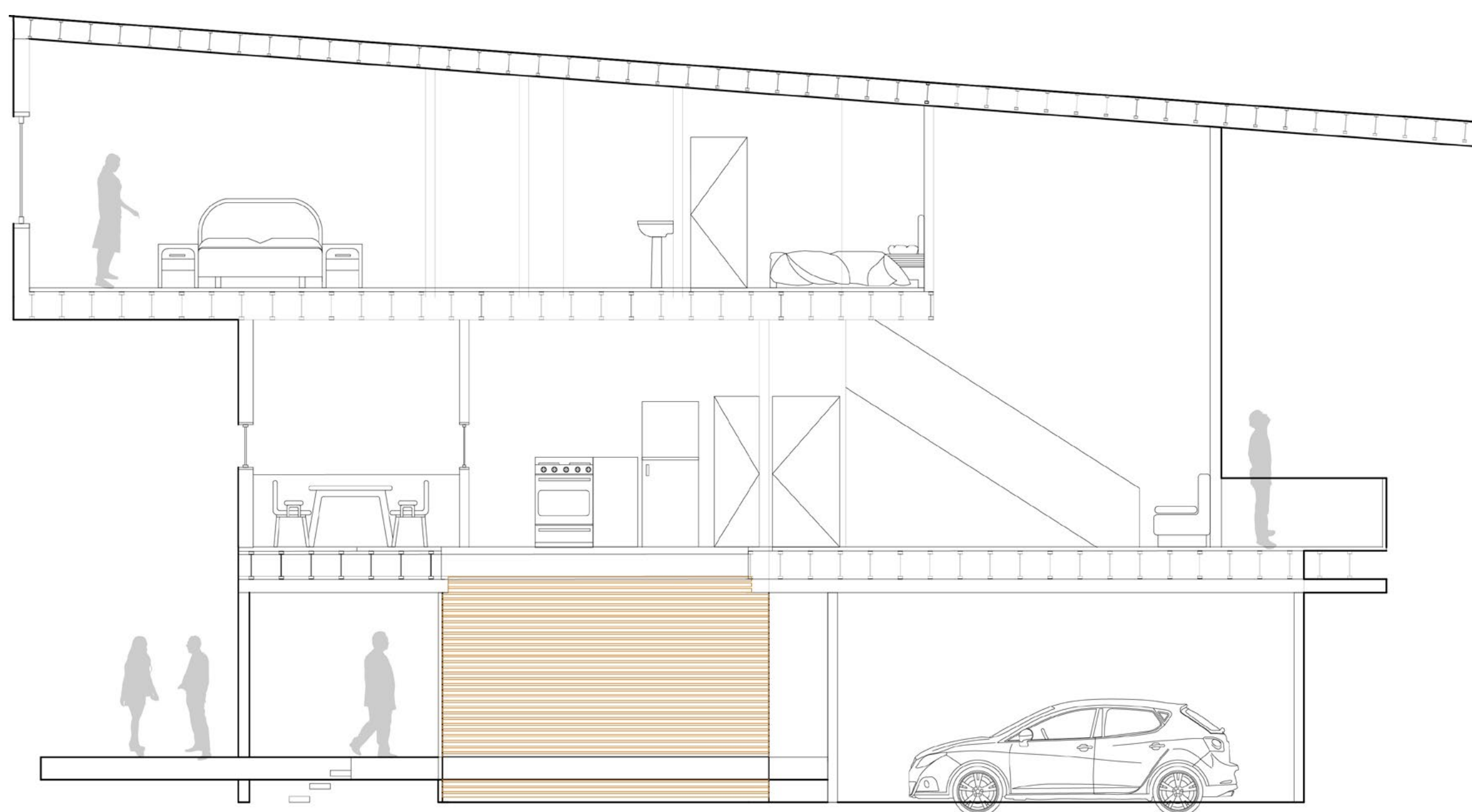


SIDE ELEVATION  
1"=3/16"

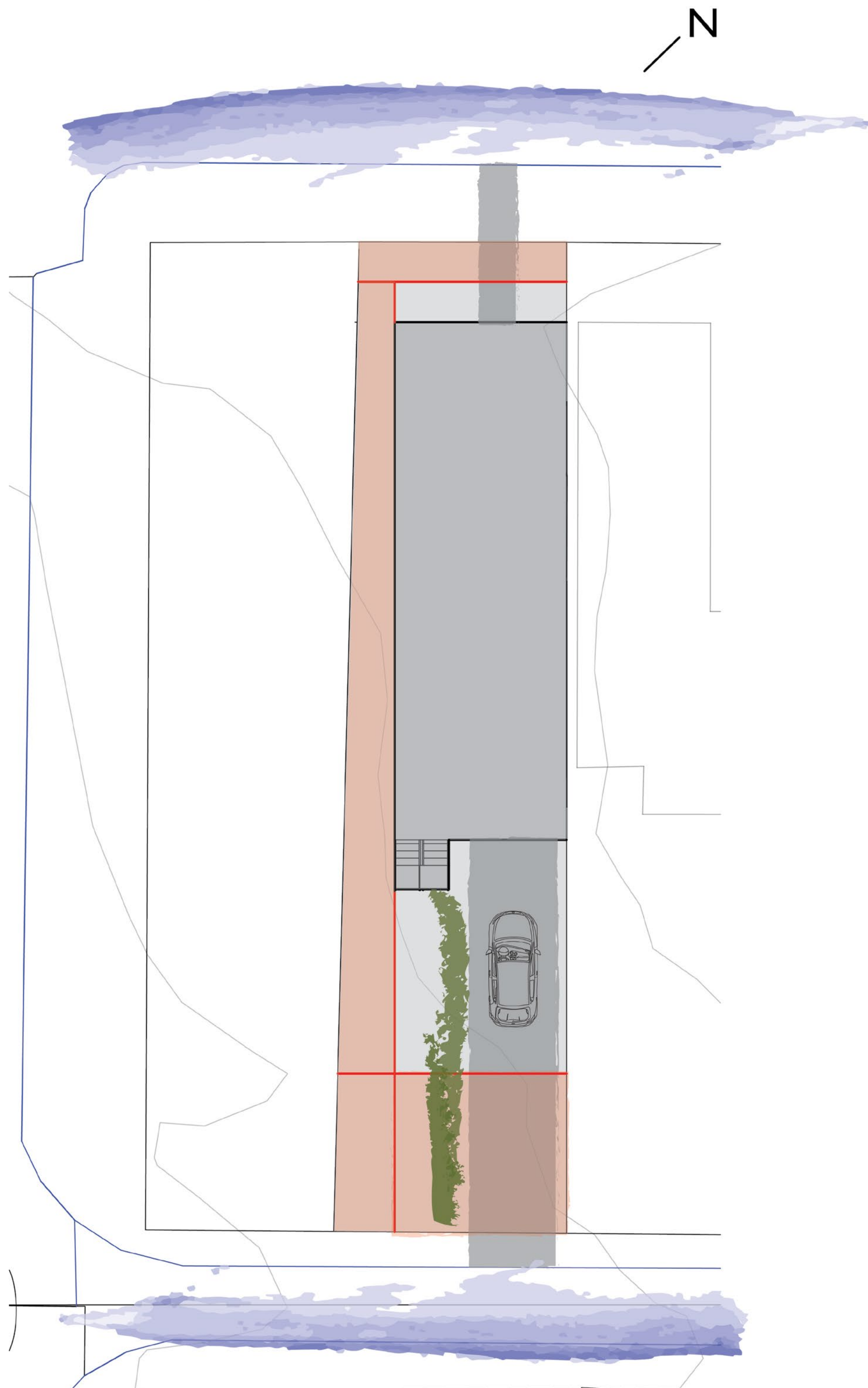
FACADE MATERIALS

STANDING SEAM STEEL  
CONSTRUCTION

MOISTURE RESISTANT  
TIMBER



NORTH - SOUTH SECTION  
1"=3/16"



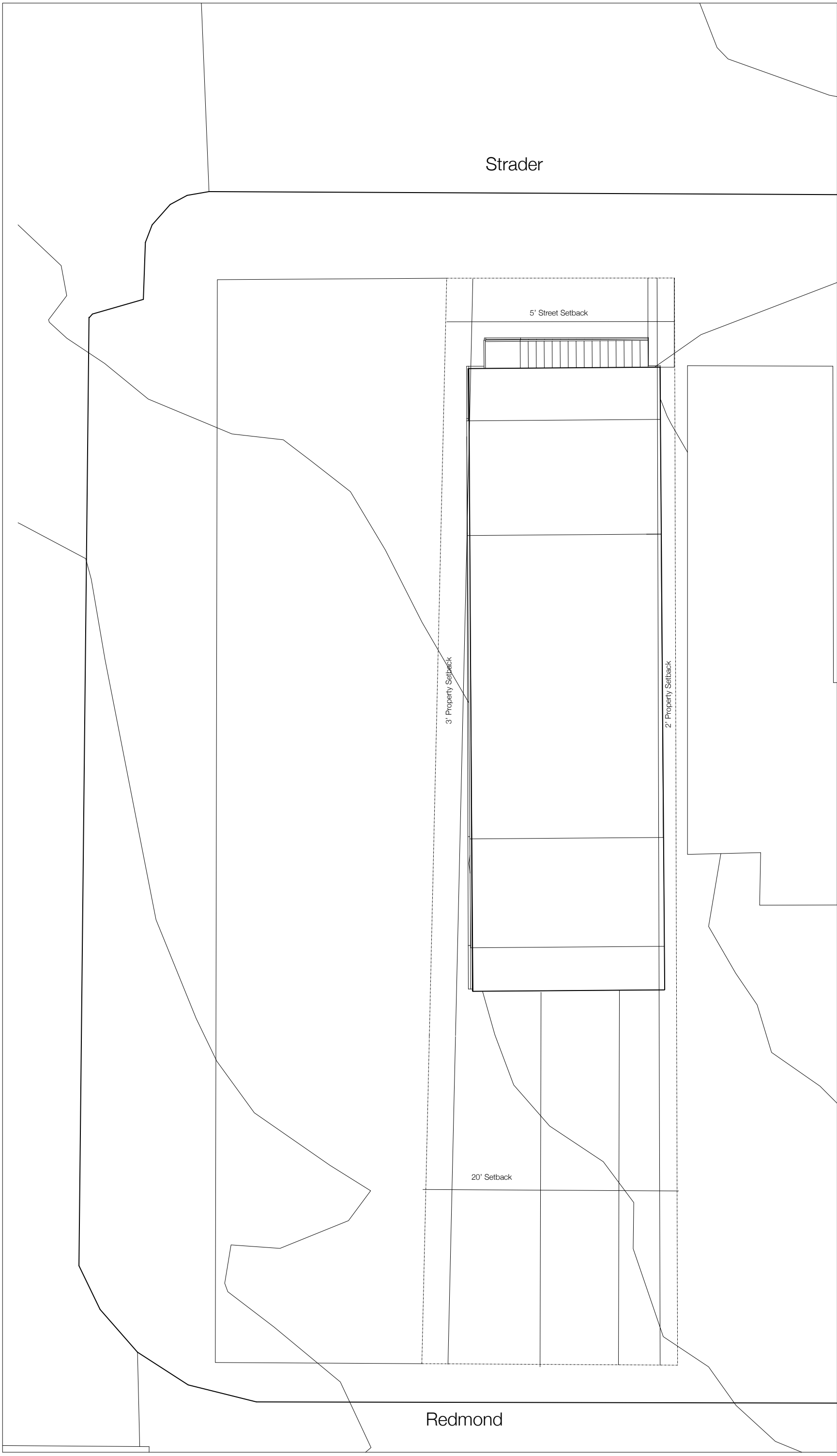
SITE PLAN  
1"=3/32"



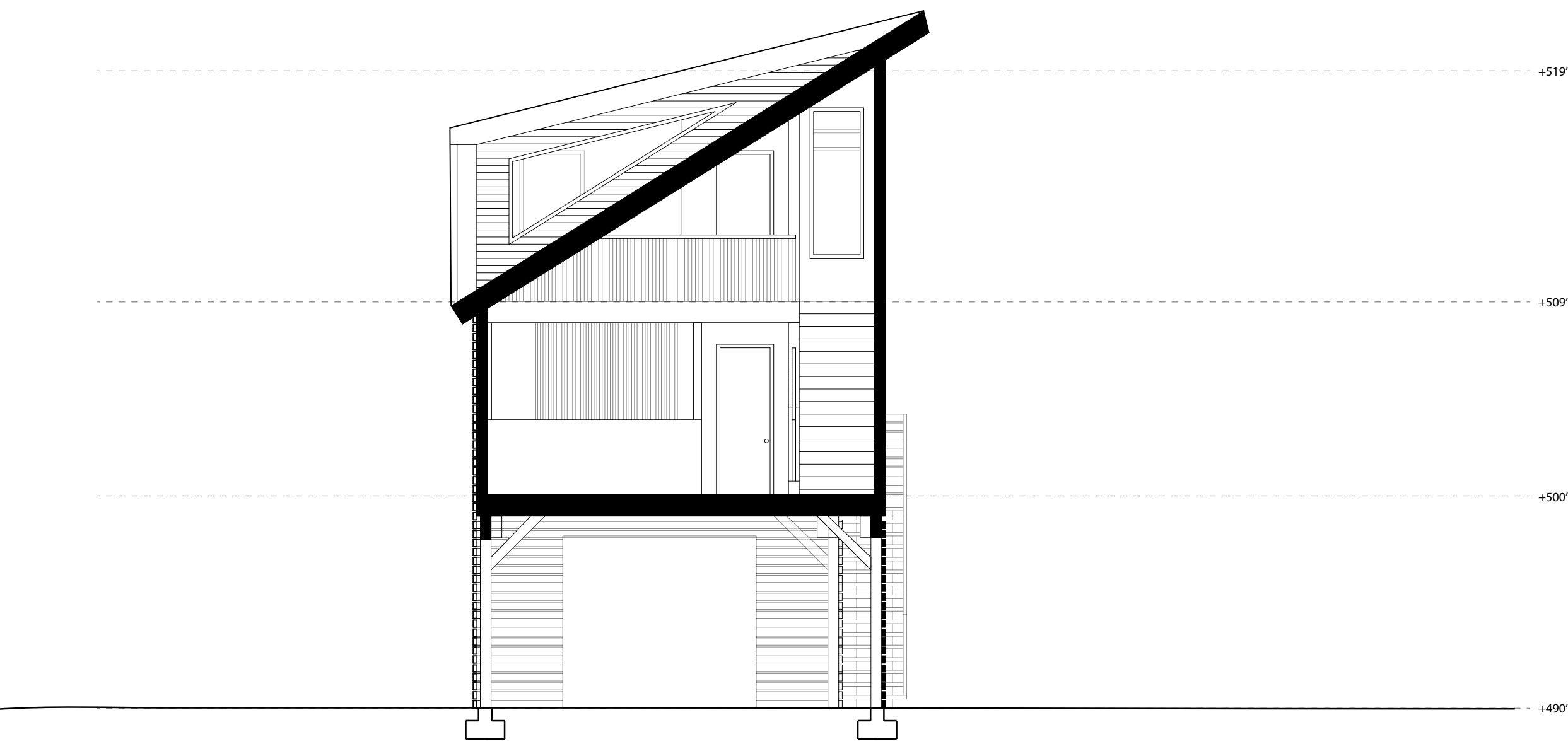
Flood Resistant Infill Housing for  
the East End Garden District  
Spring Semester 2015  
Issued 23 January, 2015

04

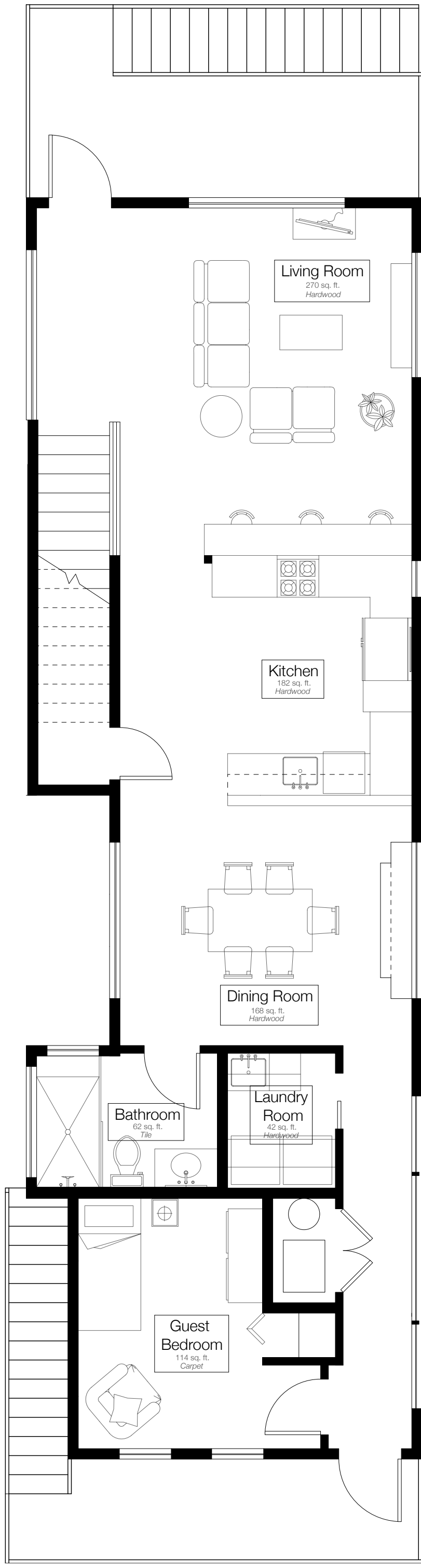
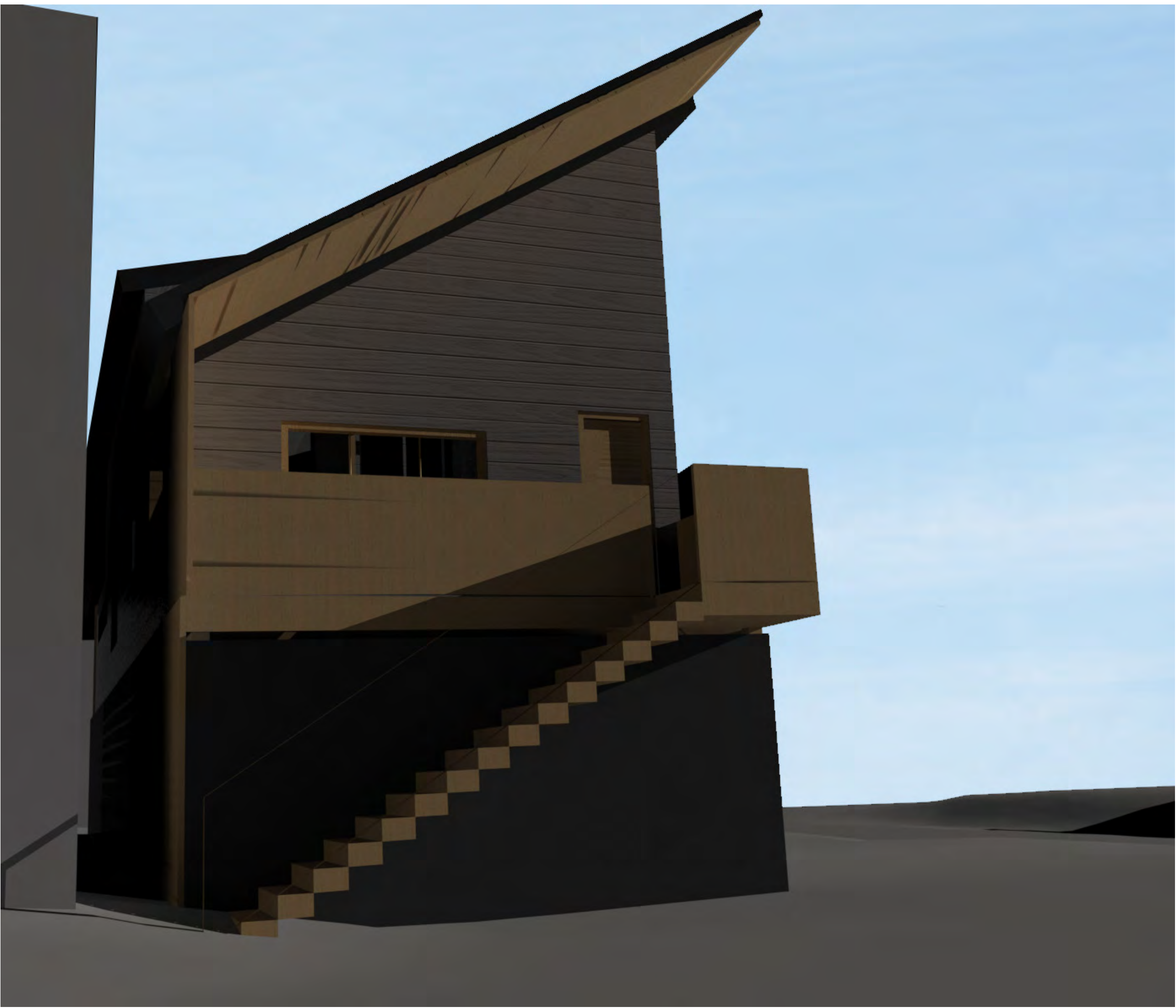
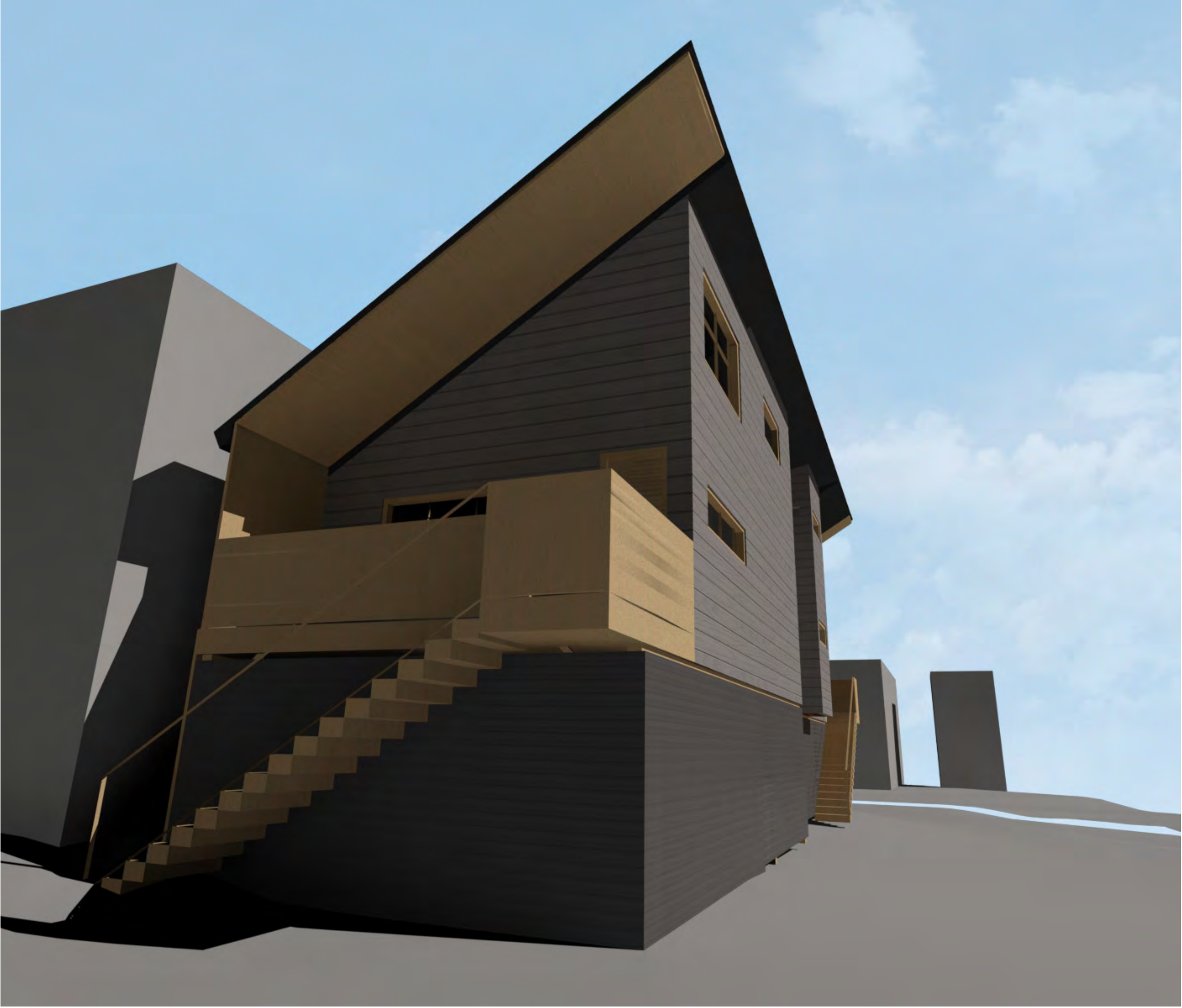
Gross Sq FT - 1558 sq ft  
Roughly \$125 per sq ft  
Total = \$194750



