CASE STUDY 2.0

REBUILDING LOS ANGELES

A Visionary Catalog for Resilent and Sustainable Homes

STUDIO HAU

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INTRODUCTION

FIRM PROFILE

STUDIOHAU

Founded in 2016, StudioHAU is a Los Angeles based sustainable architecture practice led by Yo-ichiro Hakomori.

Emerging out of a firm Hakomori co-founded in 2003, StudioHAU's projects pursue a timeless simplicity and unique statement through an intelligent use of material, form, proportion, and natural light. Focusing on the intersection of architecture, landscape, and experience, StudioHAU's building and interiors for the arts, housing, and hotels play a vital role in public life and aim to create places that inspire social interaction and personal reflection. Responding to the conditions of the site, StudioHAU develops environmentally responsive designs to enhance symbiosis between the natural forces of wind, water, and sun.

Hakomori and StudioHAU's team experience include the Grand Rapids Art Museum (GRAM), the first LEED Gold certified art museum in the world (2007); Pomona College Studio Art Hall, the private liberal art college's first purpose-built building for the arts (2014); Bell Residence in association with Tadao Ando's office in Tokyo (2012); Grueter Residence (2024) underneath the iconic Hollywood Sign; Minnesota Art Barn, a family- and community-friendly space for gathering around art (2024); and the forthcoming redesign of the Berkshire Art Museum's spaces for exhibiting the region's art, science, and history (2026).

StudioHAU's work has been published in 100 Contemporary Green Buildings, ARCHITECT, Architectural Record, The Boston Globe, The Los Angeles Times, The New York Times, The Plan, Wired, and is recognized as the 'Best Sustainable Architecture Research Studio - California' in 2024 with a Merit Award by the Society of American Registered Architects (SARA) for the Grueter Residence.

The University of Southern California's (USC) Office of Sustainability recently published "Yo-Ichiro Hakomori's Latest Residential Design Offers Lessons After LA Wildfires," which highlights StudioHAU's Modular Matrix design in response to the Small Lots, Big Impacts competition.

YO HAKOMORI, PH.D., AIA, NCARB

Yo Hakomori received his Master of Architecture from the Graduate School of Architecture and Urban Planning at the University of California Los Angeles, and a Doctor of Engineering in Architecture from the University of Tokyo.

Previously, Hakomori worked with his teacher and mentor, Franklin D. Israel, and Pritzker Prize-winning architect, Tadao Ando. Prior to founding StudioHAU, he was a founding partner at wHY Architecture (WHY) where he worked extensively on museums and residences, including Pomona College Studio Art Hall, Grand Rapids Art Museum, Tyler Museum of Art, several galleries at The Art Institute of Chicago, L+M Arts, and the Malibu Residence.

Engaged in educating the next generation of architects, Hakomori serves as an Adjunct Professor teaching graduate and undergraduate design studios at the University of Southern California School of Architecture. In 2021, Hakomori was awarded the USC Associates Award for Artistic Expression. Most recently, he was the Director of Global Studies at USC with programs to Asia, Latin America, and the Mediterranean.

JOSE BOTELLO-HERRERA, SENIOR ASSOCIATE

As a senior associate at StudioHAU, Jose is managing and working on a wide range of projects including the Berkshire Museum in Pittsfield, Massachusetts, Minnesota Art Barn in Carlton County, Minnesota, Art Site Hotel & Resort in the North Atlantic Ocean, and the Modular Matrix multi-family housing competition in Los Angeles, California. Working collaboratively with principal Yo Hakomori and other designers, Jose oversees the organization of the office and works on projects at various stages of development.

Jose graduated from the University of Southern California with a Bachelor of Architecture and a Bachelor of Arts in Archaeology. He graduated magna cum laude and received the Renaissance Scholar distinction for studying two widely divergent fields, the Discovery Scholar distinction for his work in 3D reconstructive modelling research, and the Global Scholar distinction for his capstone architecture project completed while studying abroad in Barcelona.

PROJECT NARRATIVE

Spatial and Formal Structure:

Designed to reflect an efficient, resilient lifestyle, the design of the house references contemporary principles of the LA Case Study houses. The form is generated by two fire resistant volumes, one clad in smooth troweled cement plaster, the other in metal panels. One volume is split open to create an outdoor dining court, the other lifted up to create an open lower level that visually and physically connects to the front and back gardens. A central circulation spine connects and provides access to all spaces. The upper volume houses the master bedroom suite and an additional bedroom. These rooms have small but strategically placed windows and thin skylights to bring in natural light without over exposure to a potential fire hazard.