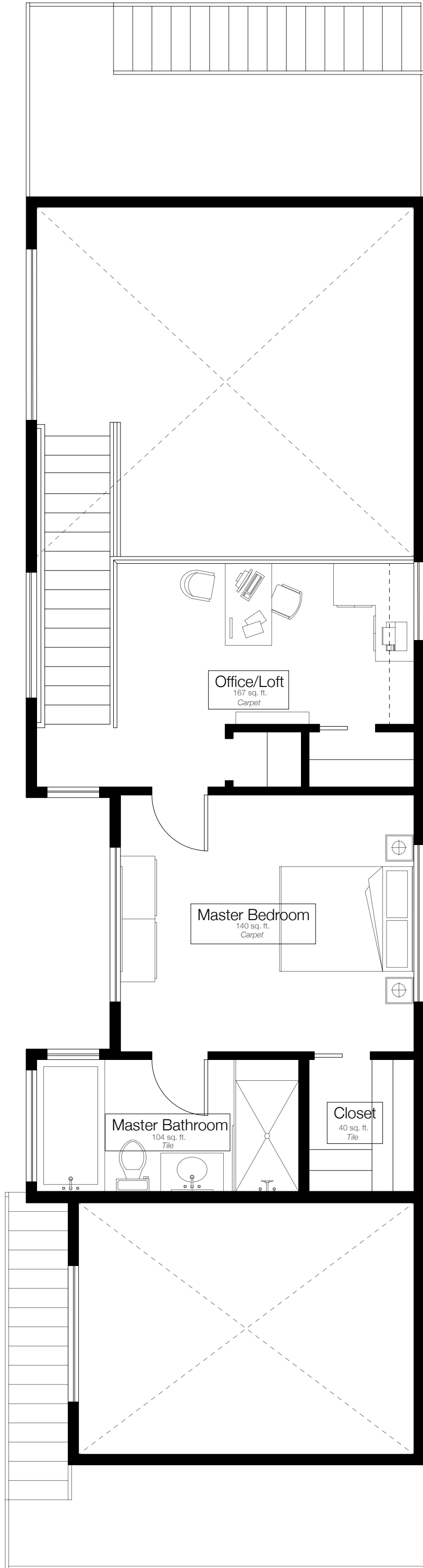
Site Plan: 1'-0" = 3/32"



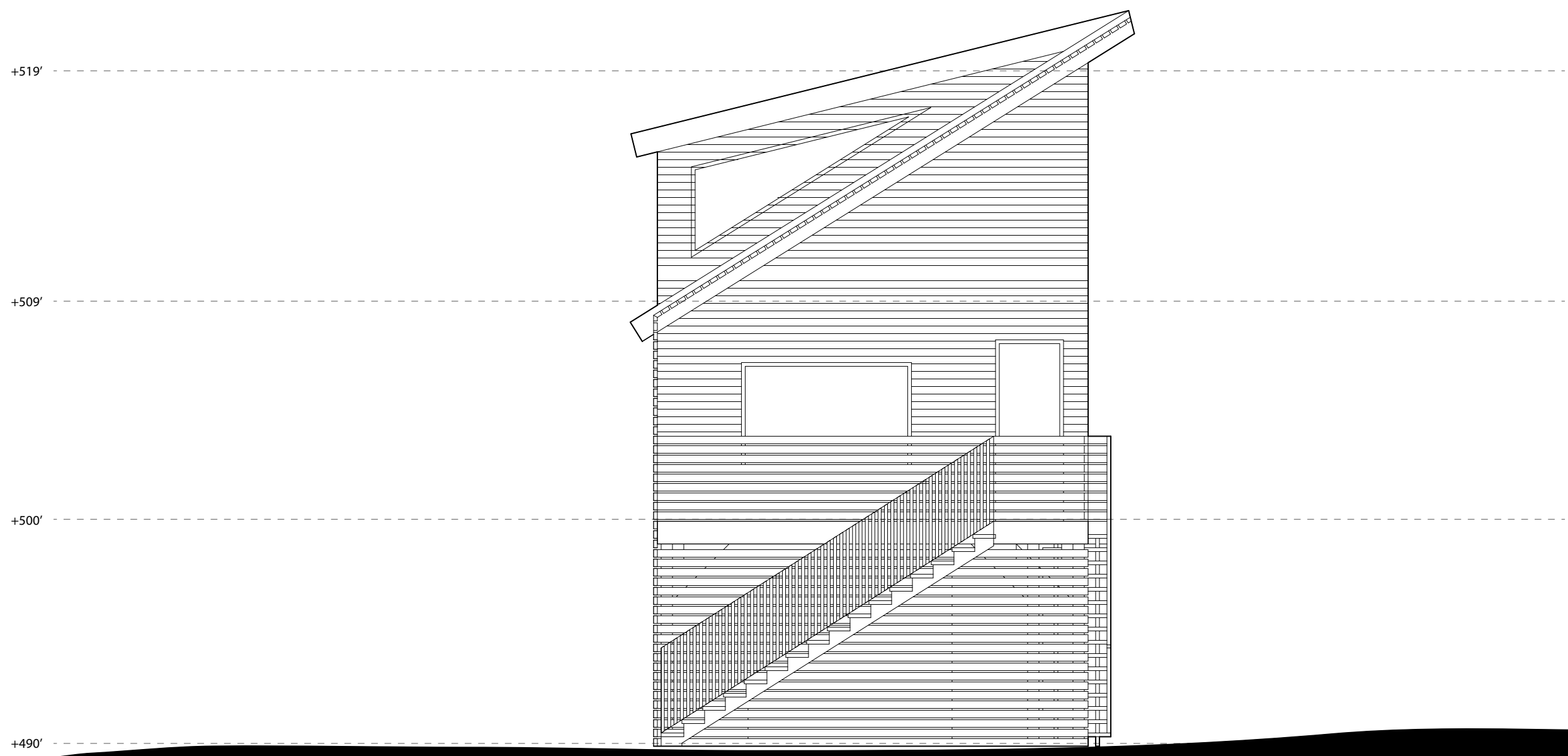
North-South Section: 1'-0" = 3/16"



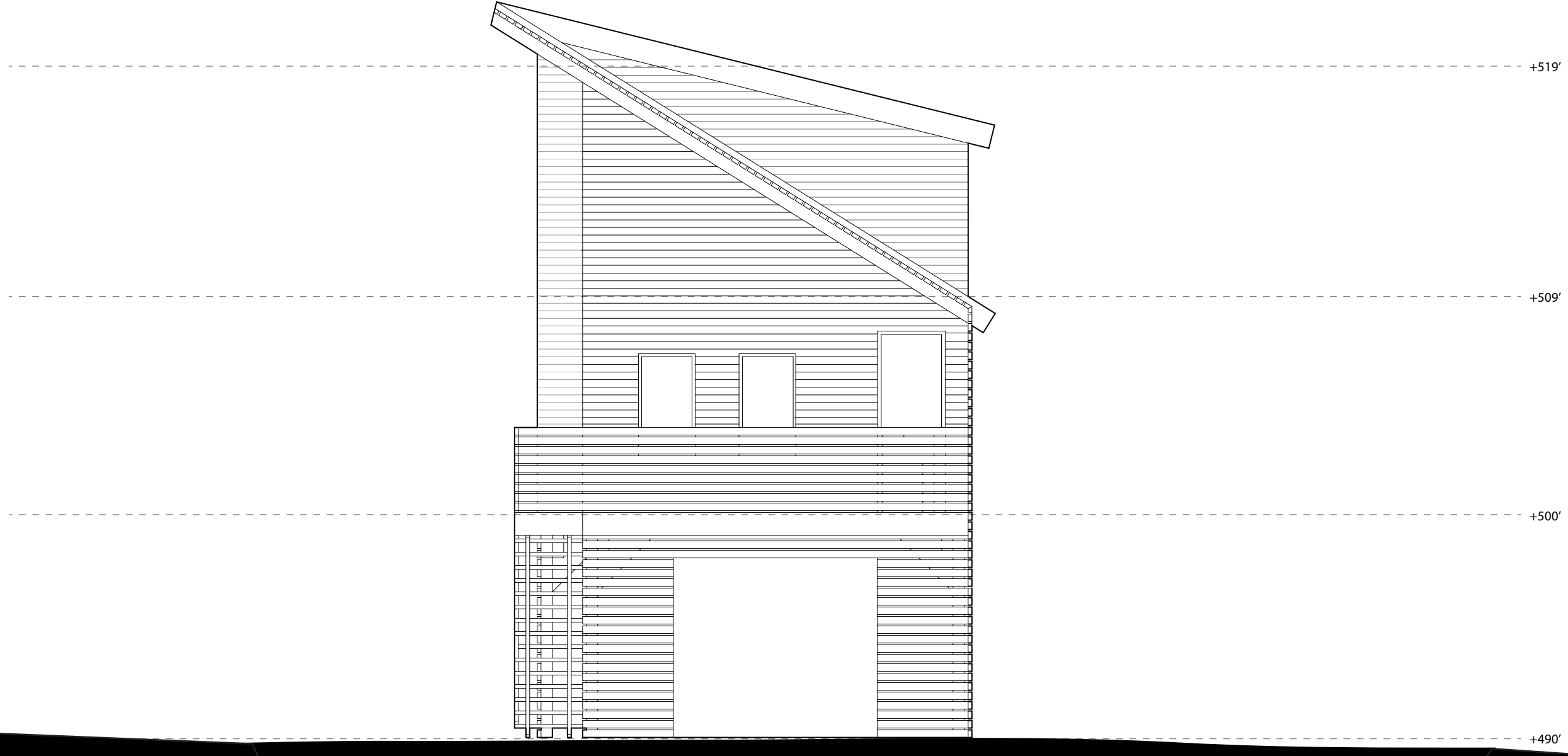
Level 01: 1'-0" = 3/16"



Level 02: 1'-0" = 3/16"



West Elevation: 1'-0" = 3/16"



East Elevation: 1'-0" = 3/16"



FRONT ELEVATION



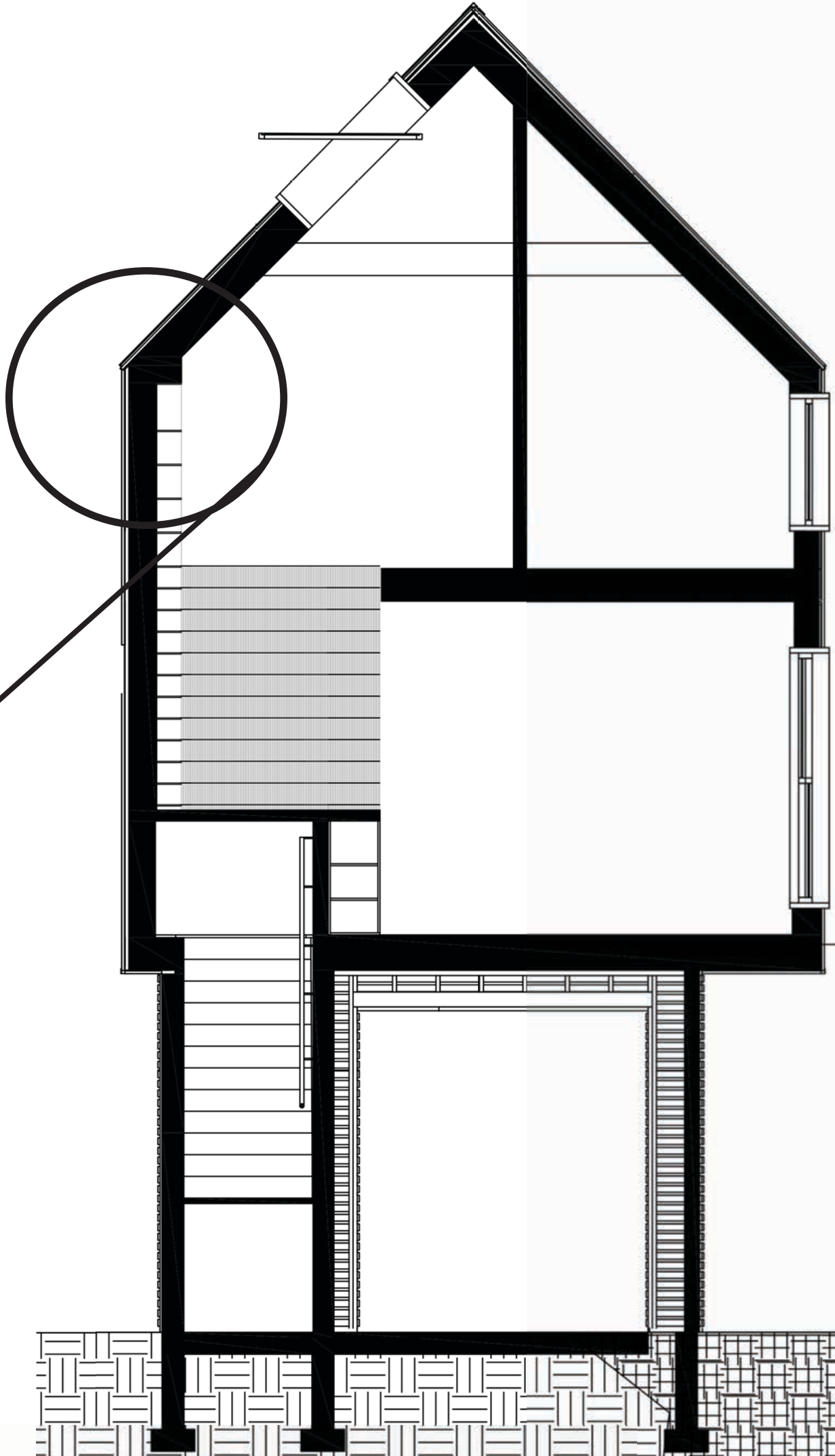
BACK ELEVATION



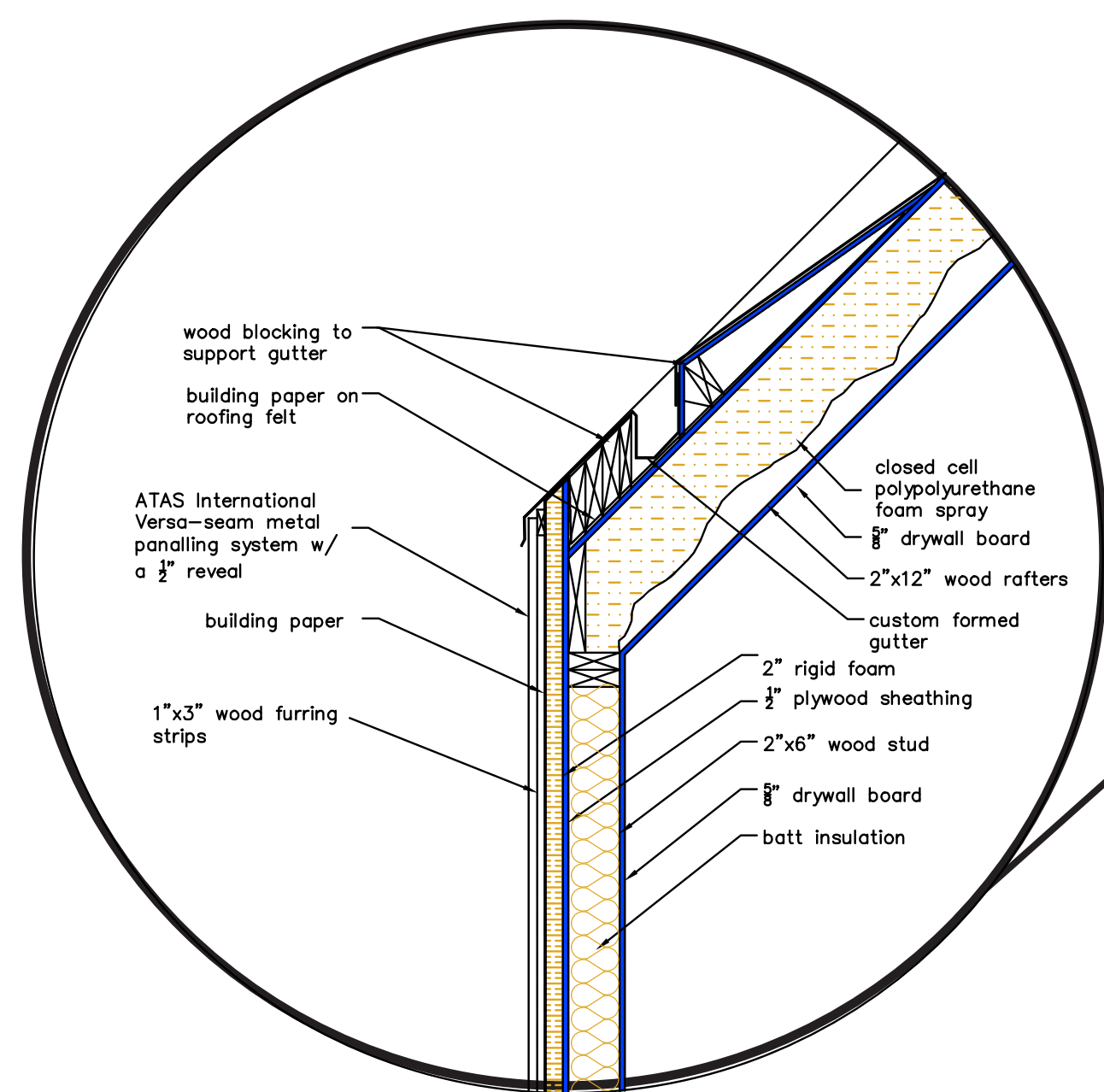
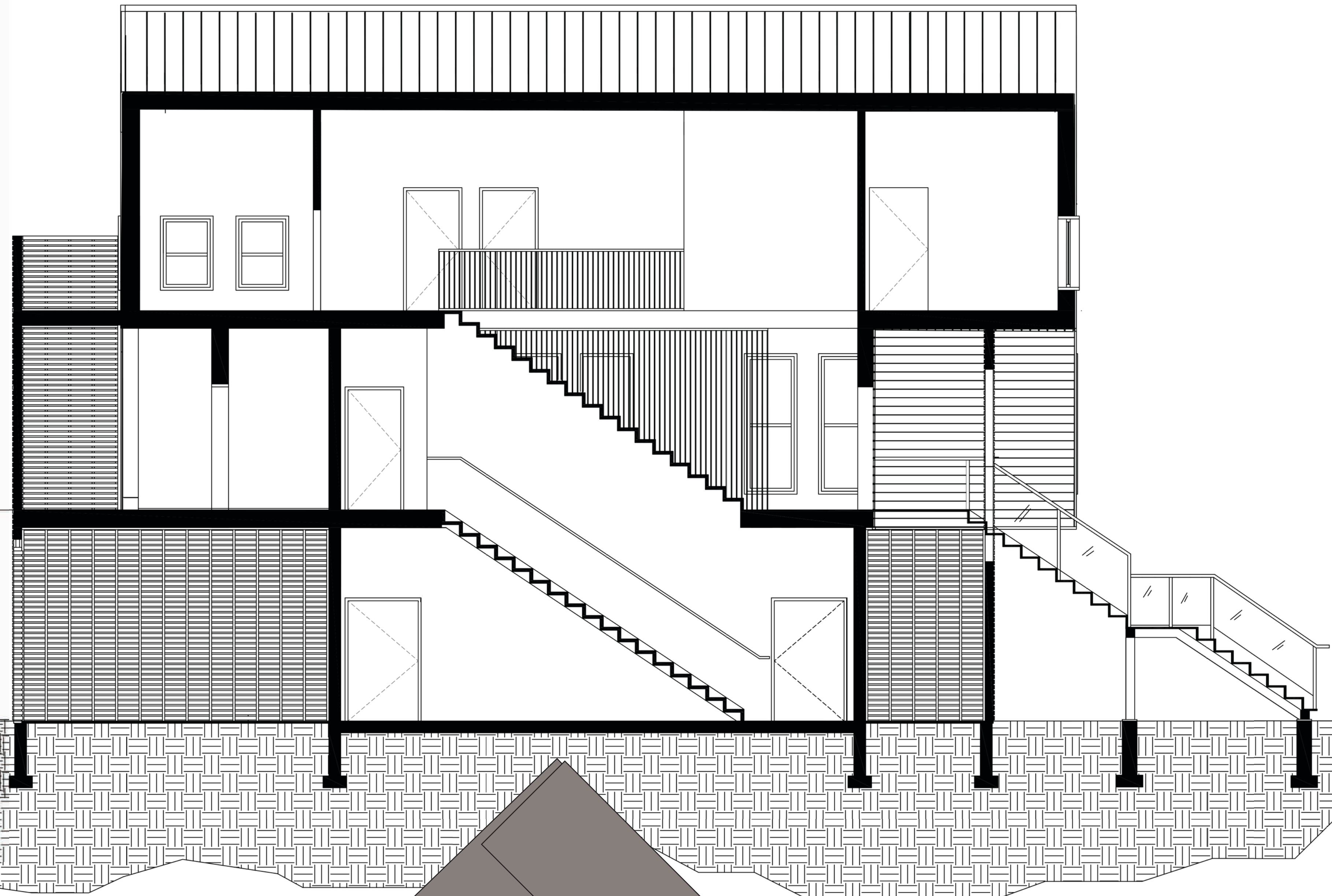
RIVER SIDE ELEVATION



SECTION A



SECTION B



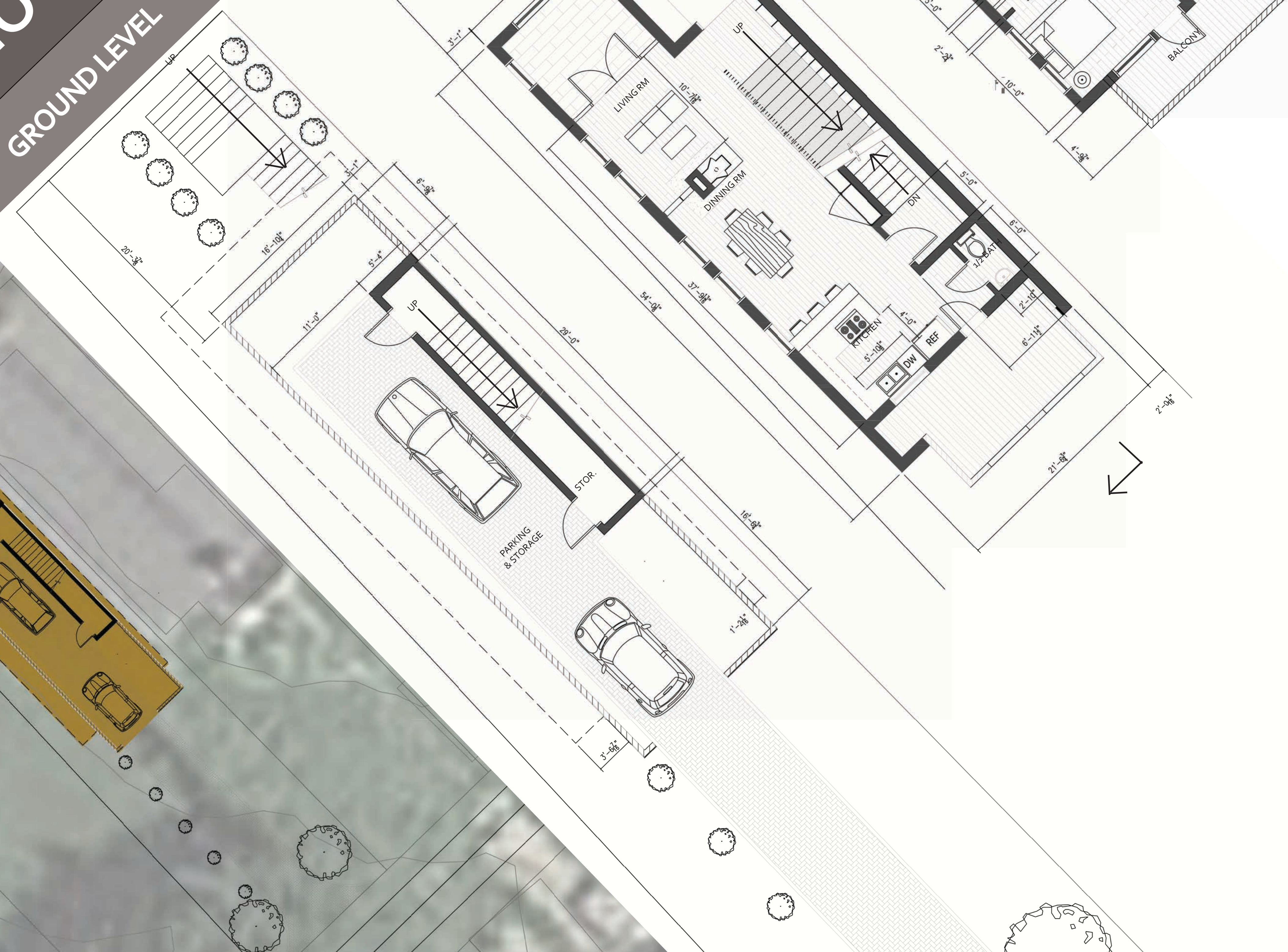
FLOOD RESISTANT INFILL HOUSING EAST END GARDEN