The design is efficient, flexible, and emulates the casual Southern California life style with interior spaces connecting to outdoor living spaces. The house has the flexibility to interchange location of dining room and family room, convert the lower bedroom area into two bedrooms, or a single bedroom and study, or a home office. Thus, the spaces can adapt to the needs of the occupants, as well and change over time. A large “ofuro” tub and bathroom can be used for the family, or for a quiet spa experience. An ADU ready additional living space with fold down bed, built in bathroom, and kitchenette connected to the garage adds another living space for a growing family.

The house is compact with interior spaces interconnected by an open plan, providing a mixture of defined and open spaces. Notably, the ground floor rooms have direct physical connections to exterior gardens further emphasizing indoor-outdoor living which provides a versatile use of spaces appropriate for the warm climate in Southern California.

Fire Resistivity:

The perimeter CMU stucco walls create a defensible area for fire resistivity. No landscape is planted within 10 feet of the house. Fenestration are kept small with discrete visual connections to the outside, and utilizes dual glazing, and tempered glass for fire resistance. The interior of the house is fire sprinklered, and they extend to the exterior underside of the overhang of the second story at the front and back of the house. Class A fire rated sheet metal roof and details, sheet metal and smooth troweled cement plaster cladding provide security against wind-blown embers. Pool water will connect to the fire suppression system for emergency use.

Sustainable Systems:

Domestic hot water and photovoltaic panels harness the energy of the sun, collecting electricity and warming water for the outdoor pool. Rain water from the roof is harvested and piped to two retention ponds for reabsorption into the ground and aquifer. All outdoor terraces and driveway are permeable, with the intention of allowing no storm water runoff from the site. Landscaping around the house will be a selection of drought resistant native planting and xeriscaping. Prevailing winds from the north and south can pass through the house through operable windows and doors for natural ventilation and cooling. Heating in winter months and cooling during the summer will utilize an all water, radiant heating and cooling system within the floor slabs for energy efficiency.

DESIGN FEATURES

FIRE RESISTANCE

The house is clad in fire resistant sheet metal siding, and smooth troweled cement plaster. All decking and materials surrounding the house is non-combustible. The entirety of the interior of the house will be fire sprinklered, as well as exterior fire sprinklers under two areas with an overhanging second story. Slab on grade and a warm roof eliminates any need for exposed exterior vents.

ROFFING

Class A fire rated sheet metal roofing and details will be utilized over rigid insulation for warm roof assembly.

BUILDING SIDING

Fire rated sheet metal siding and smooth troweled cement plaster will be utilized for exterior walls.

WINDOWS & DOORS

Windows and doors will be aluminum frame, dual glazing, with tempered glass. Exterior window fenestration is kept small with discrete visual connections to the outside to minimize exposure to fire embers.

DEFENSIBLE SPACE INTEGRATION

Perimeter CMU stucco walls create a defensible area for fire resistivity. No landscape is planted within 10 feet of the house.

VENTS

Slab on grade foundation requires no crawl space which eliminates underfloor venting requirements. A flat roof with exterior rigid insulation for warm roof construction will require no ventilation for the roof assembly.

EMBER-RESITANT FEATURES

All exterior doors and windows will be dual glazed, tempered. Windows will be small, and in two areas of larger sliding glass doors, an exterior fire sprinkler system will be utilized to bath the area with water in case of fire. The simple form of the house has no overhanging eaves or complex exterior nooks and crannies, leaving no place for wind-blown embers to collect.

SUSTAINABILITY

Domestic hot water and photovoltaic panels harness the energy of the sun, collecting electricity and warming water for the outdoor pool. Rainwater will be collected in retention ponds, and permeable paving will retain all storm water on site. Prevailing winds will passively ventilate the house through operable windows and doors. Energy efficient radiant heating and cooling will be utilized.

DESIGN QUALITIES

The form is generated by two fire resistant volumes, one clad in smooth troweled cement plaster, the other in metal panels. One volume is split open to create an outdoor dining court, the other lifted up to create an open lower level that visually and physically connects to the front and back garden. A central spine connects all spaces, resulting in a house that is spatially compact but seemingly larger with interconnected interior spaces.

CONSTRUCTION METHODOLOGY

Construction utilizes slab on grade foundation with perimeter grade beam and spread footings. Interior and exterior walls, second floor, and roof are constructed with standard wood framing. Side to side spans for second floor and roof will not require trusses but can be achieved in standard dimensional lumber. Steel moment frame may be required at two locations. The roof will utilize rigid insulation for warm roof assembly eliminating the requirement for exterior ventilation grilles.

EFFICENCY

This house is dimensionally designed to use standard dimensional lumber for floors, exterior walls, and roof framing. Slab on grade eliminates the necessity of a crawl space and the slab will double to incorporate radiant heating and cooling. A warm roof will require no ventilation of the roof assembly. Overall dimensions of 60’ and 16’ is efficient for plywood sheathing and wood framing, limiting waste.

STYLE FEATURES

The house is designed utilizing simple rectilinear forms, punctuated with small window and skylights. A central circulation spine with glass roof, organizes the unfolding of space and their physical connections. Roof and wall openings will bath the interior with natural light, an important feature of the house.

ADDITIONAL SPECIAL FEATURES

The ground floor rooms have direct physical connections to exterior gardens further emphasizing the indoor-outdoor use of space. The outdoor dining court, front yard garden, and rear yard pool and spa provide important extensions of living spaces appropriate for the warm climate in Southern California.

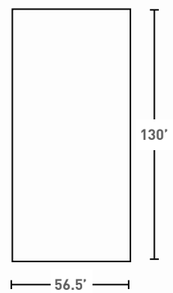
CUSTOMIZATION POTENTIAL

The house has the flexibility to interchange location of dining room, living room, and family room, convert the lower bedroom area into two bedrooms, or a single bedroom and study, or a home office. The room connected to the garage can double as a guest room, recreation room, another bedroom, study, or a rentable ADU. Thus, the spaces of the house can adapt to the needs of the occupants, as well and change over time.

SITE & PROJECT INFORMATION

PARCEL INFORMATION / LOT INFORMATION

- ADDRESS: 3306 TONIA
- PARCEL DIMENSIONS: (130' X 56.5')
- ZONE: ALTADENA COMMUNITY STANDARDS DISTRICT
- * SEE DETAILED ' CSD ' ON PAGES 21-22



SETBACK REQUIREMENTS

SETBACKS FOR LOTS UNDER 20,000 SQUARE FEET:

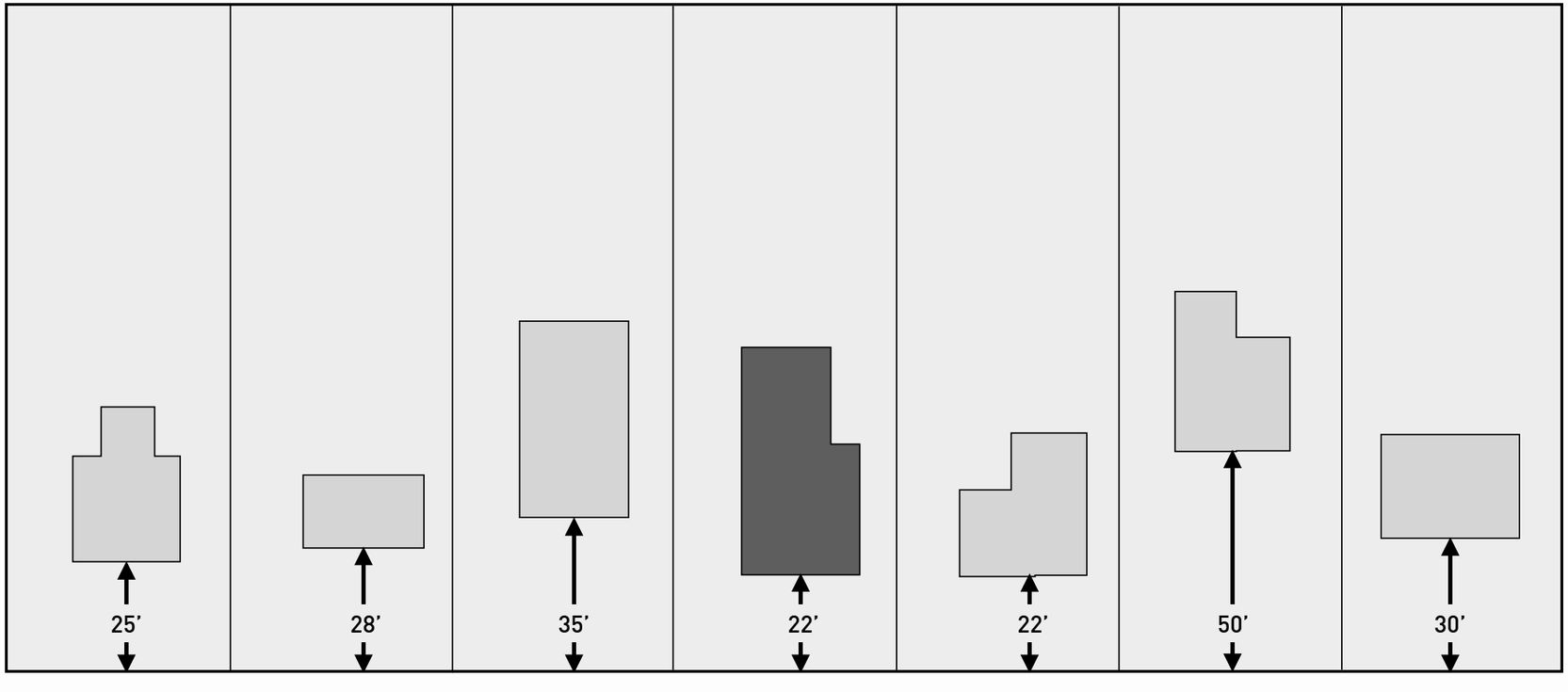
- FRONT: SMALLEST FRONT YARD ON SAME BLOCK, MINIMUM 20 FEET. ASSUME 20 FEET FOR 3306 TONIA.
- THE FRONT YARD SHALL NOT BE LESS THAN THE SMALLEST FRONT YARD OF A LEGALLY ESTABLISHED RESIDENCE ON THE SAME SIDE OF THE STREET ON THE SAME BLOCK, BUT IN NO CASE LESS THAN 20 FEET. FOR EXAMPLE, SEE FIGURE 22.306.070-A, BELOW:
- SIDE: 10 PERCENT OF AVERAGE LOT WIDTH (MINIMUM 5 FEET).
- REAR: 25 FEET
- HEIGHT FOR LOTS LESS THAN 20,000 SQUARE FEET: 30 FEET (MEASURED IN LINEAR FEET)
- GROSS STRUCTURAL AREA (GSA): (.25 X NET AREA OF THE LOT + 1000 SQFT)
- 3306 TONIA: (7,221 X .25) + 1000 = 2,805.25 SQFT