SITE PLAN

GROUND LEVEL

1ST LEVEL

2ND LEVEL



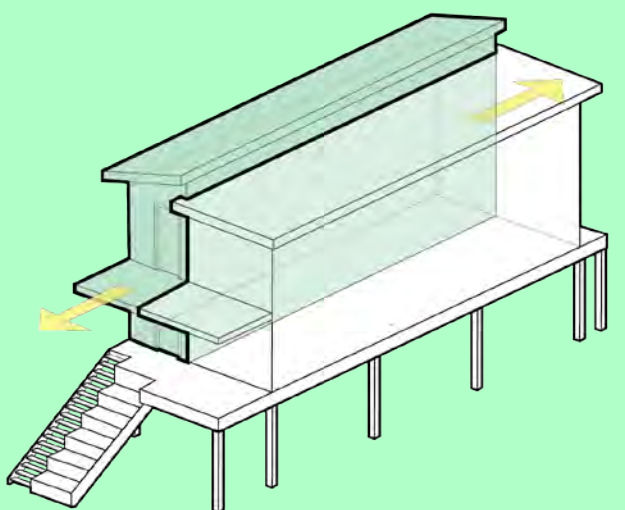


FLOOD RESISTANT INFILL HOUSING

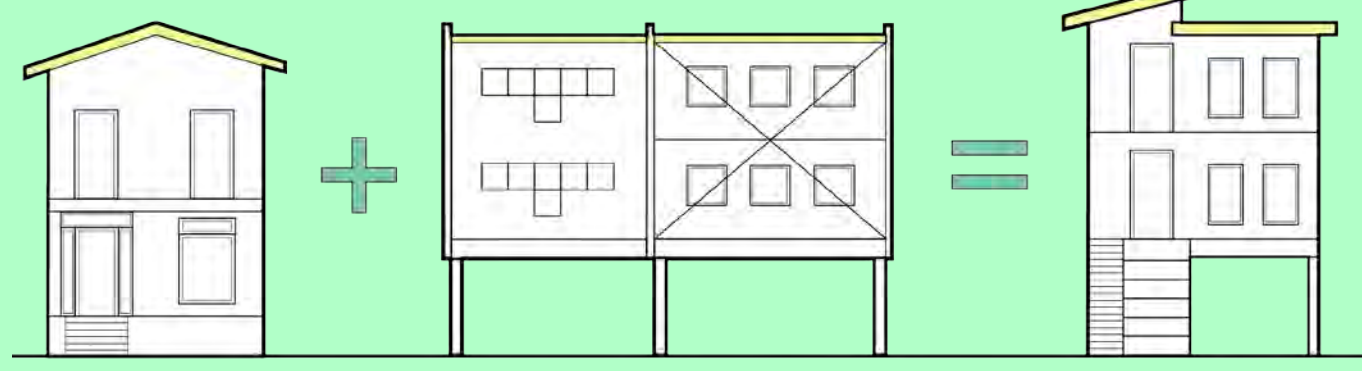
EAST END GARDEN DISTRICT

entry id: 8

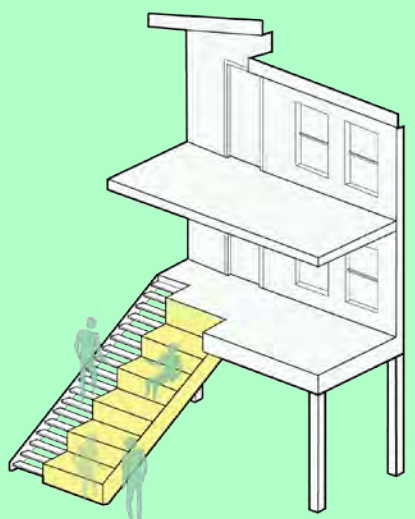
approach



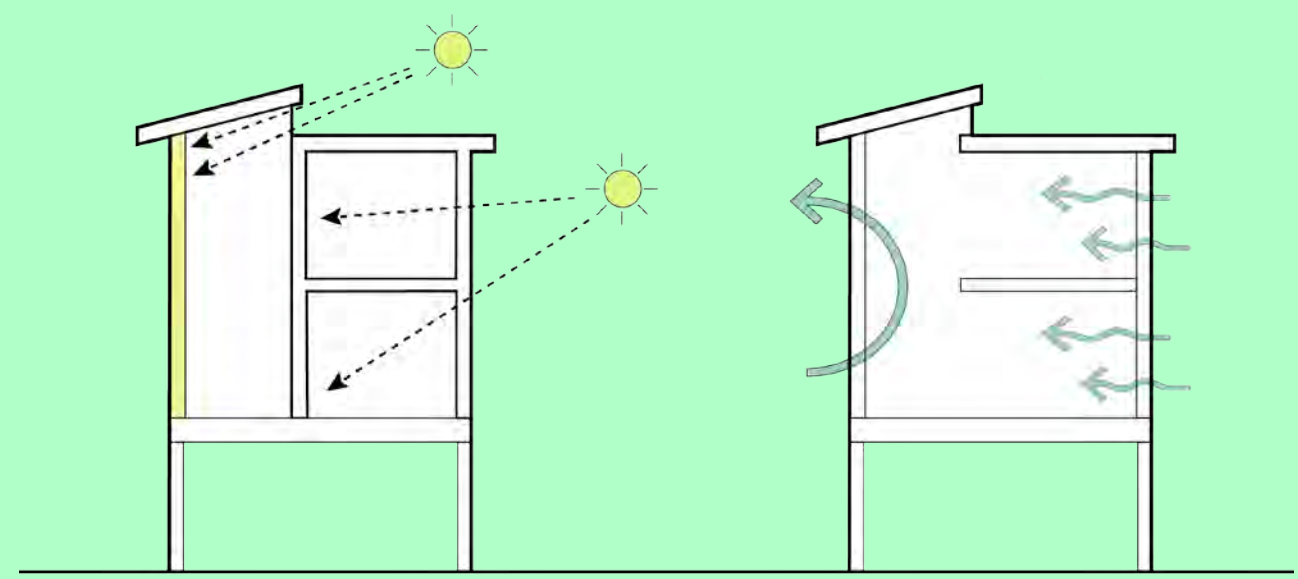
1. Inspired by the local typology of a Shotgun house, the core space planning strategy creates a clear separation between circulation spaces and living spaces to allow for adaptability in case of different living situations and to promote maximum visibility through site.



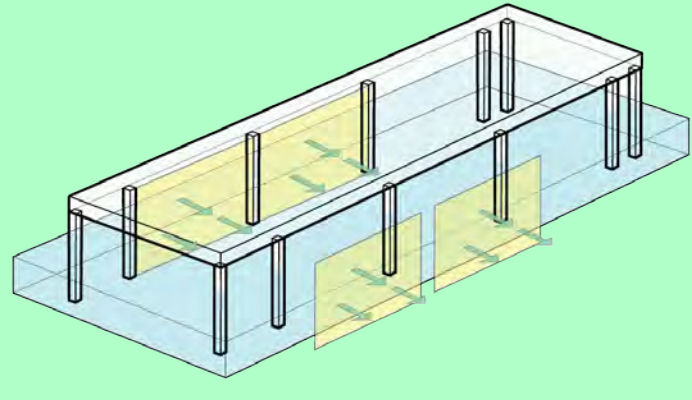
2. The roof is designed to create a dialogue between the existing sloped roof compositions of the surrounding shotgun houses and the new and modern flat roof contour of the Riverview East Academy school nearby, and blend the two architectures.



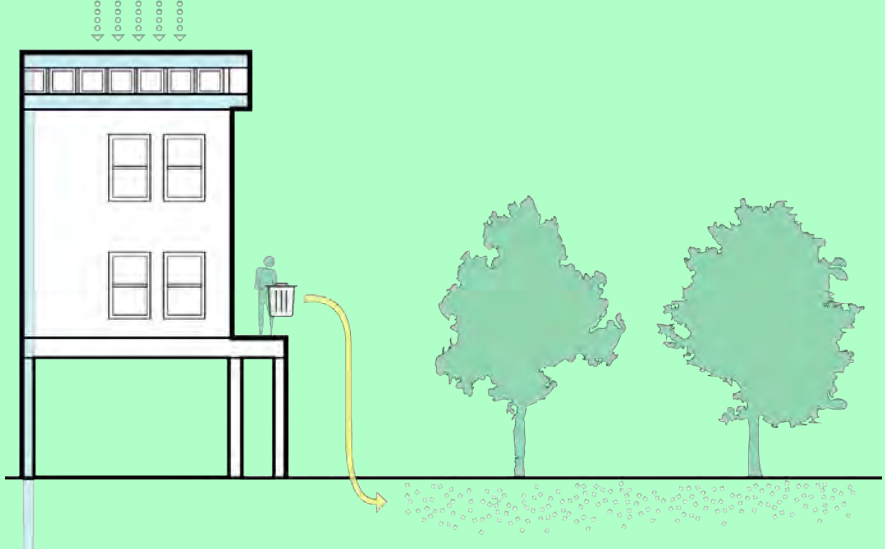
3. "Platform steps" are introduced to bridge the elevated house with the street level, thereby engaging the occupants with street life. They are based on ergonomic seating dimensions and could also alternate as a gardening display to add indigenous personality to the facade and foster neighborhood pride.



4. Passive solar strategies are used to optimize daylight and heat gain, and reduce power consumption. Southern glazing is maximized to light up living spaces and clerestory windows at the roof allow for a well-lit north corridor that radiates heat back into the house. Window placements also allow for cross ventilation from year-round south-west winds.




5. Breakaway lattice walls are located at the sides of the basement level to visually screen any storage, promote security and still bring in daylight to a useable space. They are constructed to breakaway during floods when they reach a certain stress load and reduce water pressure on the building structure.

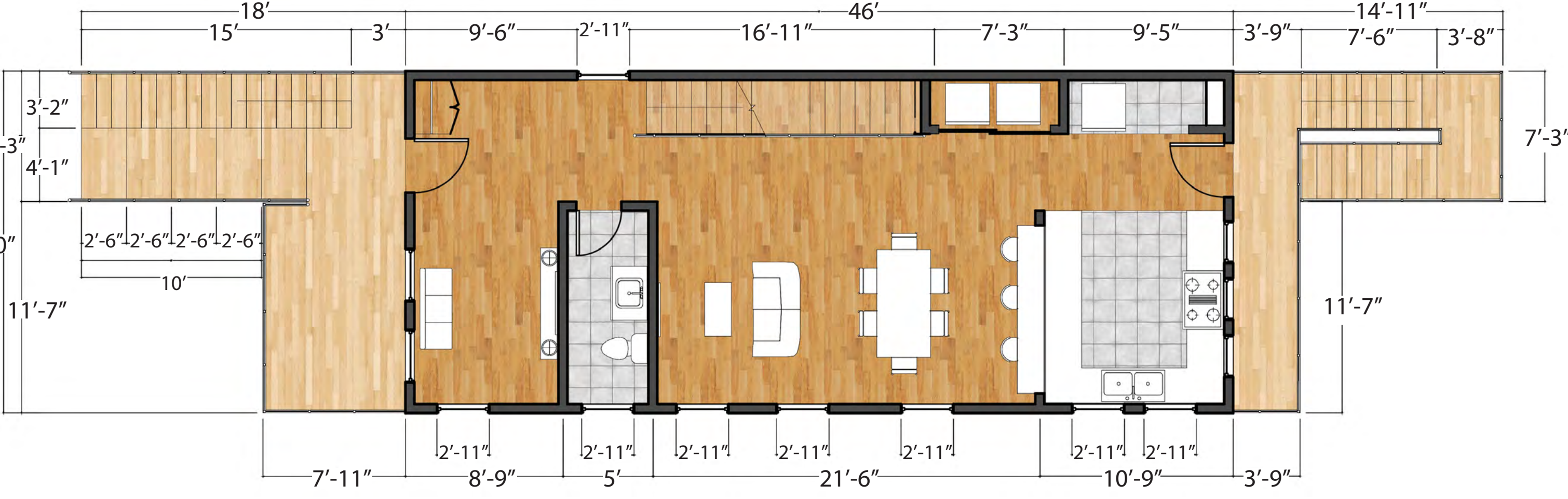


6. Site sustainability is promoted through composting adjacency of kitchen to backyard as well as a rain water harvesting system that funnels collections to cisterns at the backyard for filtered irrigation usage, with any potential overflow pumped back into the home's sanitation. This encourages gardening.

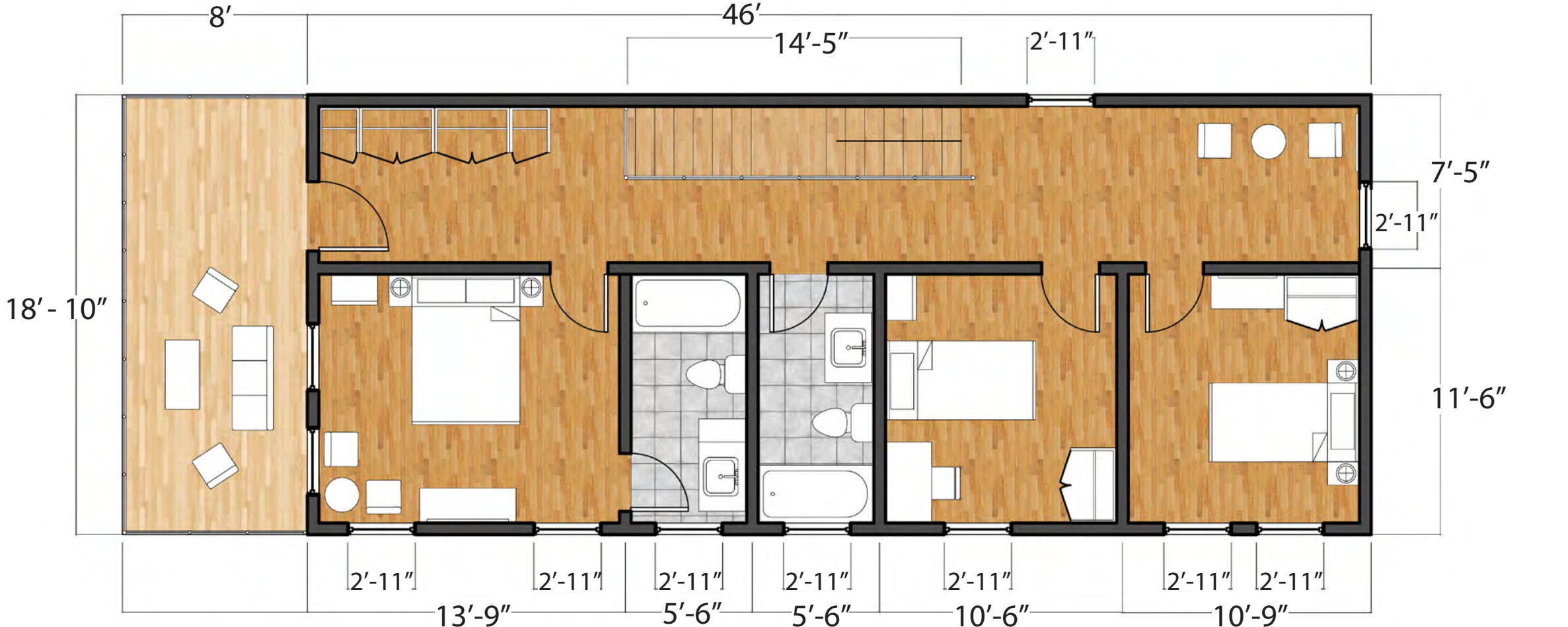
proposal



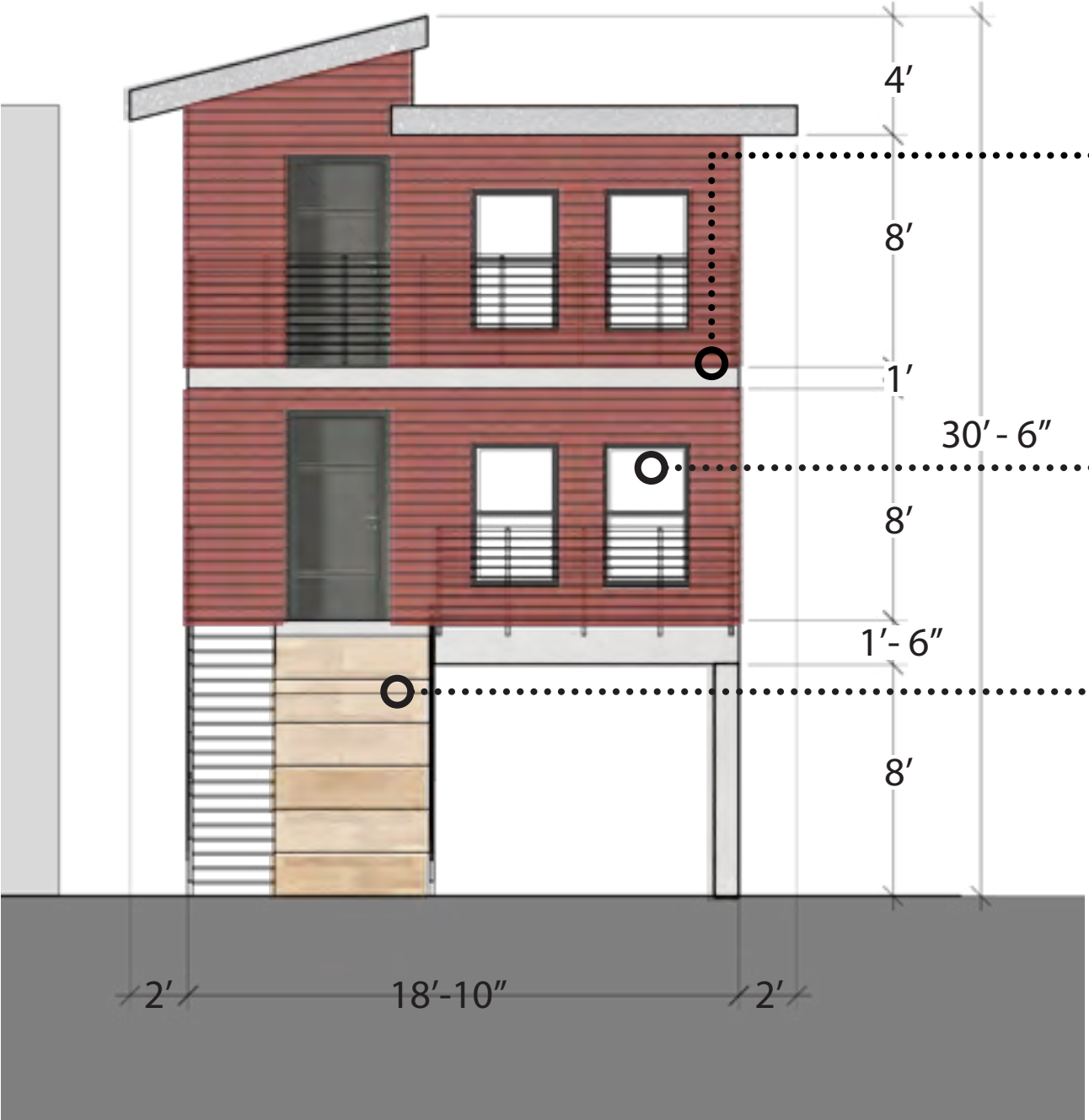
**site plan**  
3/32" = 1'-0"



**1st floor plan**  
3/16" = 1'-0"



**2nd floor plan**  
3/16" = 1'-0"



**west elevation**  
3/16" = 1'-0"

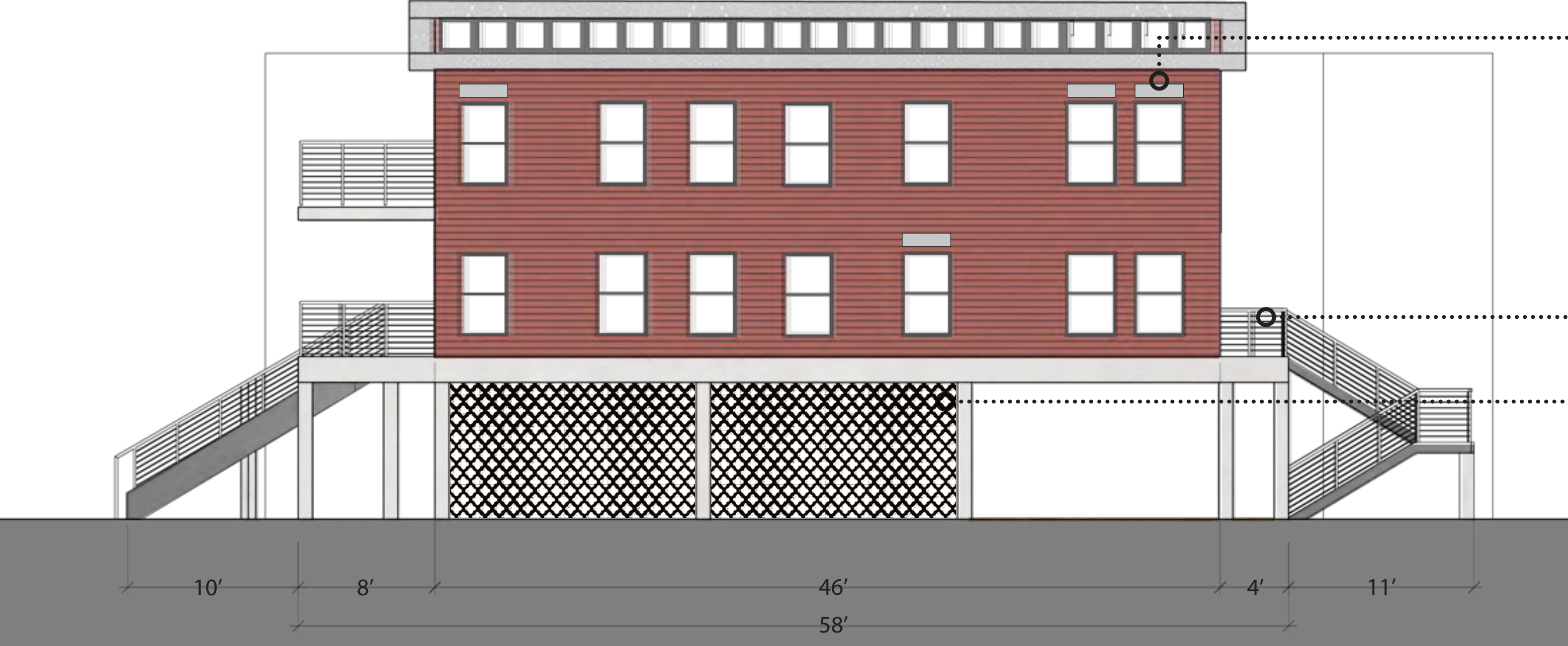
**local availability of SIPs**  
Pinnacle Engineering, Cincinnati  
Steve Short Construction, Louisville  
Fischer SIPs, LLC Louisville

**local availability of engineered hardwood floors**  
McSwain Carpets, Cincinnati

**2nd floor structure**  
engineered hardwood finish  
adhesives  
prefabricated SIPs\*

**windows**  
metal-framed  
with base flashing

**sitting steps**  
spruce-pine-fur  
pressure treated wood  
with low bending stress for flood resistance



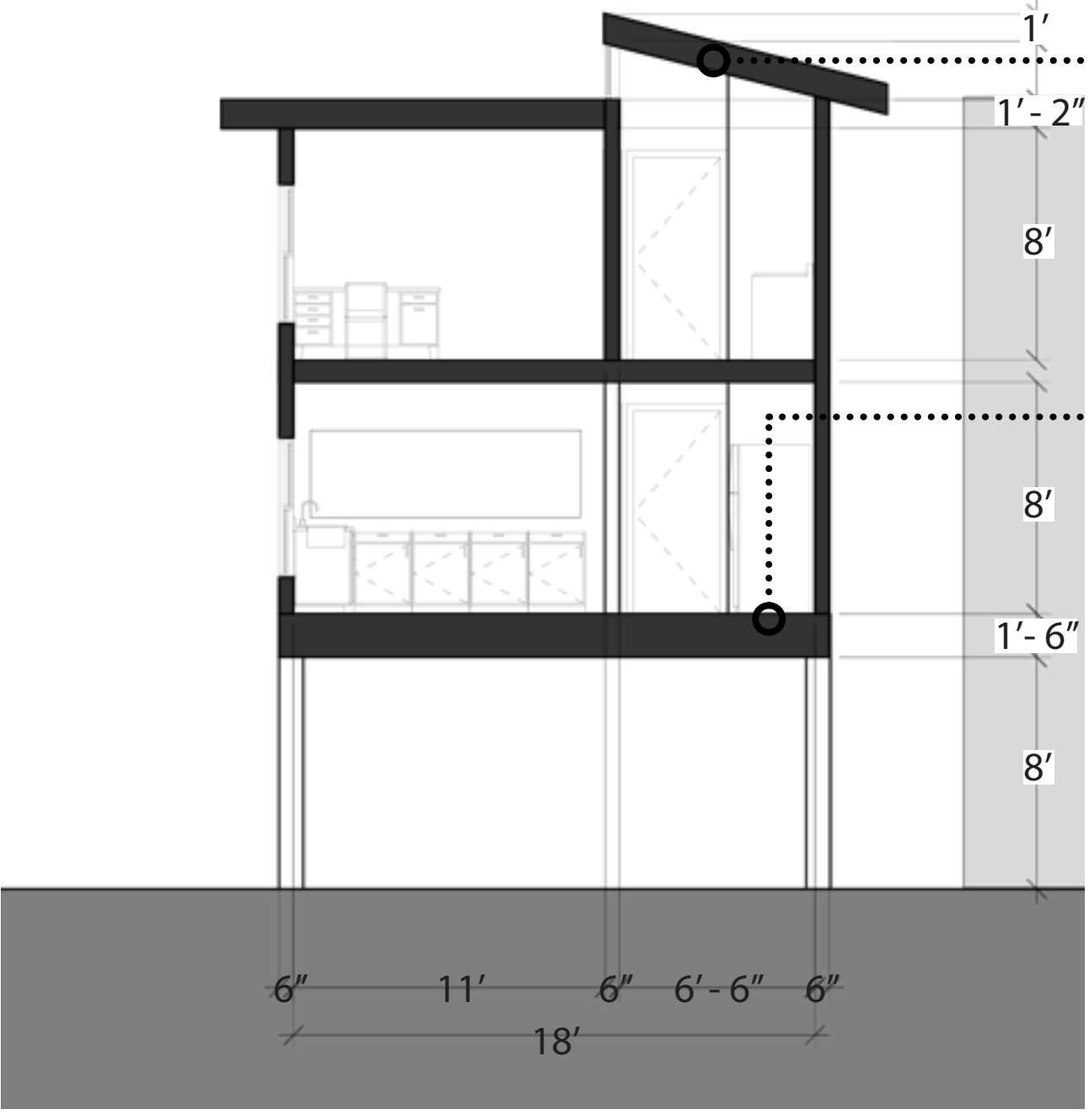
**south elevation**  
3/16" = 1'-0"

**HVAC system**  
Ductless Multi-Zone Split Systems (PTHP)

allows multiple indoor air handlers to heat and cool with separate remote controls for each; functions on a low operating cost.

**metal handrails**  
corrosion resistant

**breakaway wall**  
.5" wood lattice wall  
installed flat against the concrete columns.



**east-west section**  
3/16" = 1'-0"

**life cycle costing compared to standard wood frame construction**

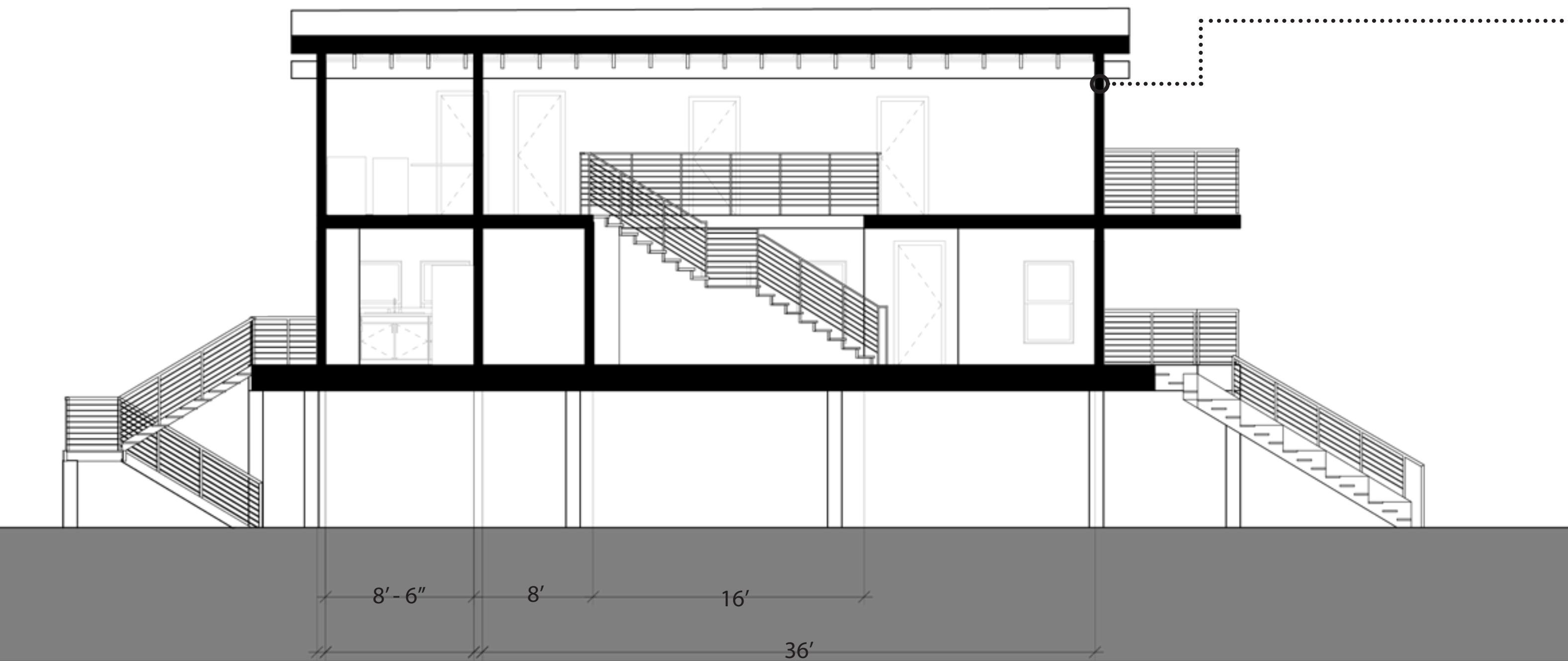
construction cost: low - medium  
operational costs: low from reduced loads  
long term maintenance: low from efficient

**total square footage**  
1610 sq. ft.

**roof structure (R-33)**  
8.25" prefabricated SIPs\*

**roof wrap**  
galvanized aluminum siding

**1st floor structure (R-25)**  
engineering hardwood finish  
adhesives  
prefabricated SIPs\*  
house wrap  
wood framing system  
wood grade beams  
metal fasteners  
concrete columns




**north-south section**  
3/16" = 1'-0"

**wall structure (R-25)**  
gypsum board drywall  
6.5" Prefabricated SIPs\* (Structural Insulated Panels)  
OSB panel  
Expanded polystyrene insulating foam core (EPS)  
OSB panel  
House Wrap  
Aluminum Siding


**benefits**  
low HVAC loads and costs  
time effective (from labor savings)  
lower environmental impact (zero on-site construction waste)




front perspective




maker space



foyer



living space



2nd floor hallway

flexibility



**user 1: family of four**

This family was happy to make the most out of the flexible spaces in their home. Since Jay works from home some days, he has converted his foyer into an office space for meeting with clients without having to walk them through the house. Veronica and the kids spend a lot of time in the backyard, where they have installed a swing set and a barbeque pit to make their home inviting to other families in the neighborhood.



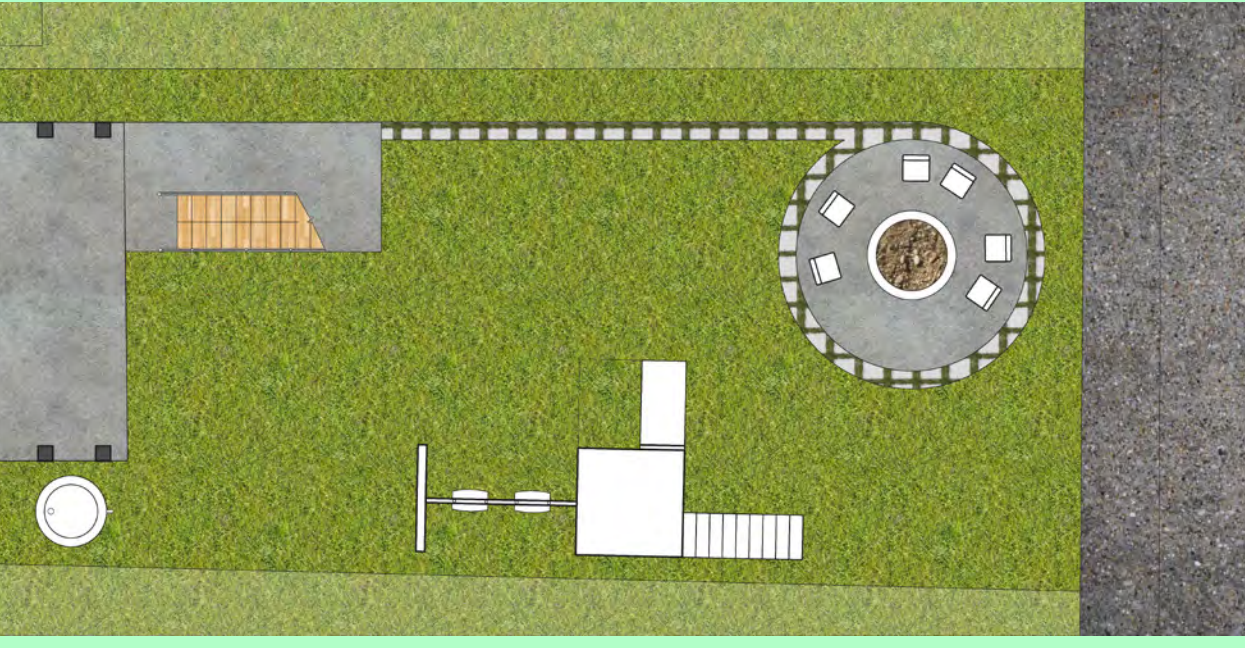
**user 2: young professionals**

Ben and Sarah required a lot of space for their varied interests within an affordable budget. Sarah is a self-employed artist; she has merged the two guest bedrooms to create a gallery and studio space for her work and she often holds exhibitions for the community. Ben loves building canoes for himself and his neighbors in his free time, and has turned the basement into a maker's space with breakaway walls.



**user 3: elderly couple**

Susan and Eugene have moved to East End because they really enjoy the gardening and community-oriented practices that it promotes. They have turned the backyard into an urban agricultural farm and erected a trellis structure where they often invite community members to learn composting and gardening techniques from them. They will soon be collaborating with Riverview Academy to turn this into a class. For now, Susan displays her herb planters on front platform steps as a means to share her resources and also meet community members.



modified backyard



modified porch and foyer



modified maker's space



modified 2nd floor bedrooms



modified backyard



modified porch and steps

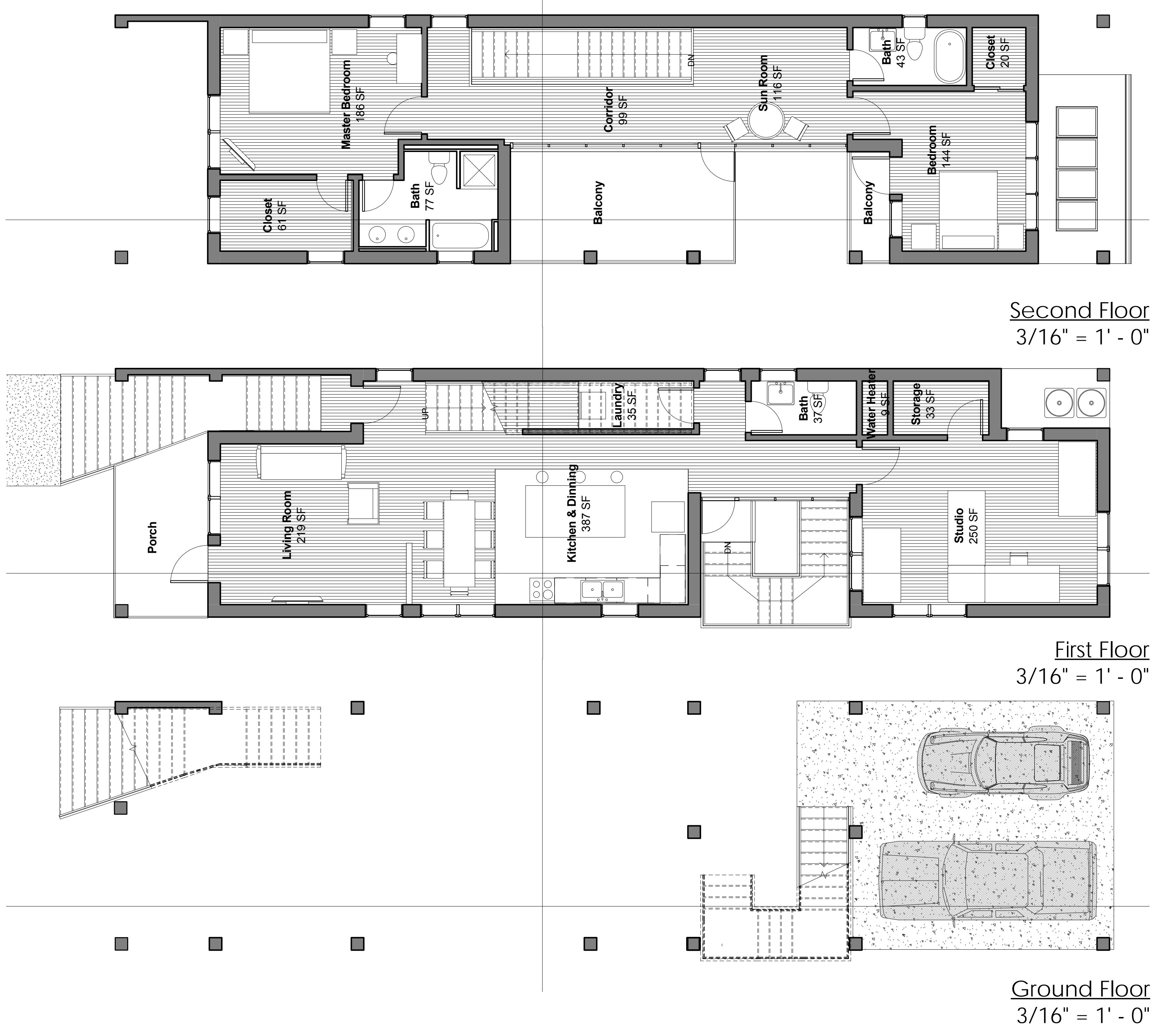
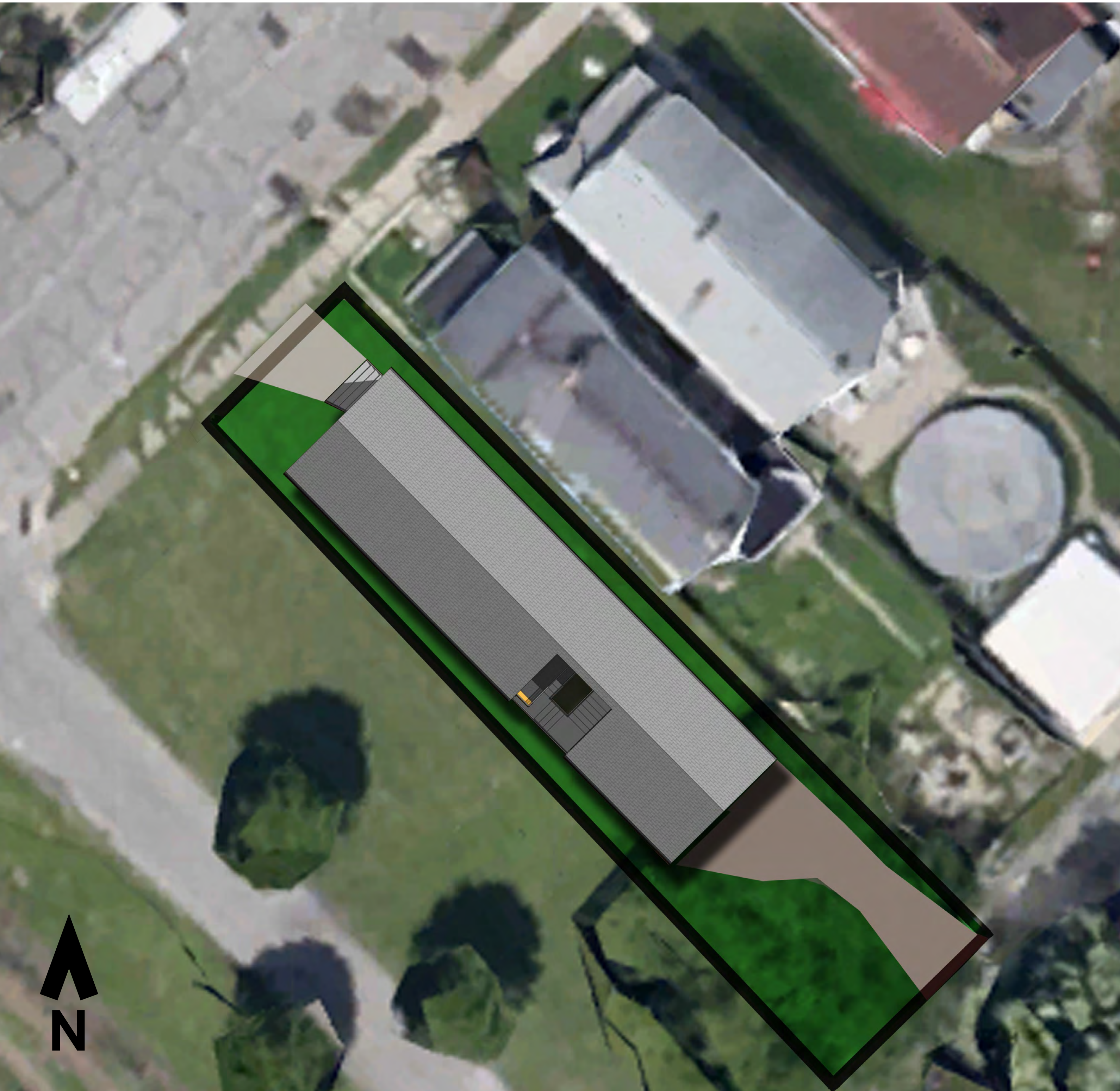
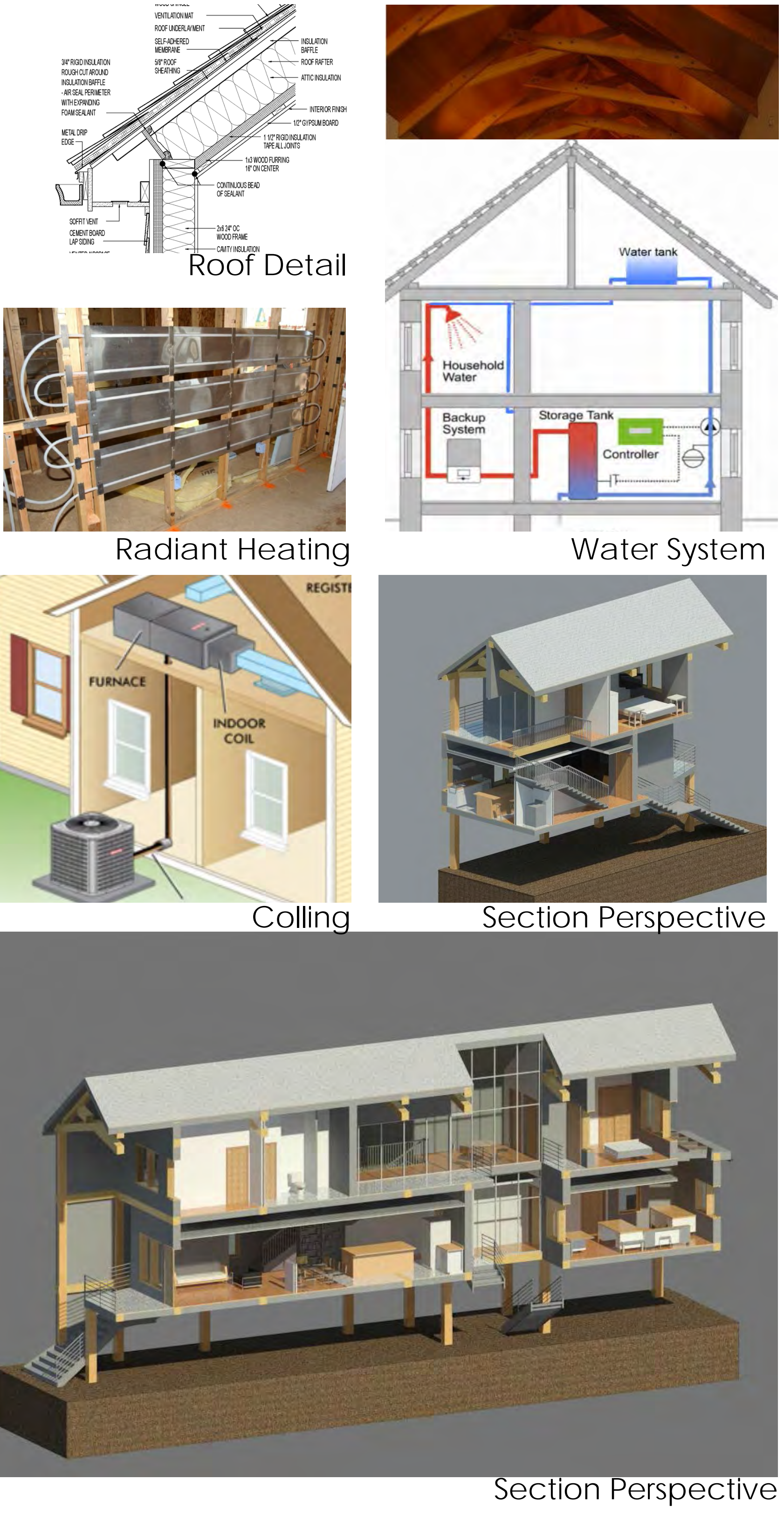


# FLOOD RESISTANT HOUSE

## CINCINNATI GARDEN DISTRICT

The house is designed to be built in the flood zone of Cincinnati Garden District. Our primary effort is to design a house that fits the lifestyle of this neighborhood, but with contemporary aesthetics, modern amenities and sustainable in nature. The design took in consideration of a middle income family with kids. Also the house could serve as a model for further developments in the area.

Total Building Area: 1716 SF







WEST ELEVATION  
17.7% Glazing

**CONTEXTUALITY**  
The project utilizes strategic elements of the vernacular. The porch serves to shade the facade. Windows are scaled to light spaces appropriately without excessive solar gain.