- EXCEPT AS PROVIDED IN SECTION 22.110.090 (PROJECTIONS INTO YARDS), NO PORTION OF ANY STRUCTURE SHALL EXCEED 23 FEET IN HEIGHT WHERE LOCATED WITHIN 15 FEET OF ANY PROPERTY LINE.

BUILDING AREAS

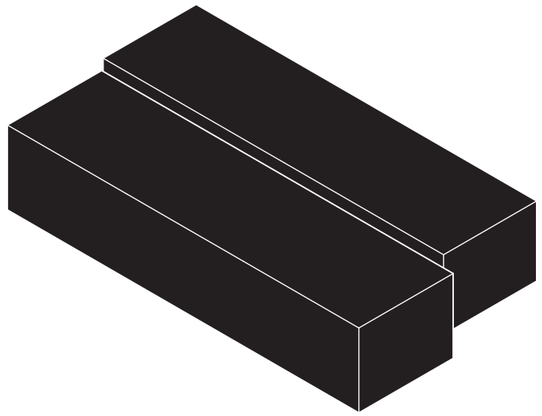
FIRST FLOOR:	1,461 FT^2
SECOND FLOOR:	942 FT^2
GARAGE:	400 FT^2
RESIDENCE TOTAL:	2,803 FT^2
MAXIMUM ALLOWED:	2,805 FT^2
LOT COVERAGE:	38.82%
MAX PROPOSED BUILDING HEIGHT:	22'-0"
MAX BUILDING HEIGHT ALLOWED:	23'-0"

FIGURE 22.306.070-A: EXAMPLE OF MINIMUM FRONT YARD SETBACKS

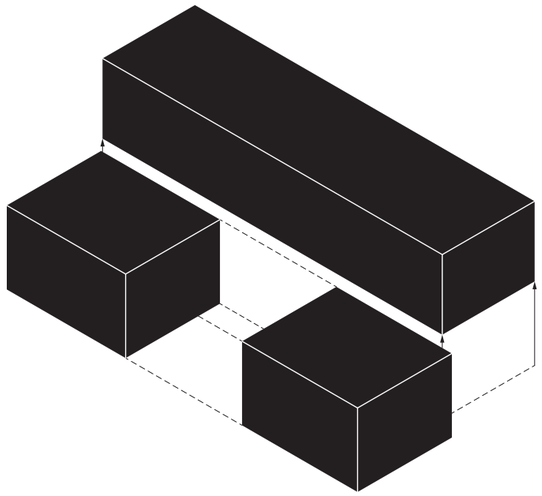


THE MINIMUM FRONT YARD SETBACK IS EQUAL TO THE SMALLEST LEGALLY ESTABLISHED FRONT YARD ON THE SAME SIDE OF THE STREET ON THE SAME BLOCK, BUT NO LESS THAN 20 FEET.