SOUTH ELEVATION  
10.2% Glazing

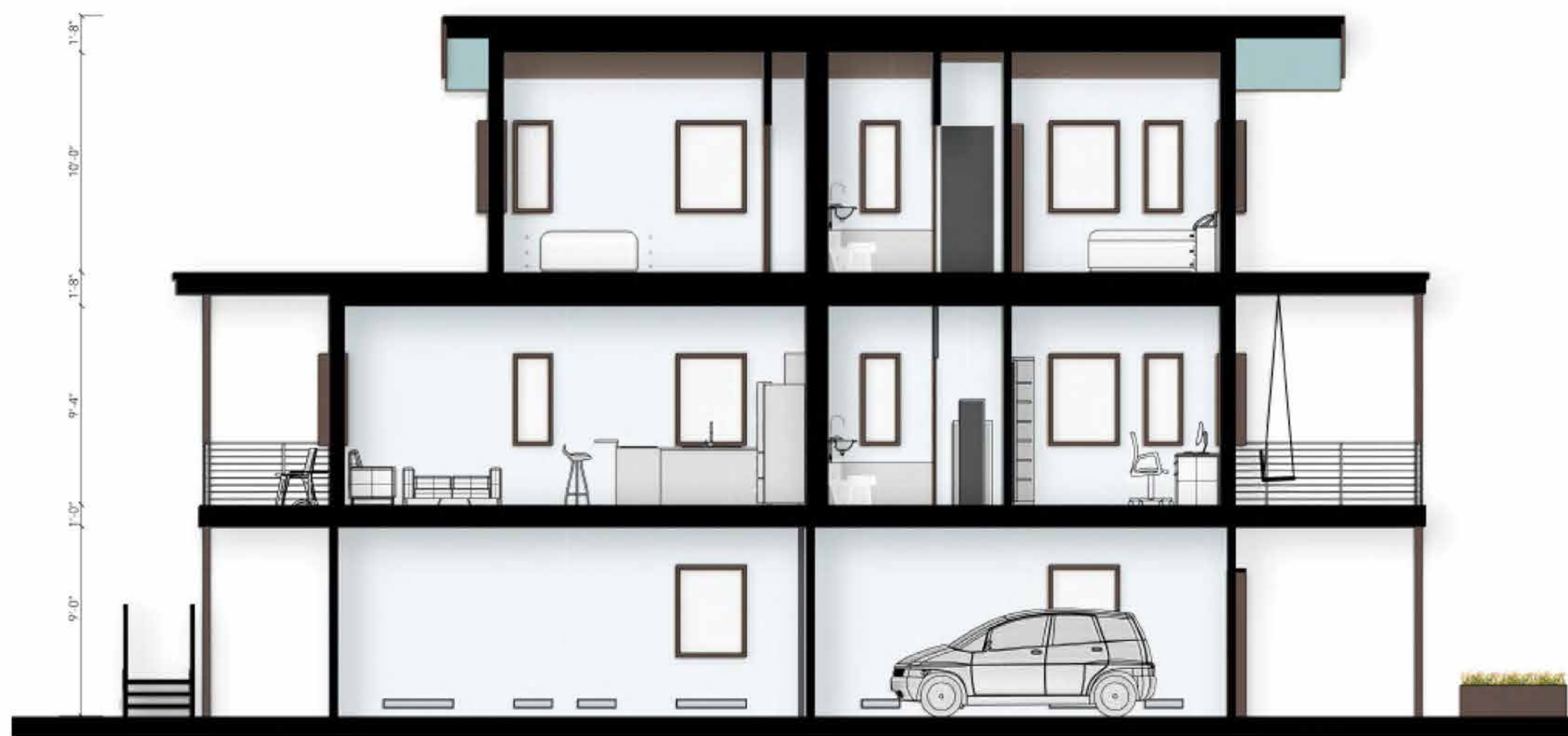


EAST ELEVATION  
22.2% Glazing



NORTH ELEVATION  
2.6% Glazing

**LIVABILITY**  
Despite a minimal floor plate, this project achieves a range of private to public spaces with basic amenities to provide comfortable accommodation for every lifestyle.



LONGITUDINAL SECTION  
3/16" = 1'-0"

**FLEXIBILITY**  
The project features a private office where residents can work from home. As the family grows, two designated workspaces can be converted to bedrooms.



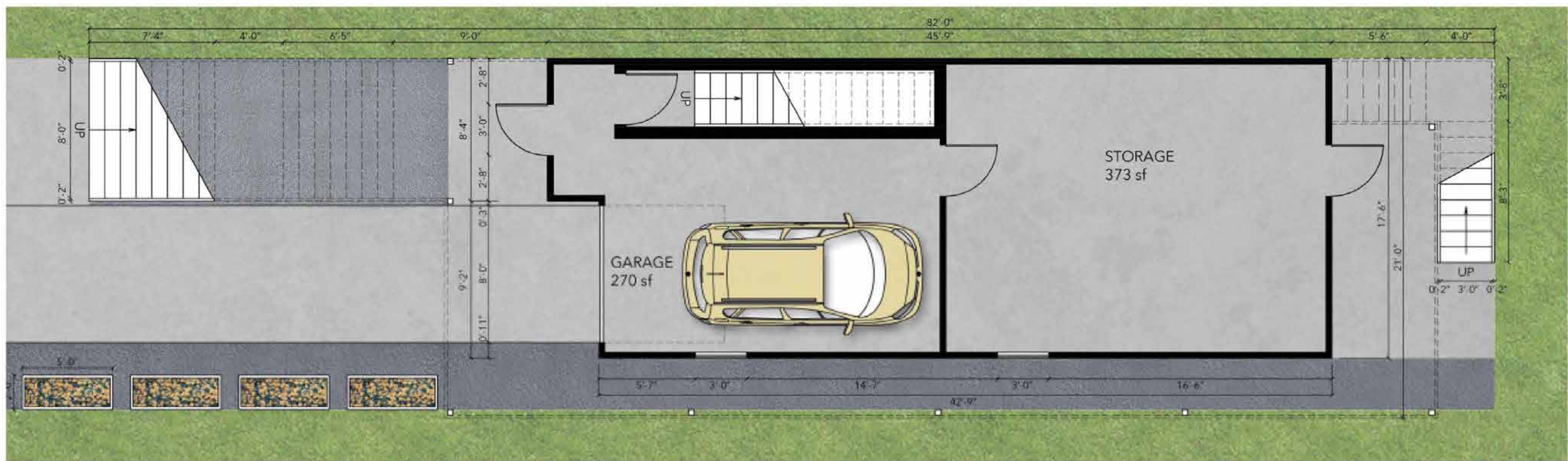
CAN BE CONVERTED TO BEDROOM

SECOND FLOOR PLAN

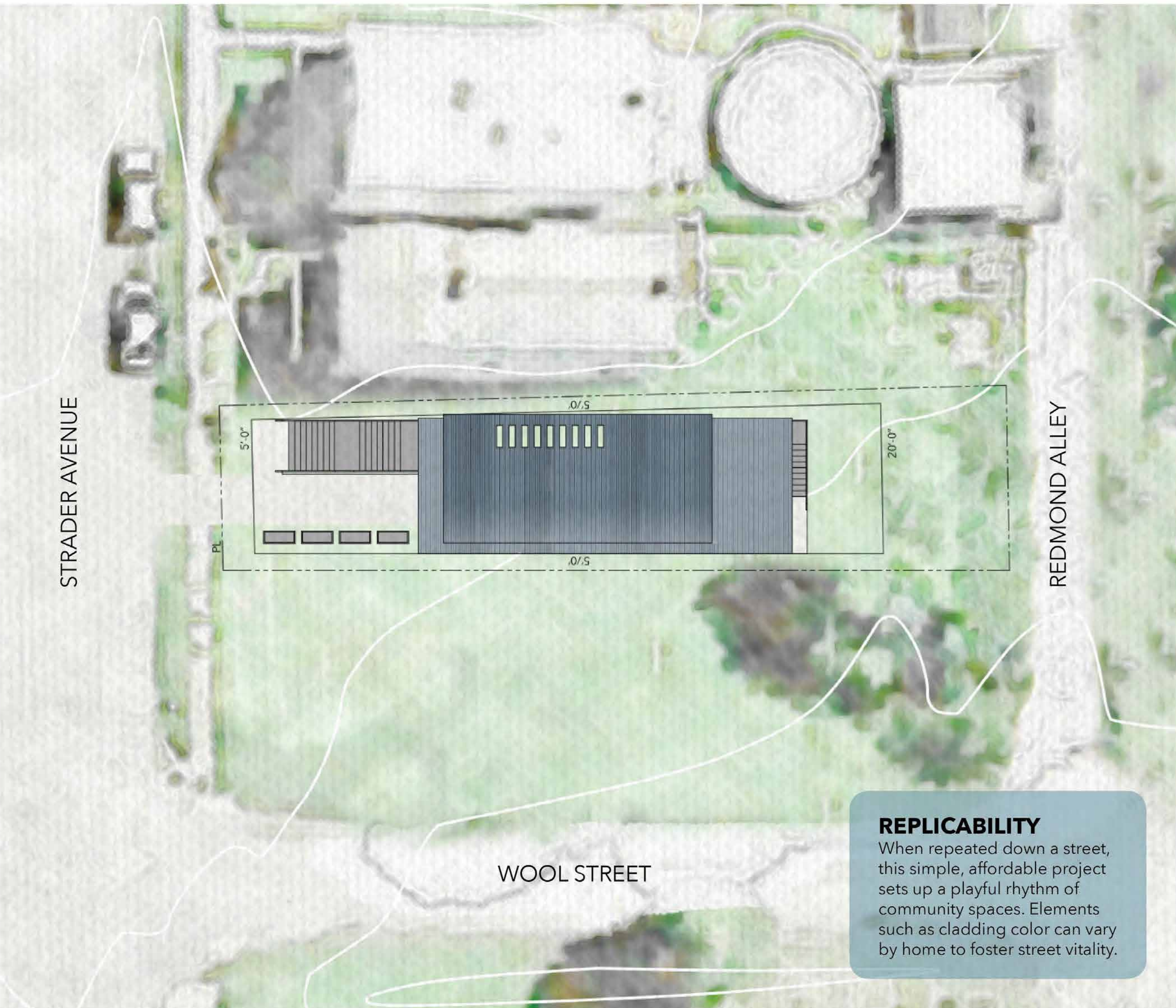


CAN BE CONVERTED TO BEDROOM

FIRST FLOOR PLAN

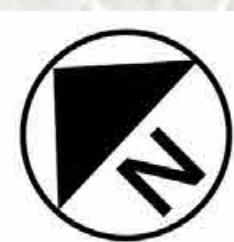


GROUND FLOOR PLAN  
PLANS & ELEVATIONS AT 3/16" = 1'-0"



SITE PLAN  
3/32" = 1'

**REPLICABILITY**  
When repeated down a street, this simple, affordable project sets up a playful rhythm of community spaces. Elements such as cladding color can vary by home to foster street vitality.



**SOCIABILITY**  
The front porch invites the community as it extends down to the ground plane with wide, open stairs. The planters bring gardening activity to each lot, bolstering the district identity.

**SUSTAINABILITY**

**PASSIVE + ACTIVE SOLAR STRATEGY**

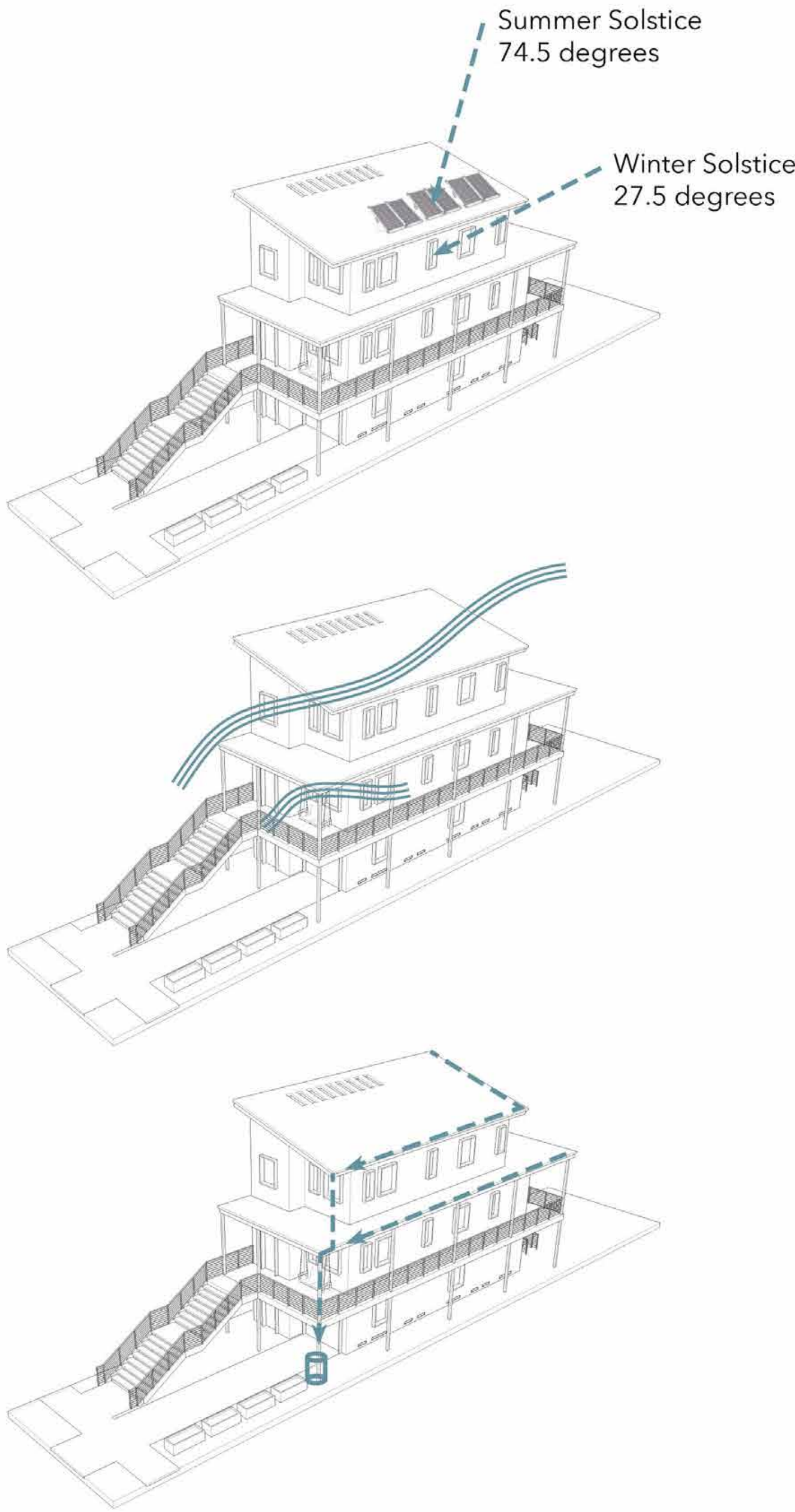
The eaves and extruded window frames shade the windows from excessive heat gain in the summer while still allowing sunlight through in the winter. The roof orientation lends itself to hosting solar panels.

**PASSIVE COOLING STRATEGY**

Opposite and adjacent operable windows allow natural breezes to cool regularly used spaces in the summer.

**RAINWATER HARVESTING**

Rainwater flows from the roof into a cistern near the planters. This water can later be used to irrigate the plants.



New Roots in the Garden District  
(1200 sf, \$160,000, 2 bathrooms, 2+2 bedrooms)



# FLOOD RESISTANT INFILL HOUSING

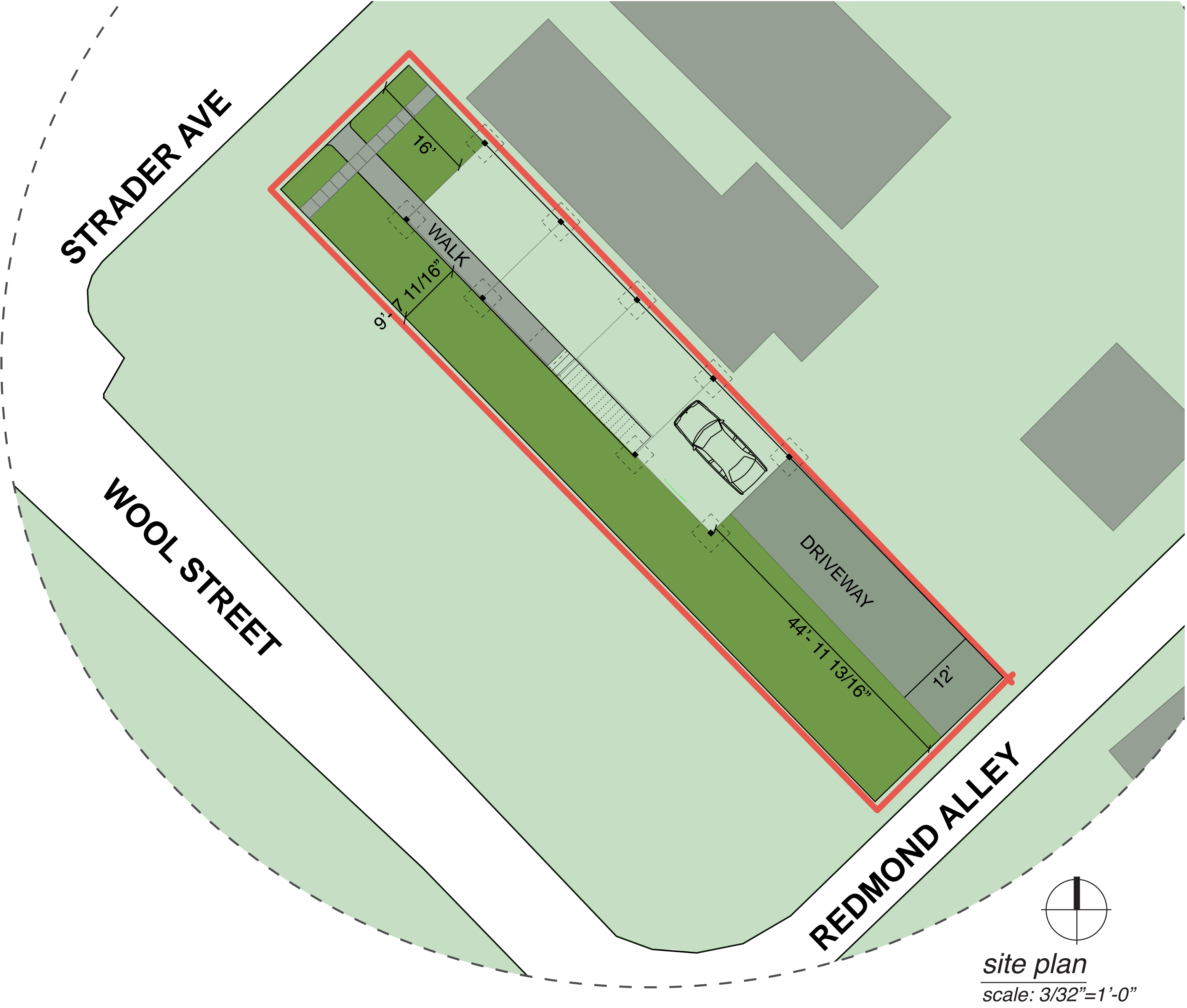
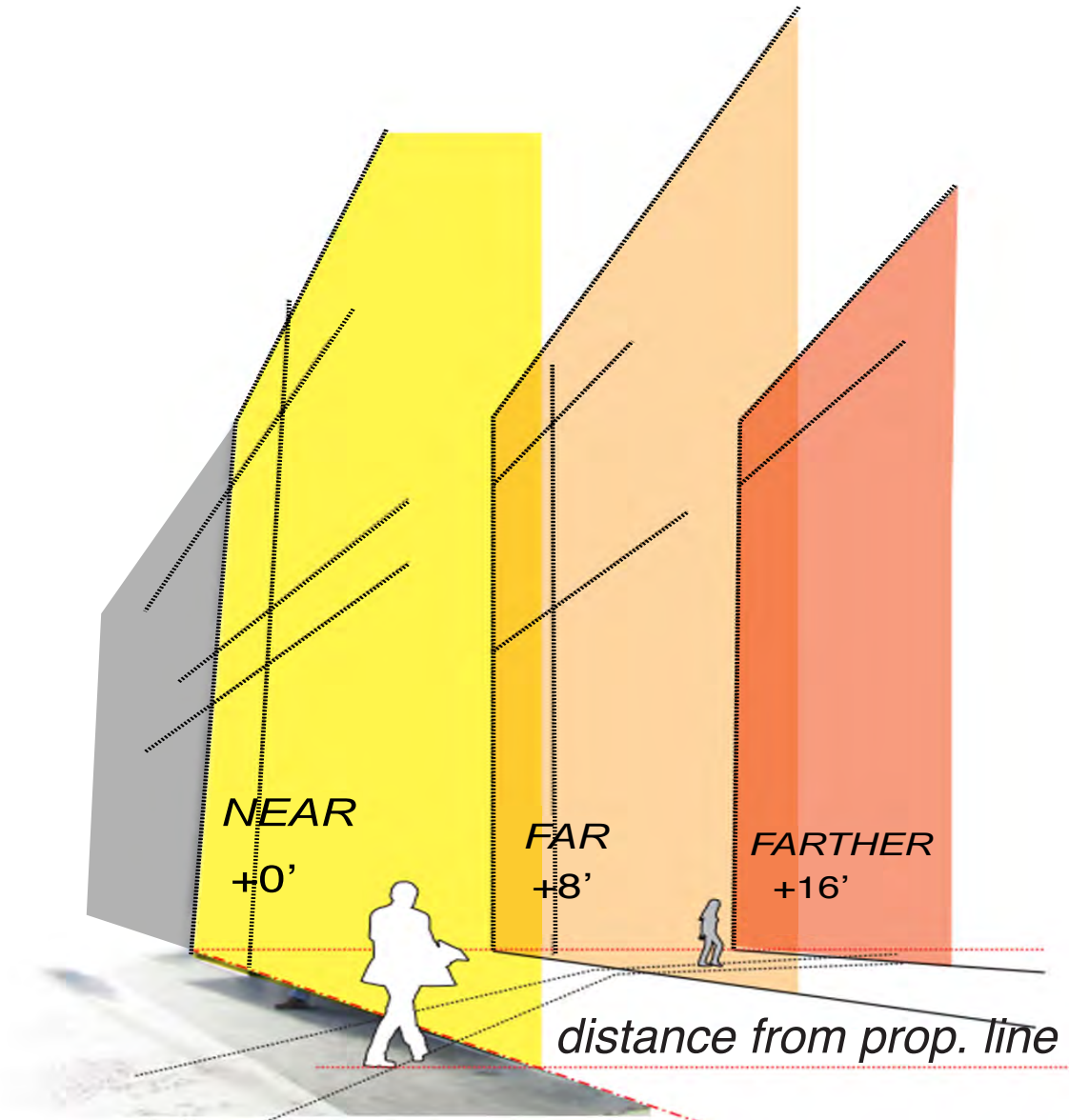
2015 SPRING | ARCHITECTURE STUDIO COMPETITION/ ID-12

The purpose of the architecture competition was to create infill housing designs that would enable the East End Garden District to stimulate neighborhood growth and economic development in the region as well as become a model for other communities throughout the nation.

The central design criteria for our residential unit focuses on adapting the human construction to harmonize with the cyclical flows and extremes of the natural site. We feel that instead of dwelling on the disaster as an unfortunate freak occurrence of nature, we must focus on the opportunity to engage in deign for alleviating a nationwide infrastructure concern. The East End District could become a highly attractive neighborhood because of the presence of the river, recreation, vicinity to New Port and look out at the Hyde Park and through our design, we seek to help it reach that potential.



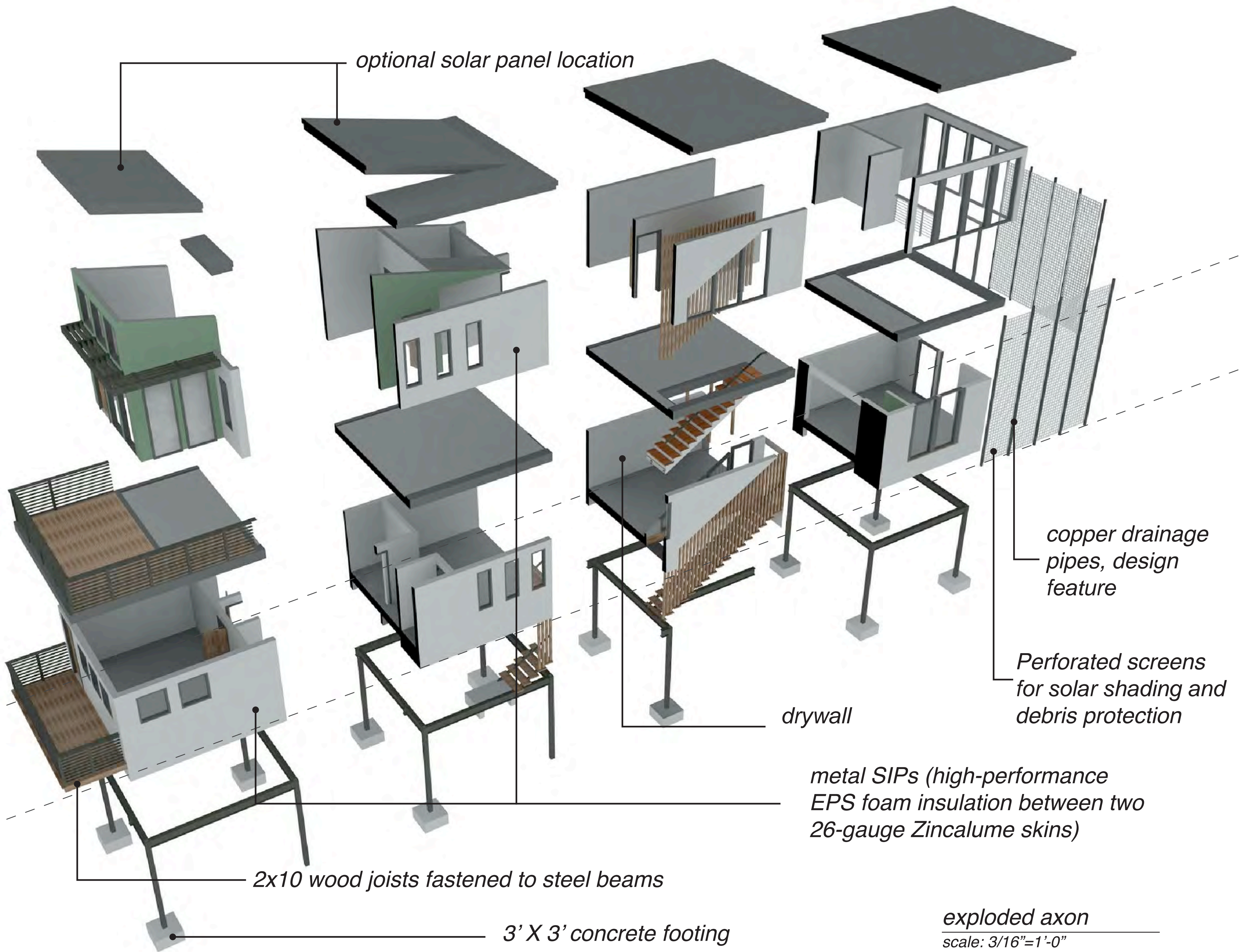
exterior rendering



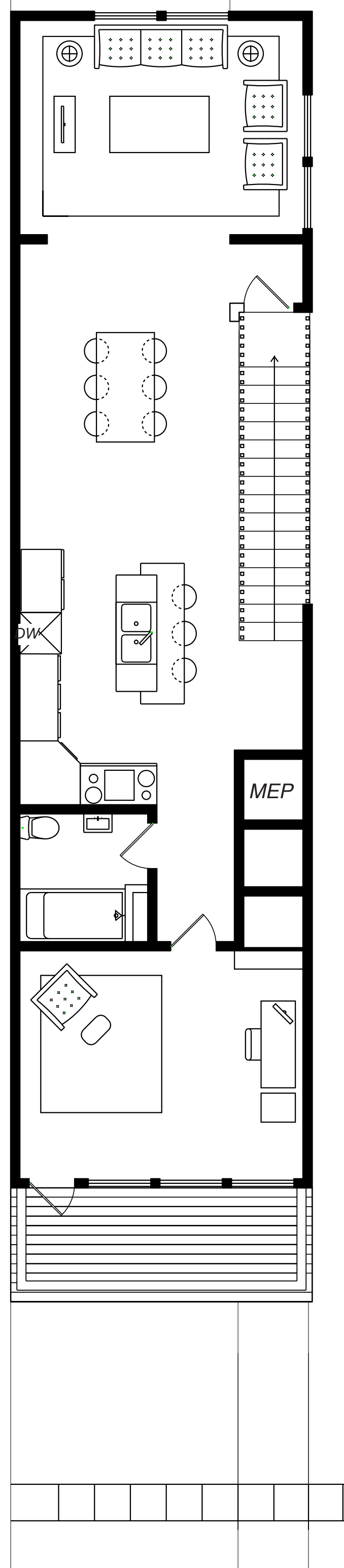
site plan  
scale: 3/32"=1'-0"



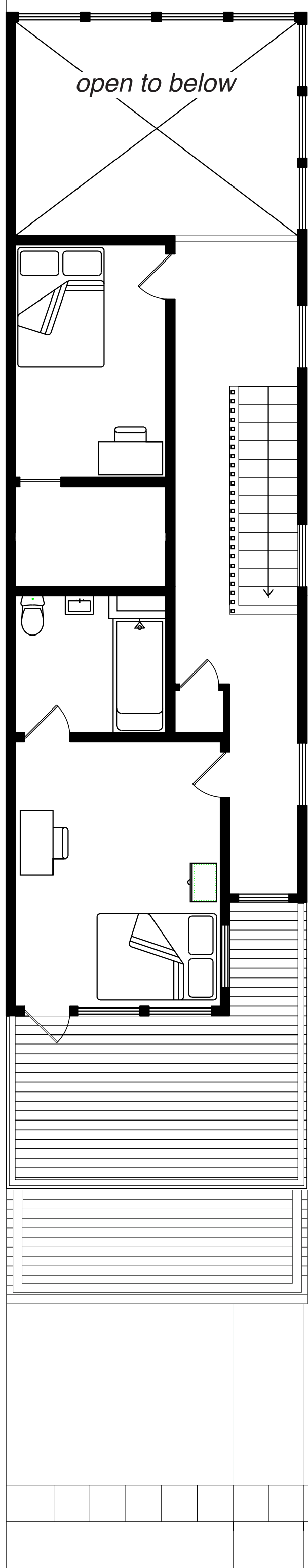
section  
scale: 3/16"=1'-0"



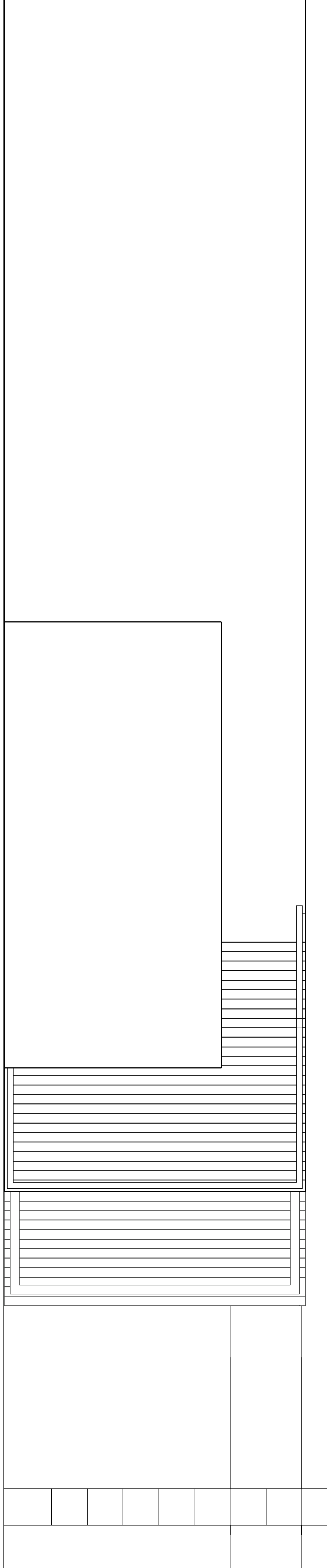
exploded axon  
scale: 3/16"=1'-0"



first floor plan  
scale: 3/16"=1'-0"



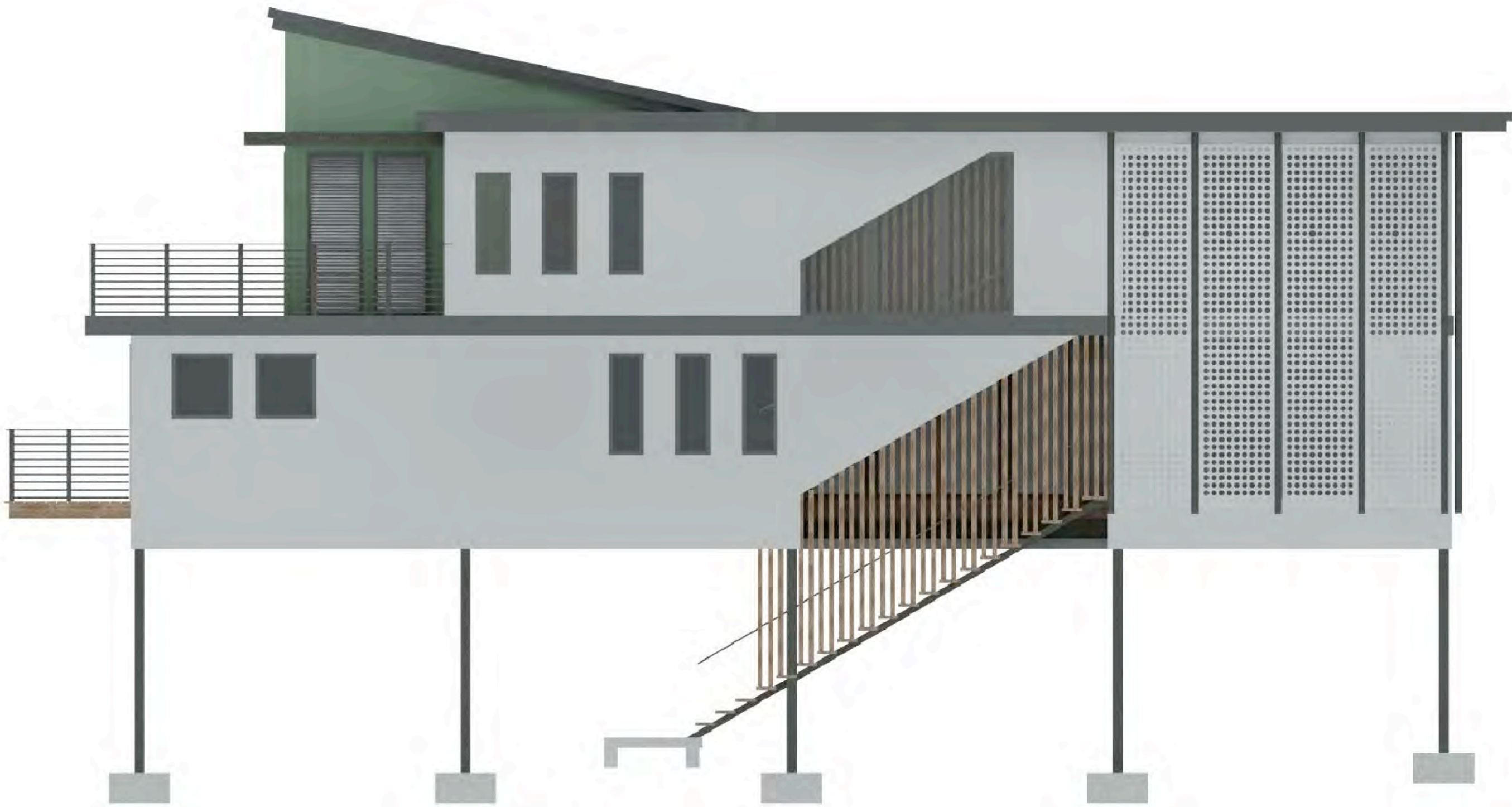
second floor plan  
scale: 3/16"=1'-0"



roof plan  
scale: 3/16"=1'-0"



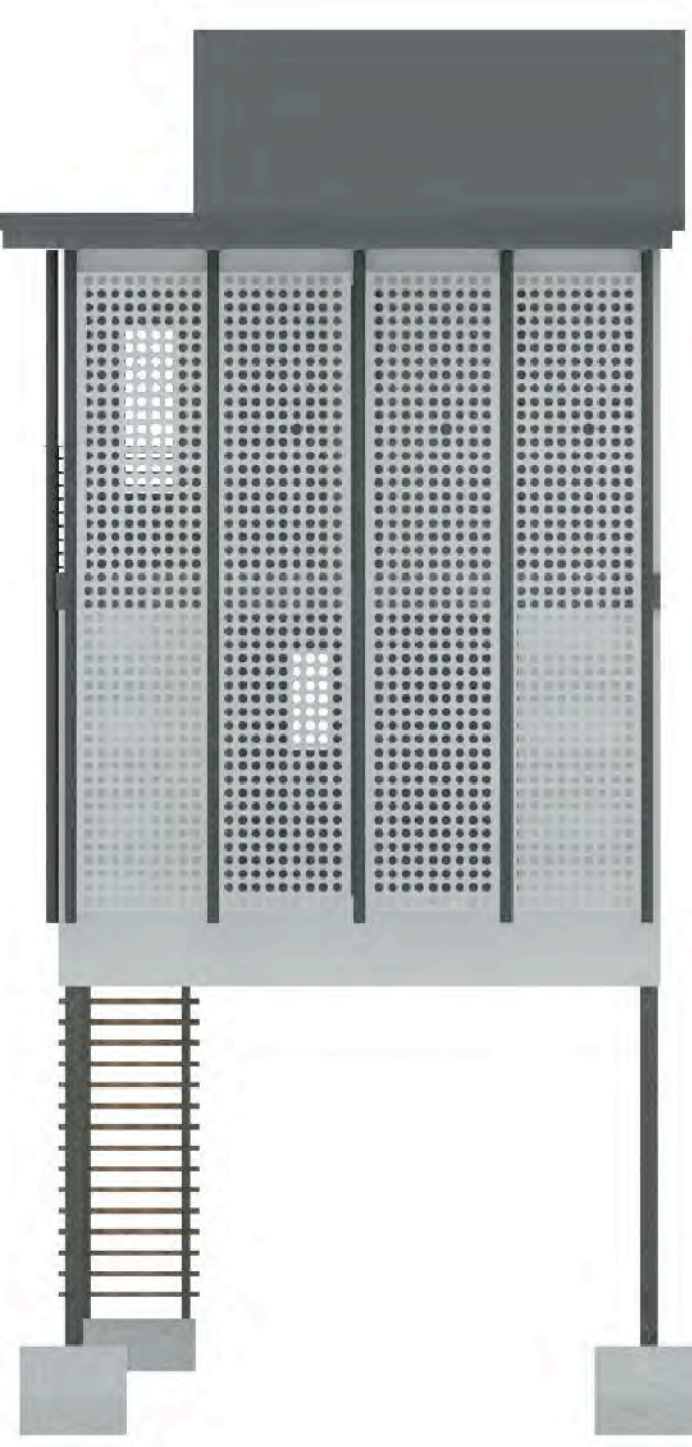
interior rendering - dining area



south-west elevation  
scale: 3/16"=1'-0"



north-west elevation  
scale: 3/16"=1'-0"



south-east elevation  
scale: 3/16"=1'-0"



# REINTERPRETING THE ROW HOUSE



# ENTRY 13

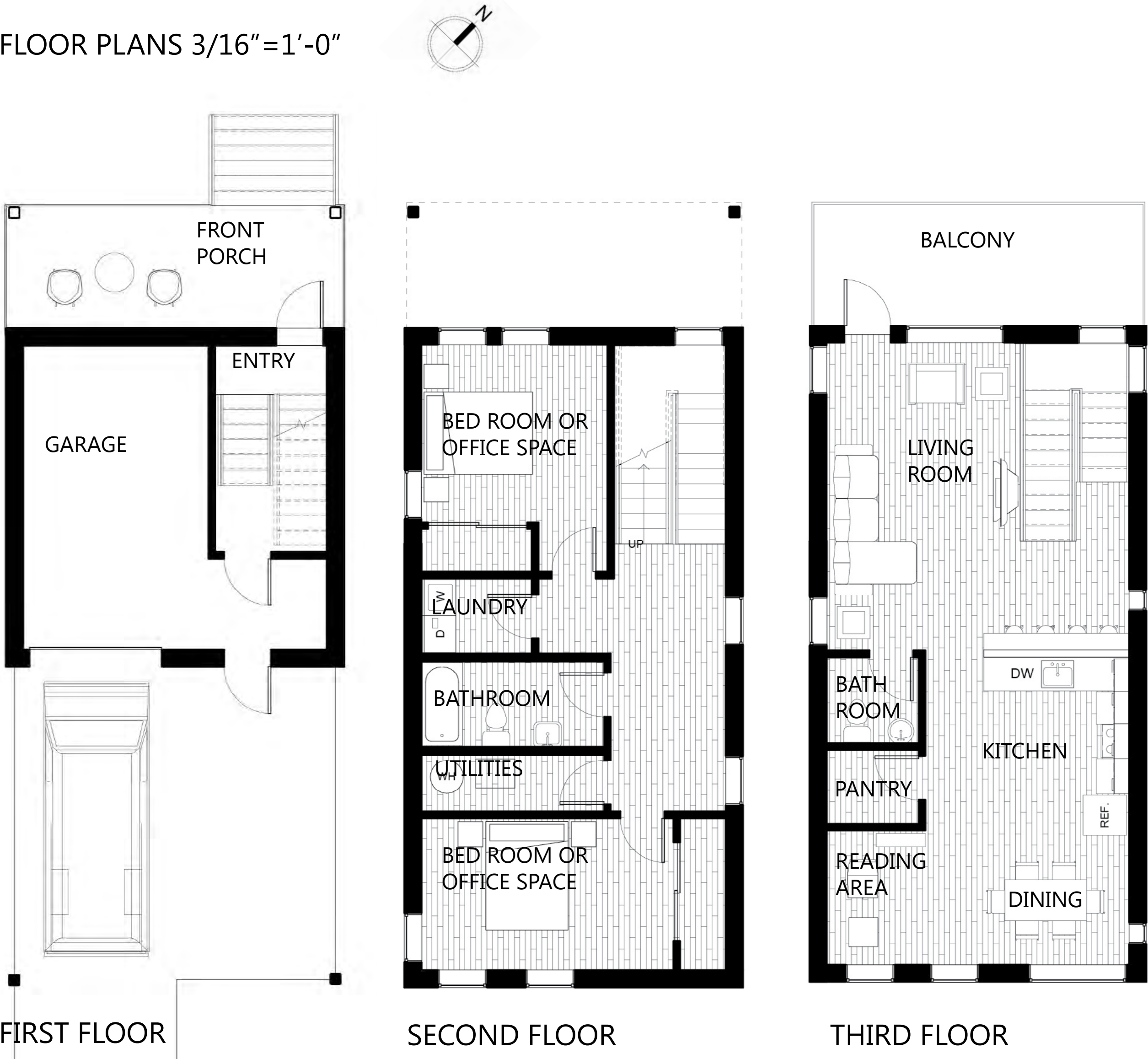
Introducing modern building techniques and design to an area that values craft and is invested in the future, this design reinterprets the row house with inspiration from the creativity, handiness, and entrepreneurial spirit of the community.

To match the existing datum of the neighborhood, the design maintains the front porch and facade plane of the existing homes. Although all living areas of the home are raised above the street level to provide protection from flooding, the street front is maintained through the entry and garage level. This strategy allows for a continuous front while providing ample storage and workshop space.

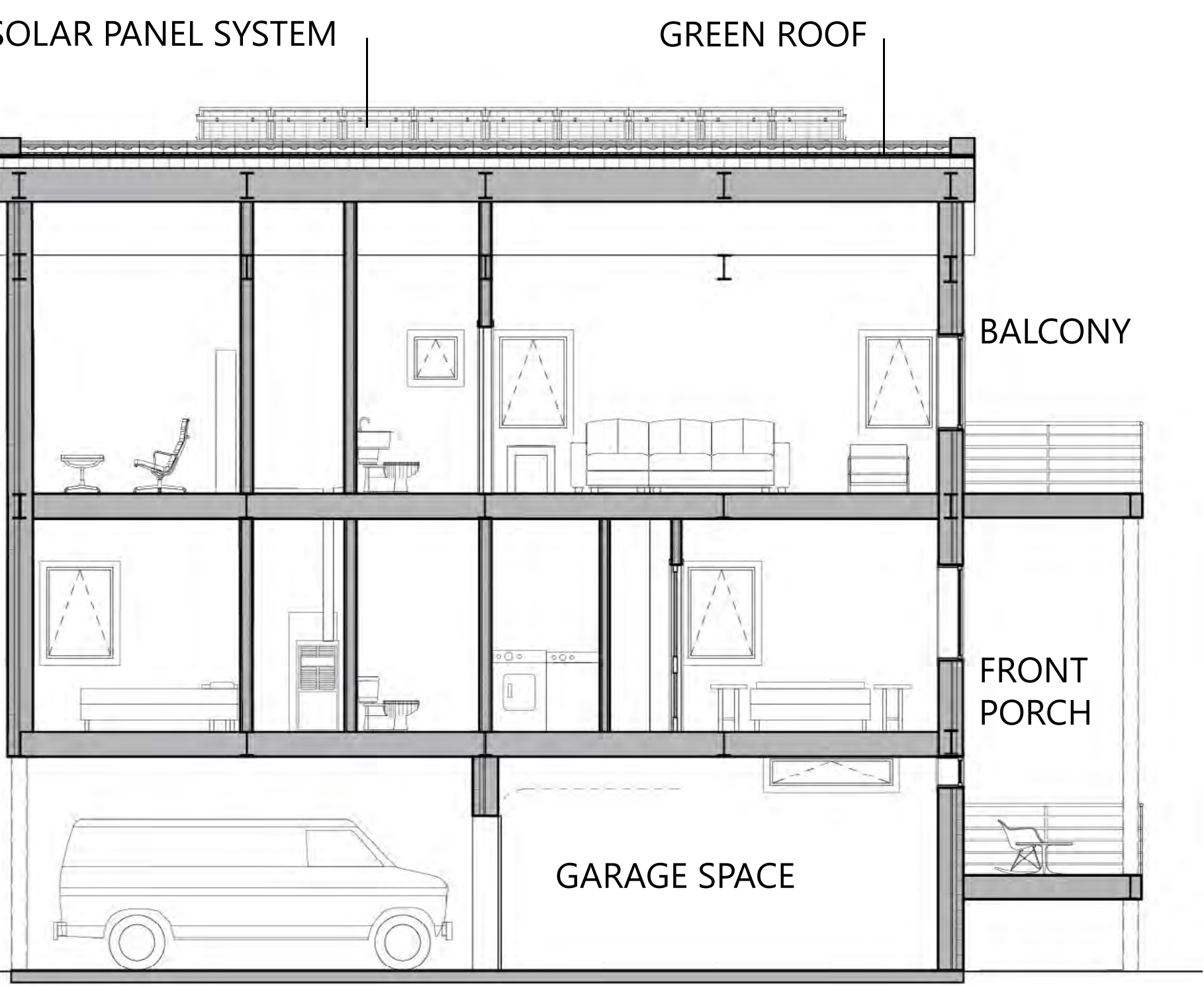
The Garden District's respect of nature is clear through their numerous gardens and outdoor spaces. With consideration of environmental issues including combined sewer overflow, air and water pollution, as well as sustainable energy sources. We sought to provide solutions through our design. The home incorporates passive strategies such as solar heat gain and daylighting, as well as a green roof and solar panels.

The layout of the home prioritizes an open living space on the top floor with a sloped roof allowing for a solar chimney effect through operable windows. The placement of the windows also allow for natural daylighting and solar heat gain in the winter months. The roof is designed to maximize photo-voltaic and vegetated roof performance. These aspects allow for a much more sustainable home as well as long term energy savings for residents. The green roof provides the home with added insulation and works to eliminate the home's impact on combined sewer overflow (a priority for the area because of the proximity to the river, which is heavily damaged by combined sewer overflow). Additionally , to address sustainable power the design uses solar panels to provide the home with clean energy and decreased electric bills.