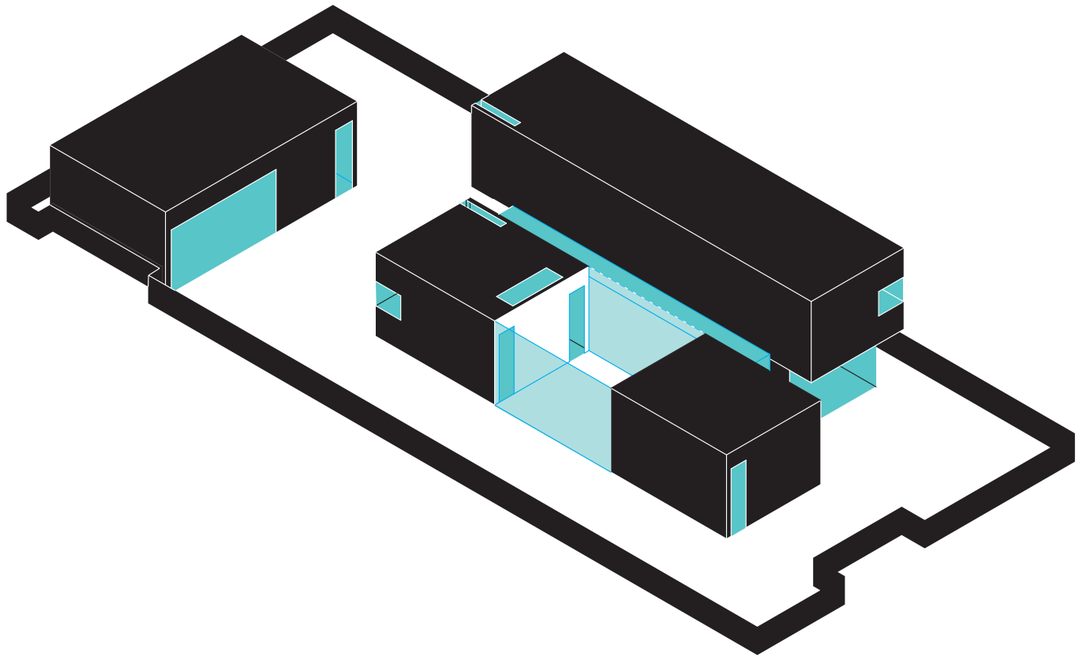
FORM GENERATION



TWO FIRE RESISTANT VOLUMES 1 & 2

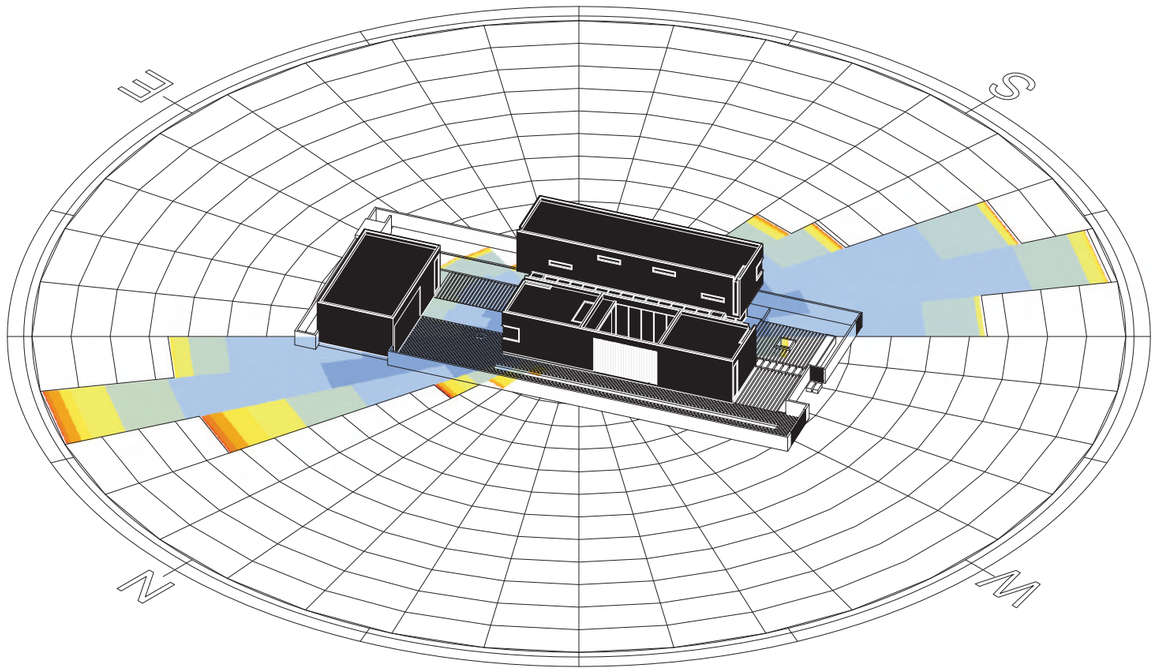