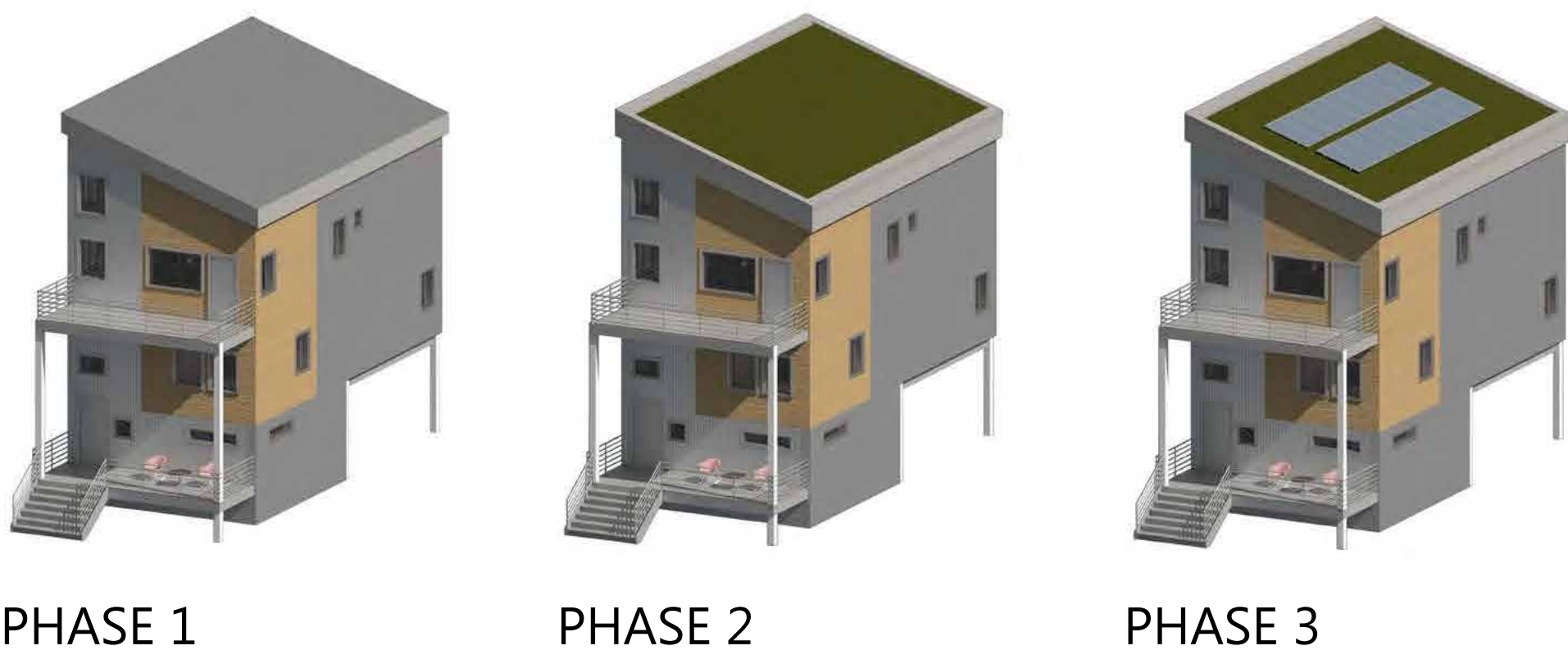
FLOOR PLANS 3/16"=1'-0"



SECTION 3/16"=1'-0"



PHASING



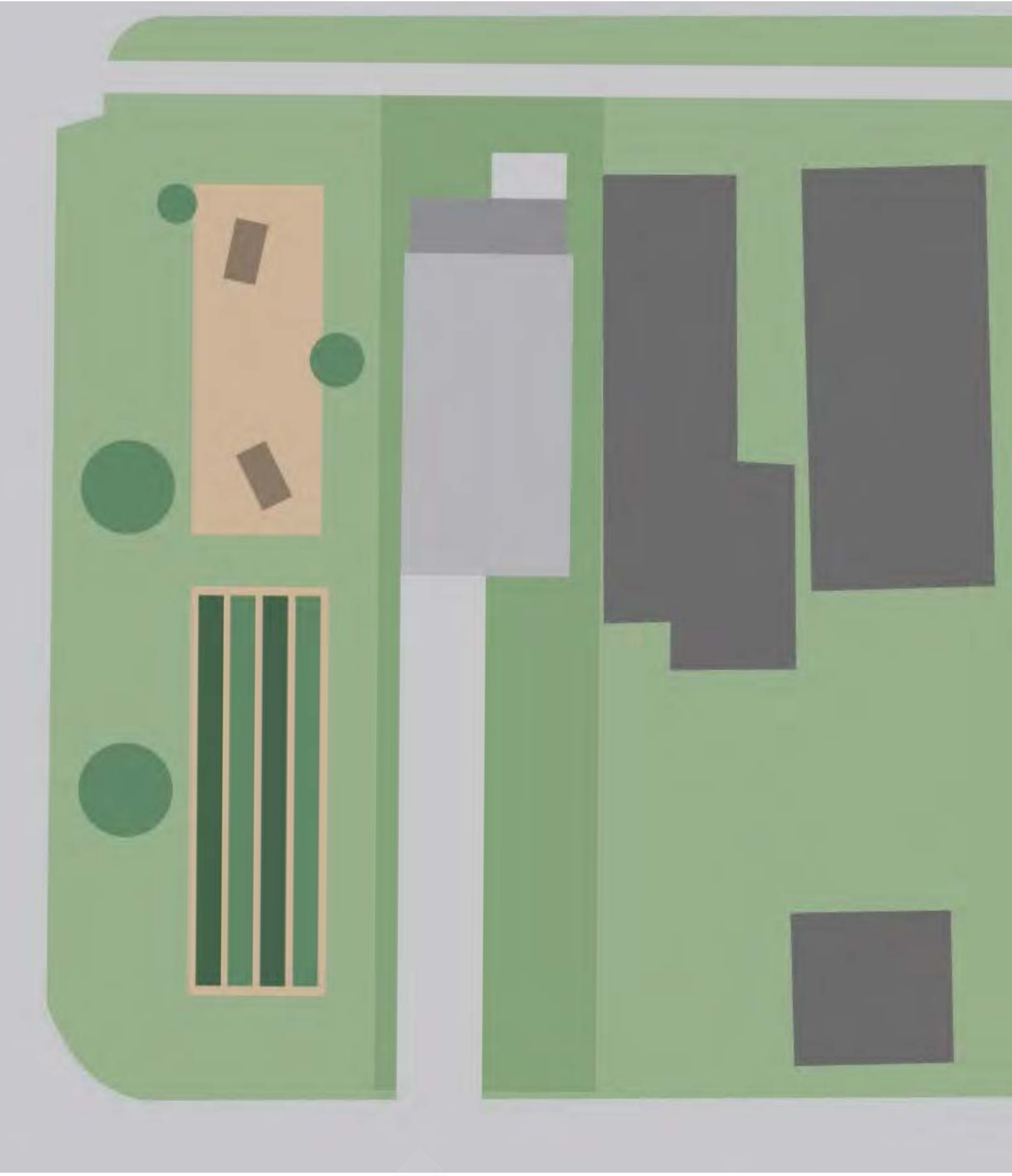
The home is built in phases to allow residents of any income the ability to construct a sustainable home.

In Phase 1 the main structure of the home is built, including a roof designed for vegetation and photo-voltaic.

In Phase 2 a vegetated roof is added through the use of a tray system. Now the home is thoroughly insulated, and benefiting from noise reduction.

In Phase 3 solar panels are installed to provide the home with sustainable energy. This also provides the resident with opportunities to use government incentive programs.

SECTION PERSPECTIVE



SITE PLAN 3/32"=1'-0"

ELEVATIONS 3/16"=1'-0"





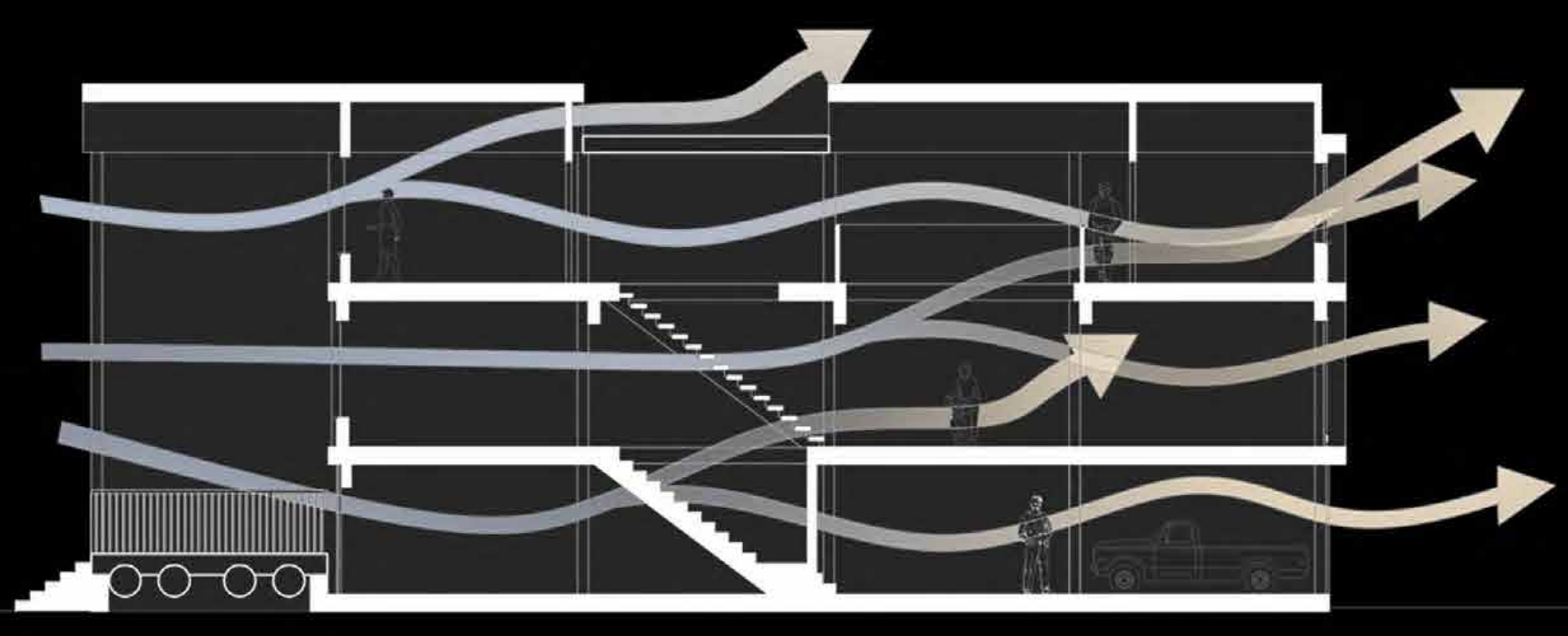
# RESURGENCE HOUSING PROJECT

RESURGENCE MEANS AN INCREASE OR REVIVAL AFTER A PERIOD OF LITTLE ACTIVITY, POPULARITY, OR OCCURENCE. IT REALLY FELT LIKE THE BEST WAY TO DESCRIBE WHAT THE RESIDENTS OF EAST END HAVE IN MIND FOR THEIR COMING FUTURE. OUR JOB IS TO DESIGN A HOUSE THAT IS MEANT FOR THE MIDDLE CLASS, CAN POSSIBLY BE PROTOTYPED, AND THAT WILL ATTRACT PEOPLE TO DESIRE TO LIVE IN EAST END ONCE AGAIN, AFTER ITS HISTORY OF FLOODING.

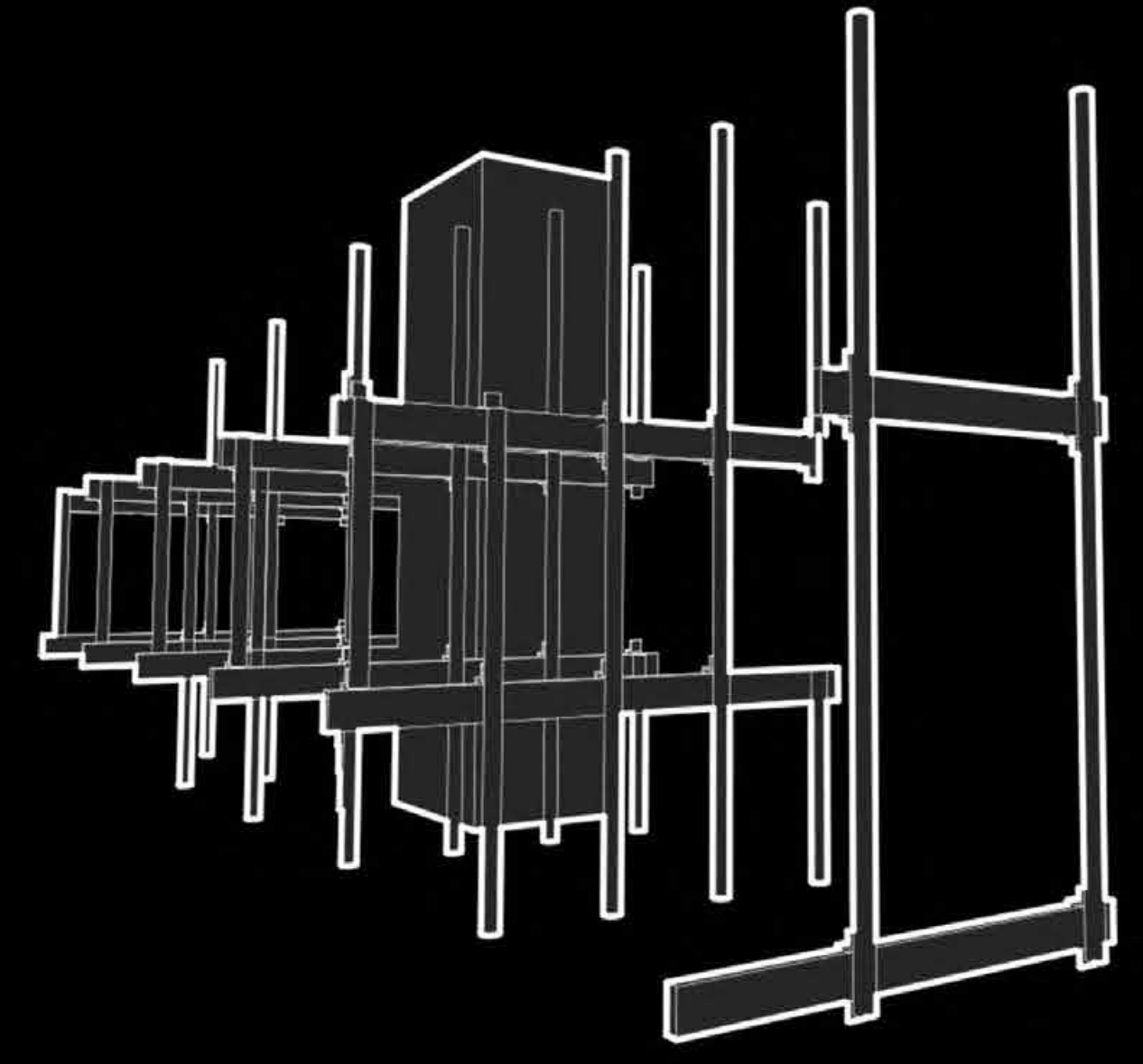
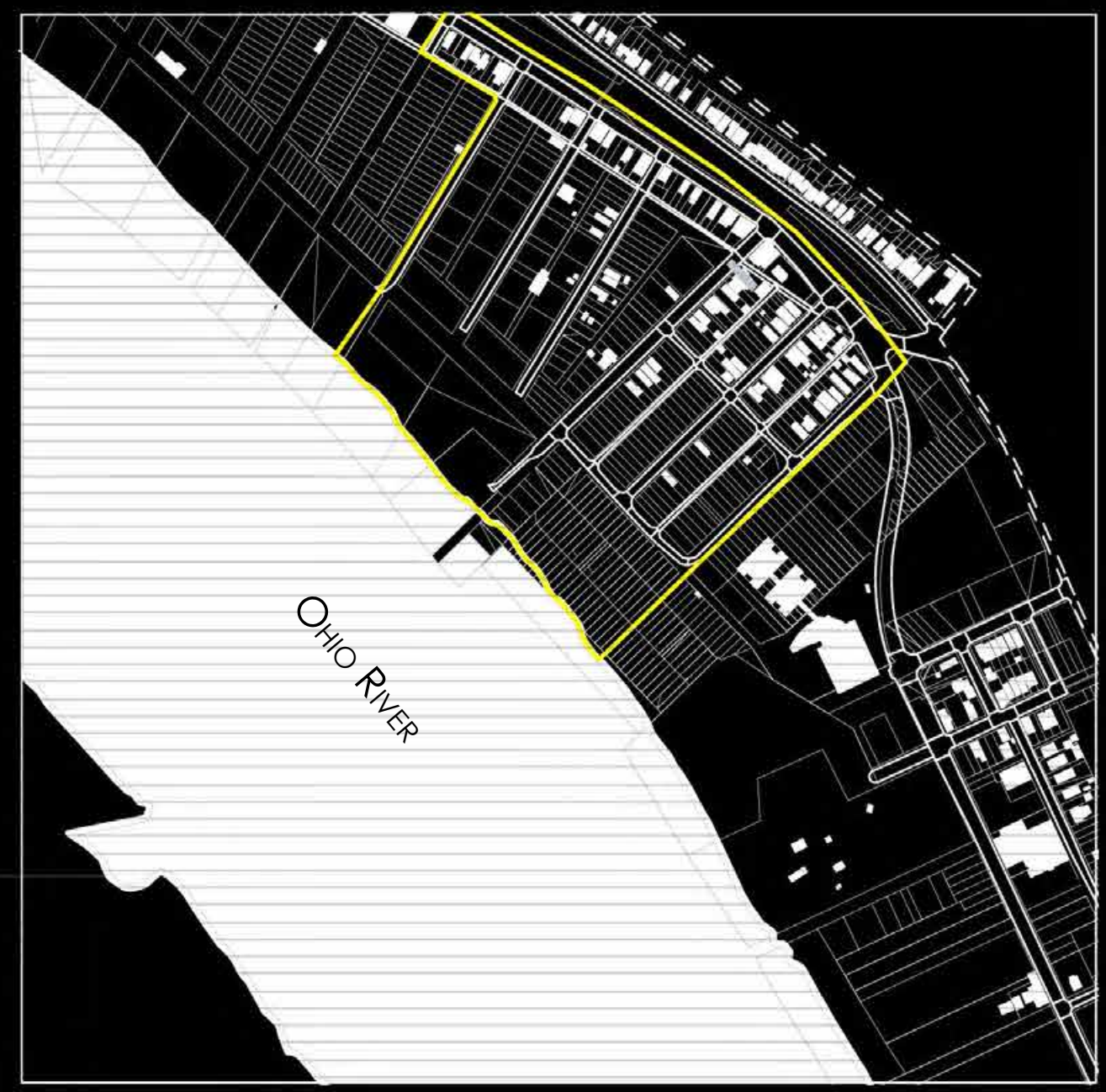
I APPROACHED THIS PROJECT AS IF I WERE DESIGNING A BUILDING FOR MYSELF, AS IF IT WERE THE SOLE REASON I WOULD MOVE TO EAST END AS OPPOSED TO ANYWHERE ELSE IN THE CITY UPON MY GRADUATION. THE RESIDENTS MENTIONED THAT THEY WOULD LIKE COLLEGE GRADUATES AND YOUNG FAMILIES TO REPOPOPULATE THE ACHING AREA.

THE KEYS TO THIS DESIGN ARE AS FOLLOWS:

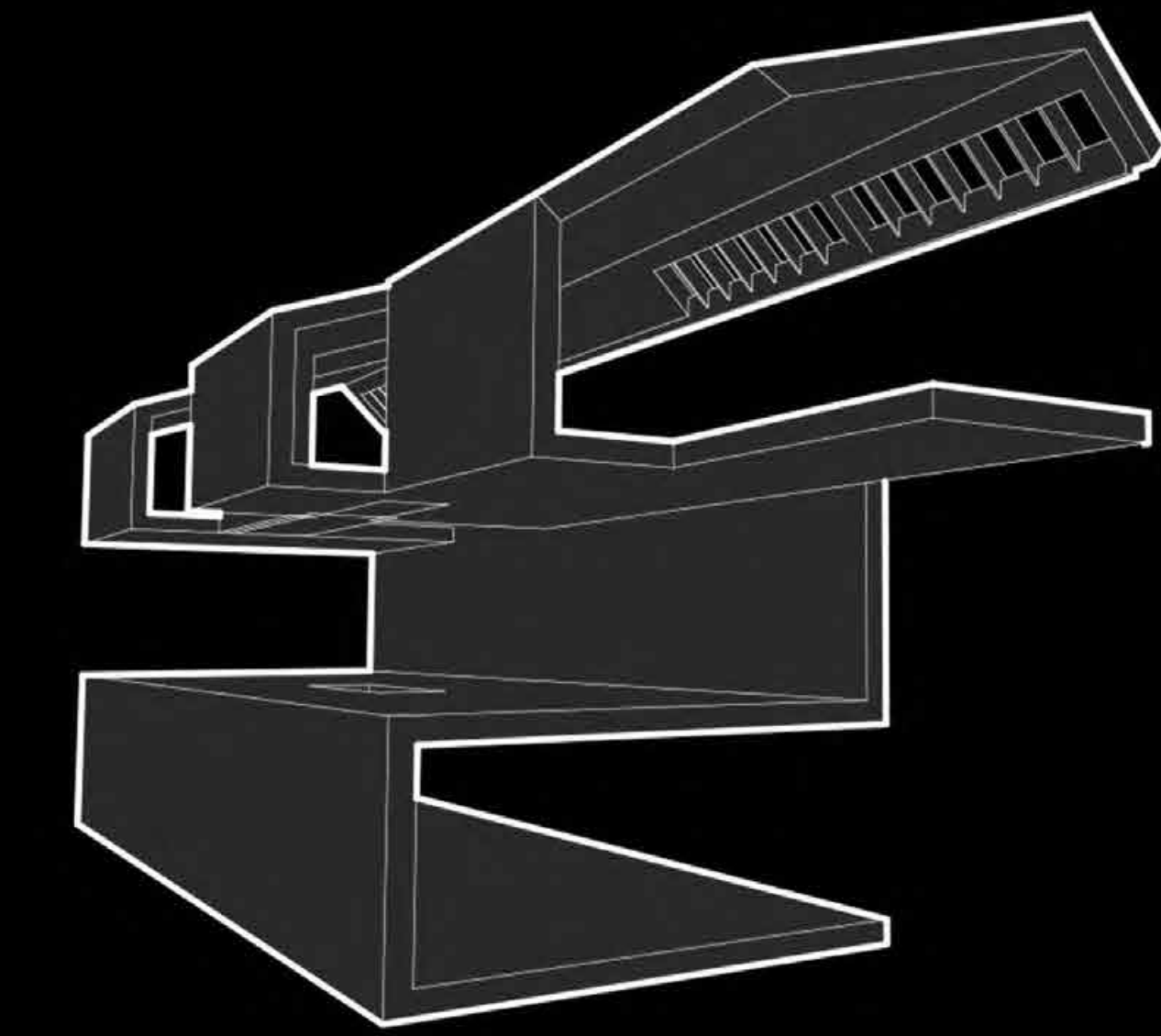
1. IT HAS TO MAKE BUDGET AT AROUND \$200,000. THIS IS TO ENSURE THAT IT IS ATTAINABLE TO A YOUNG MIDDLE CLASS FAMILY. I MADE SURE THROUGHOUT THE DESIGN TO LOOK FOR INNOVATIVE AND UNIQUE WAYS TO CUT COSTS.
2. IT HAS TO FIT IN WITH THE COMMUNITY, WHILE ALSO CREATING A NEW IDENTITY FOR ITSELF. THE RESIDENTS WOULD LIKE A SOMEWHAT PROTOTYPE BUILDING BUILDING IN ORDER TO QUICKLY GET A NUMBER OF NEW DESIGNED HOUSES INTO THE COMMUNITY.
3. IT HAS TO TAKE ADVANTAGE OF MODERN TECHNOLOGIES IN ORDER TO REMAIN SAFE FROM FLOODS. WE HAVE THE TECHNOLOGY TO SAFELY HAVE RAISED HOUSES THAT AREN'T DESTROYED BY FLOODS, MOST OF THE HOUSES IN THE AREA WERE BUILT PRIOR TO OUR KNOWLEDGE TODAY ON BUILDING IN A FLOOD PLAIN. ANOTHER EXAMPLE OF MODERN TECHNOLOGIES, AS WELL AS A WAY OF SAVING COSTS, IS TO USE SUSTAINABLE AND PASSIVE METHODS FOR HEATING, COOLING, AND RUNNING THE HOUSE. I AM CONFIDENT THAT WITH THE METHODS EPLYED IN THIS HOUSE IT WOULD TAKE NEXT TO NO OUTSIDE METHODS OF HEATING OR COOLING.