SPLITTING VOLUME 1 & RAISING VOLUME 2

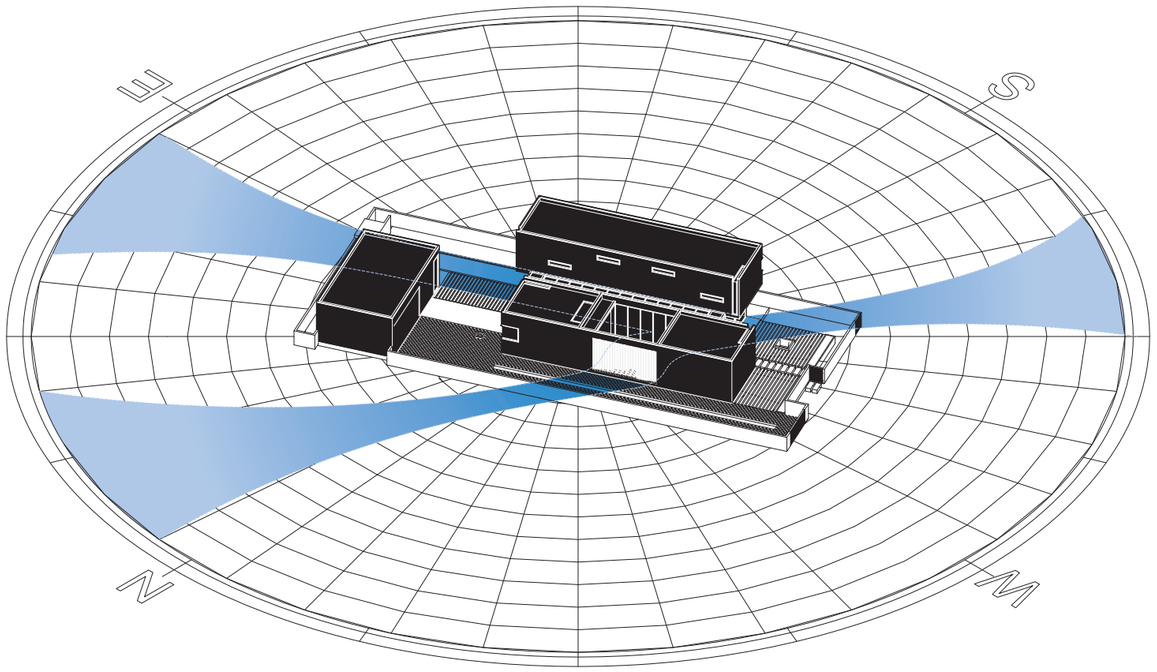


FINAL MASSING AND DEFENSIBLE ZONE

ENVIRONMENTAL DIAGRAMS - WIND

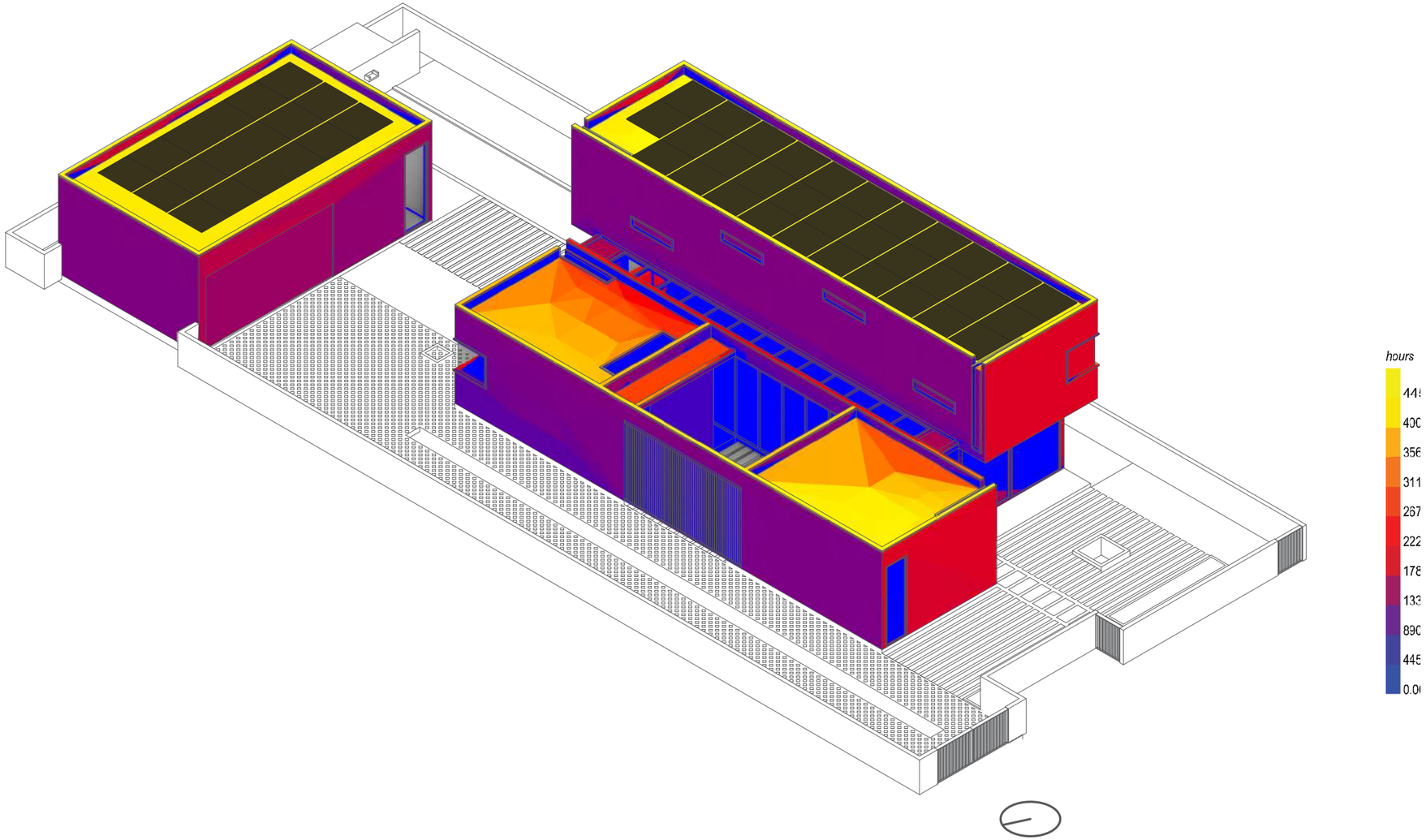


WIND ROSE DIAGRAM - PREVAILING WINDS



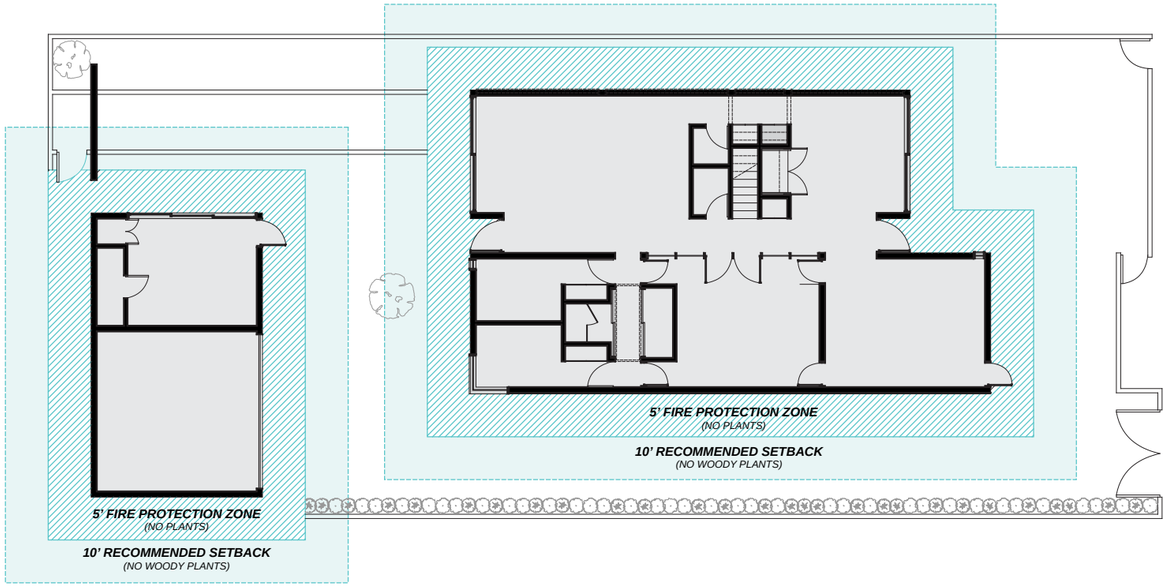
PREVAILING WINDS - PASSIVE COOLING

ENVIRONMENTAL DIAGRAMS - SOLAR