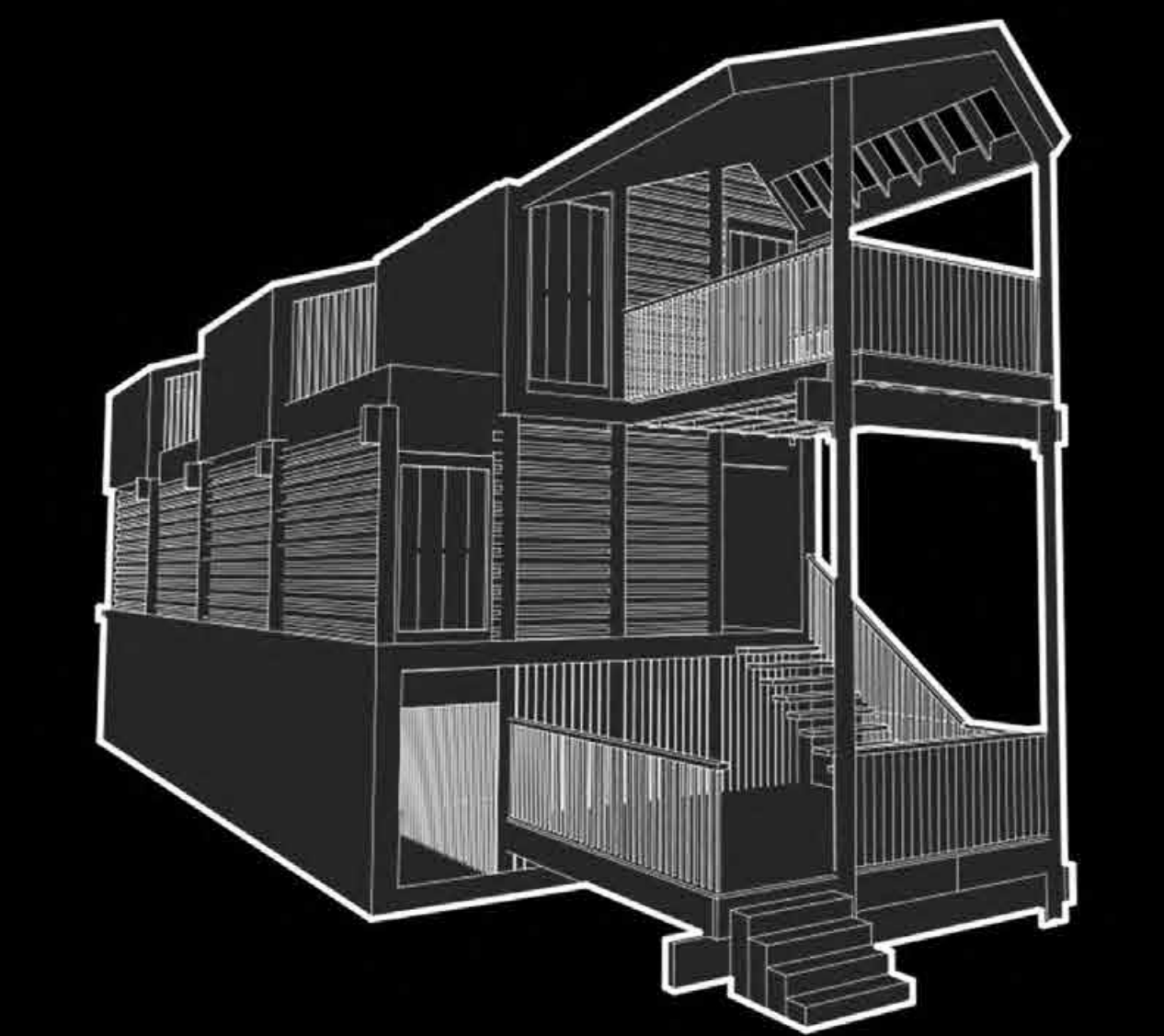
PASSIVE COOLING



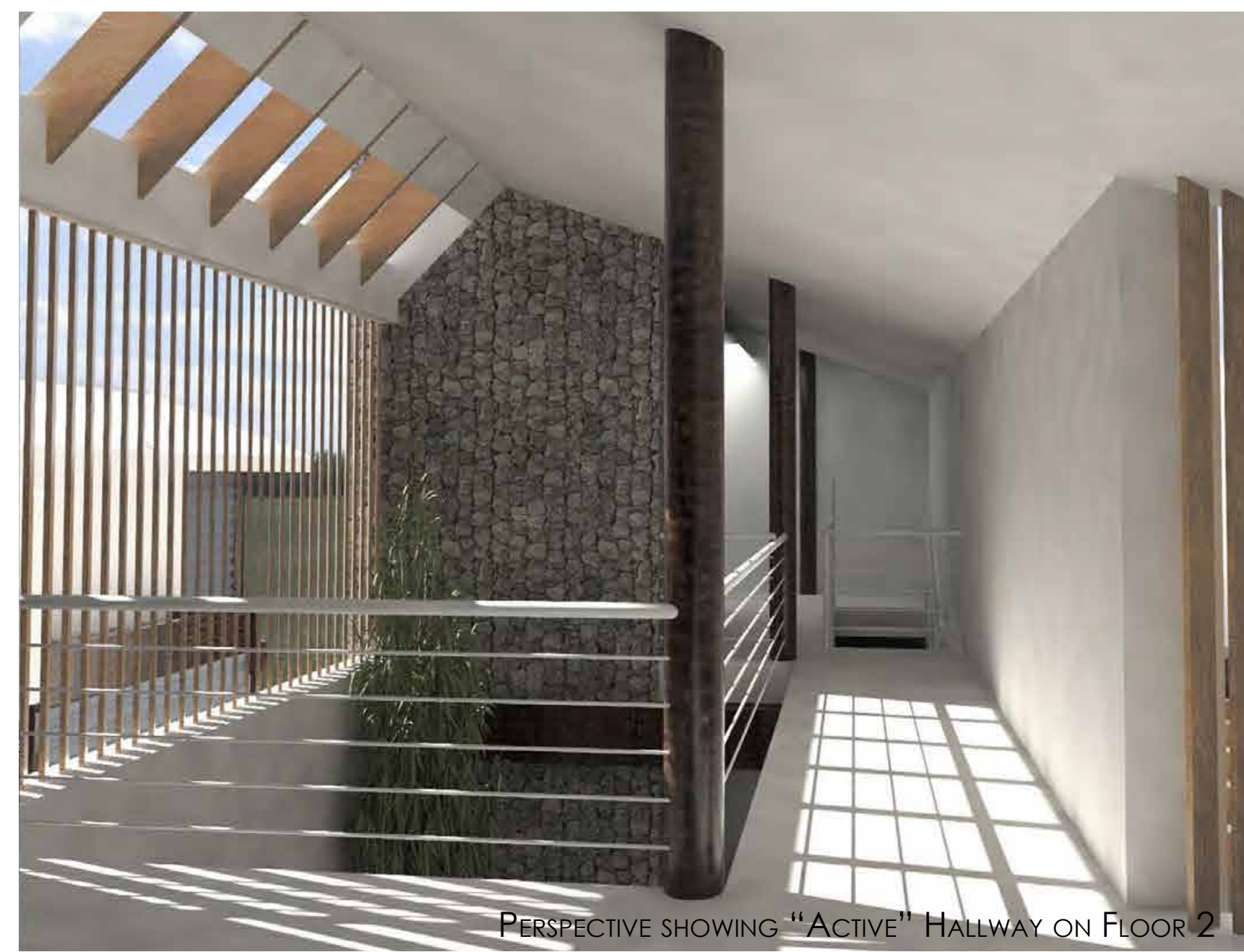
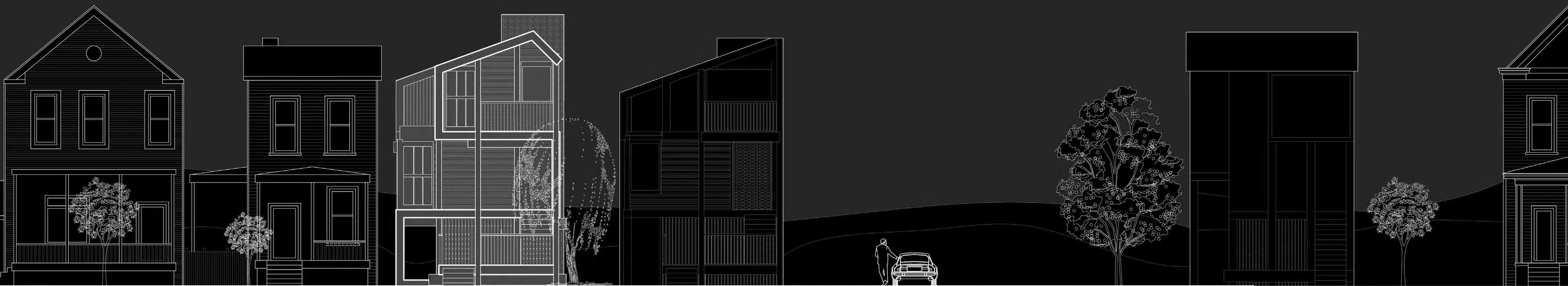
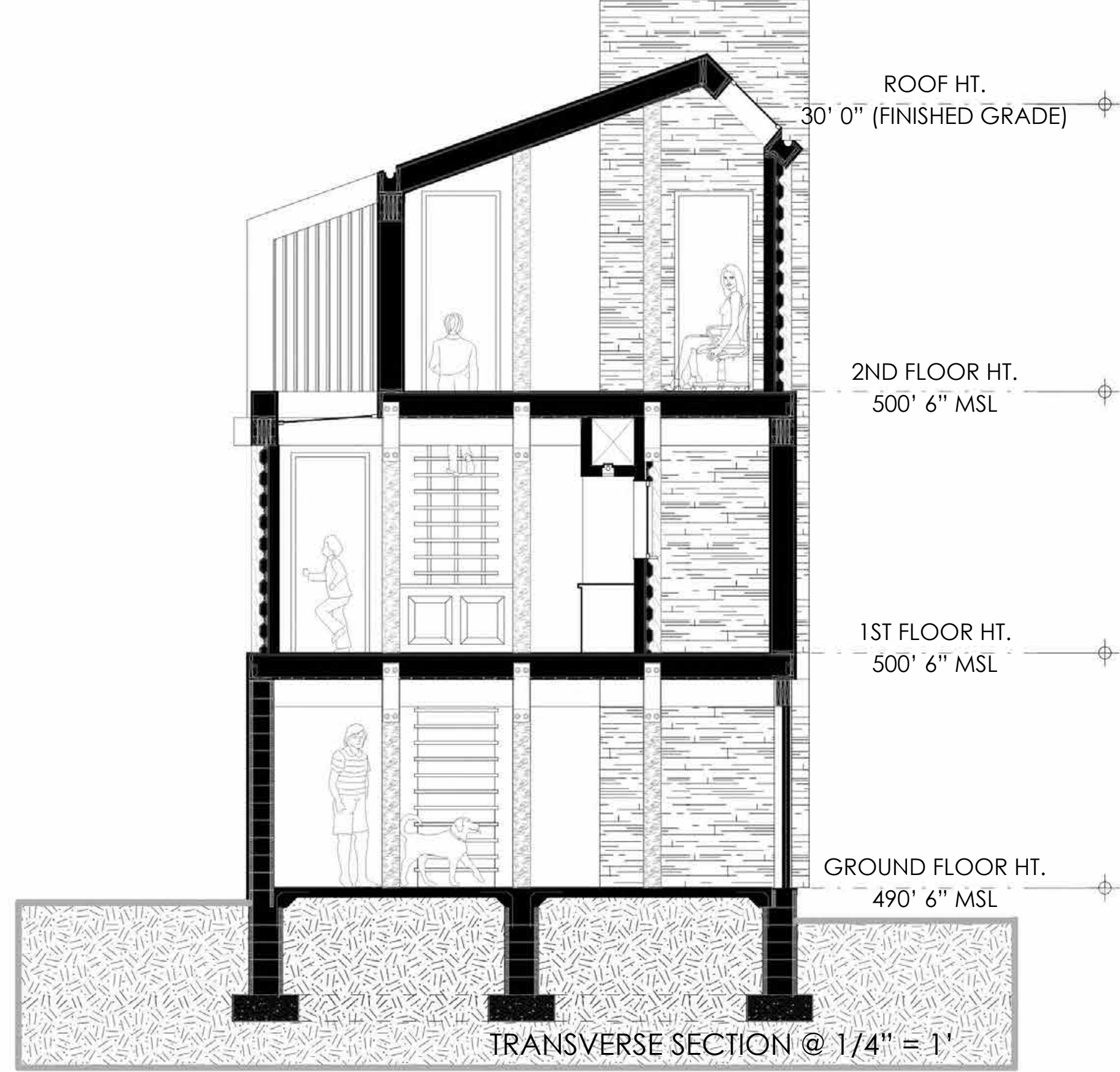
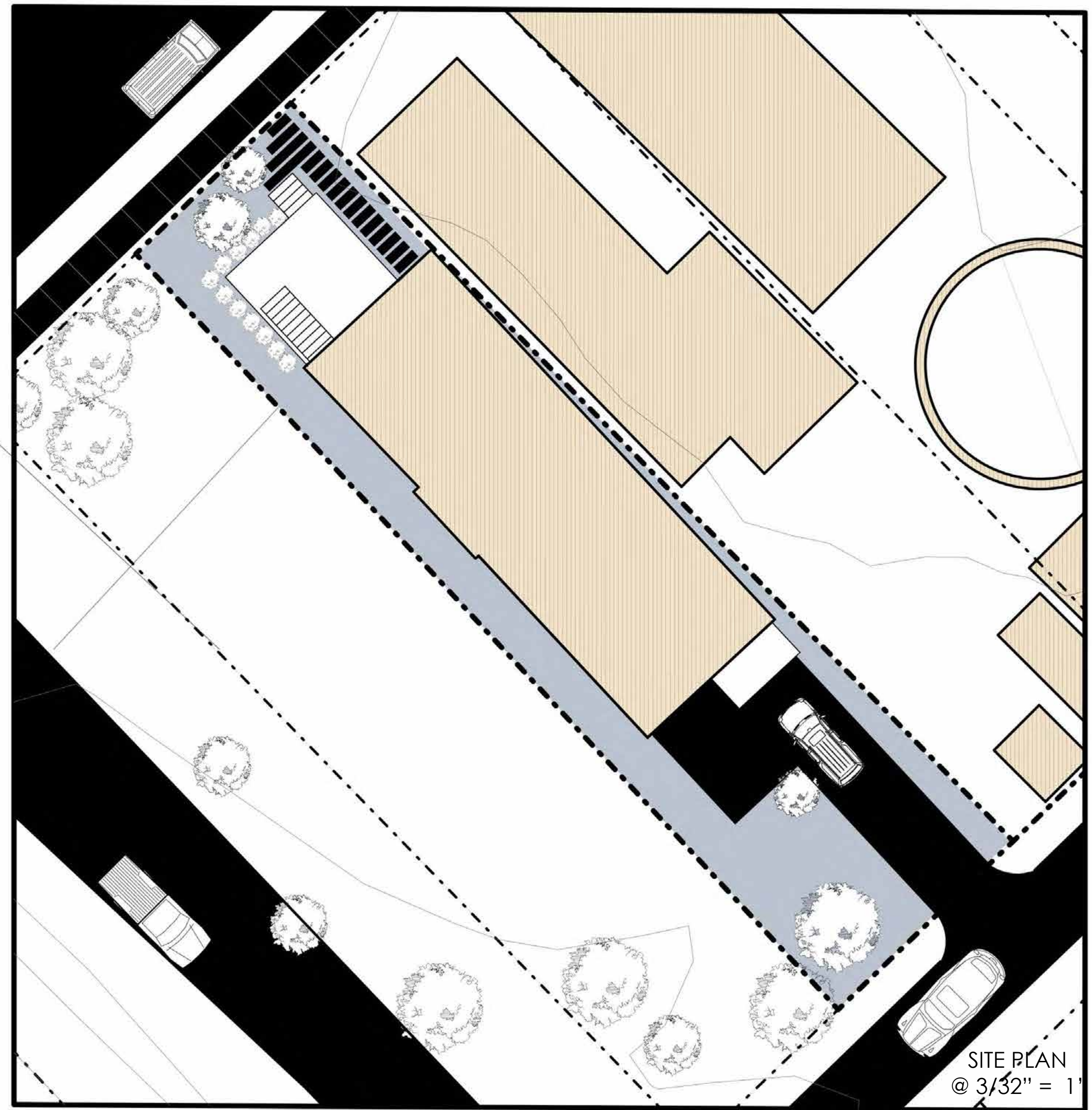
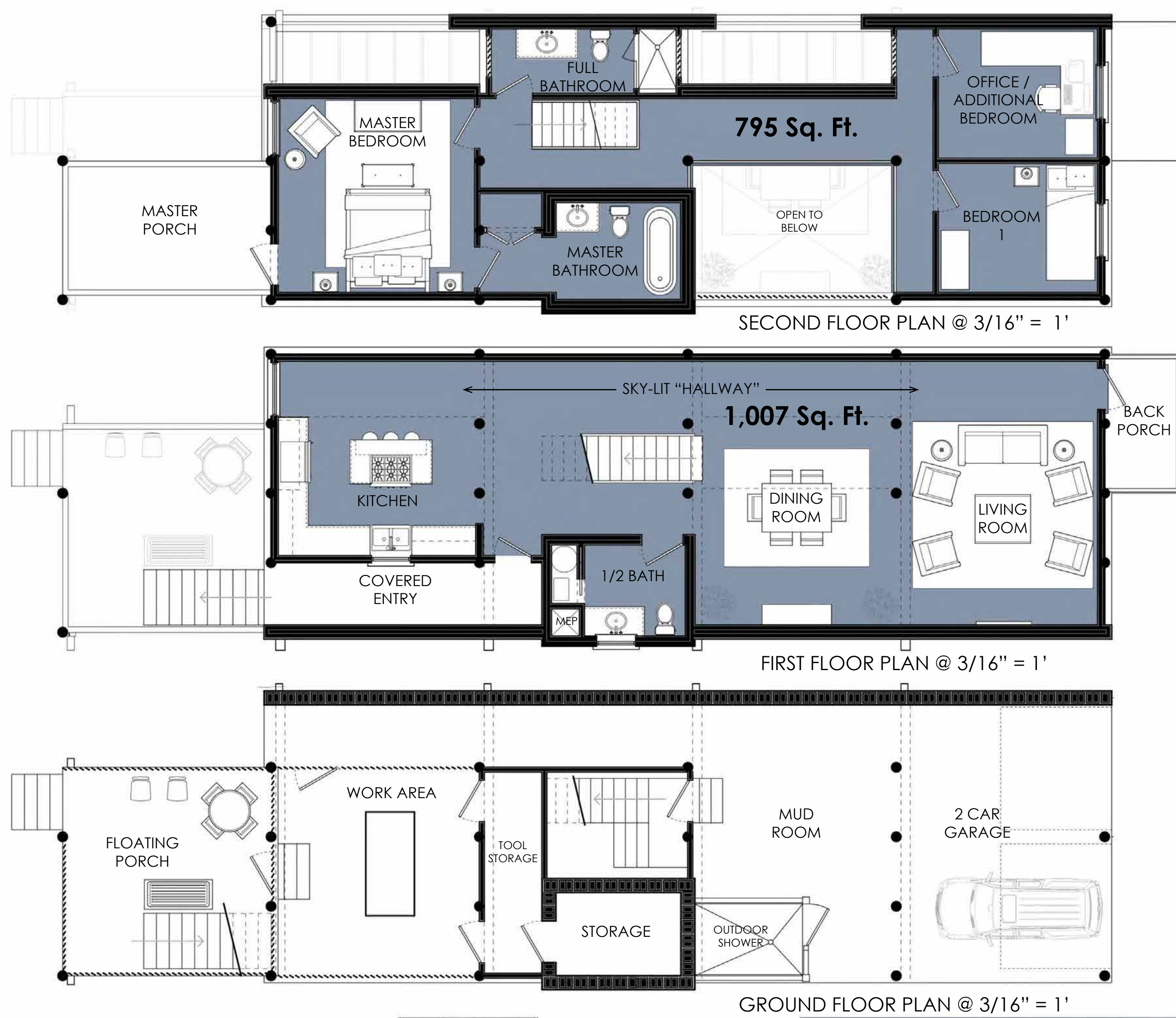
CLASSIC POST AND BEAM  
CONSTRUCTION



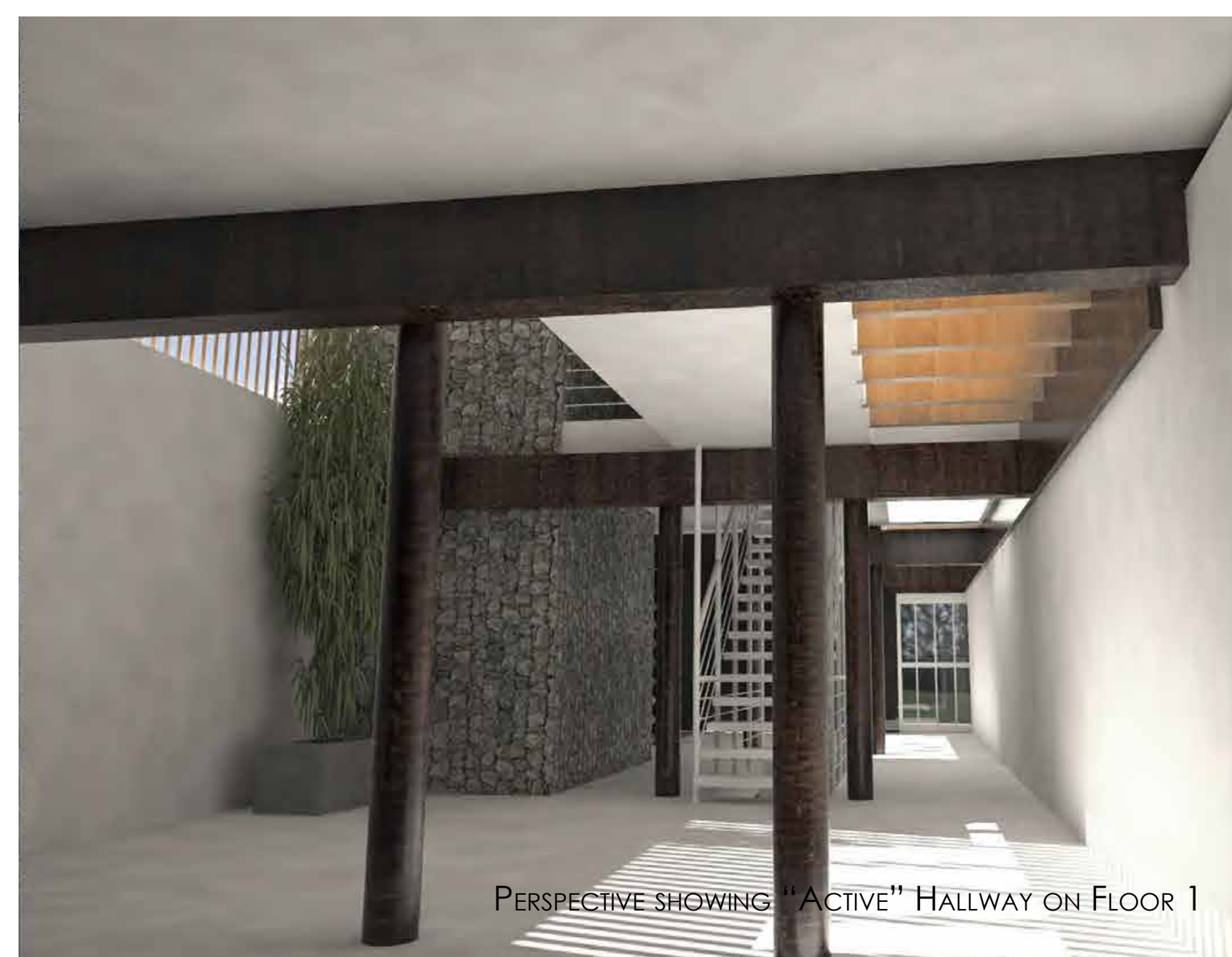
MODERN CONTINUOUS SKIN



COMBINED TO CREATE A NEW IDENTITY  
TO THE EAST END RESIDENTIAL AREA



PERSPECTIVE SHOWING "ACTIVE" HALLWAY ON FLOOR 2



PERSPECTIVE SHOWING "ACTIVE" HALLWAY ON FLOOR 1