SOLAR EXPOSURE - DOMESTIC HOT WATER PANELS & PHOTOVOLTAIC PANELS

LANDSCAPE STRATEGY

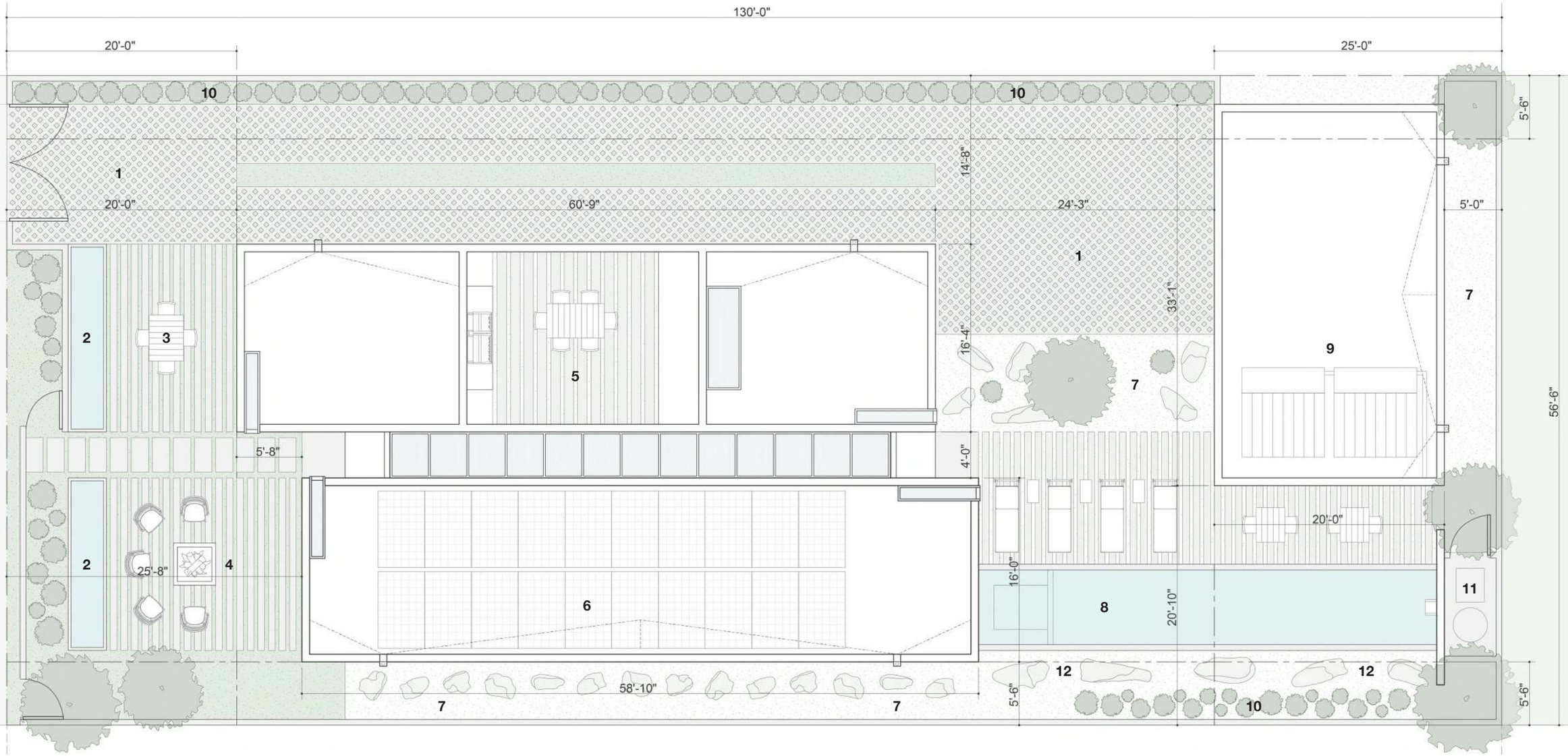


10' FIRE PROTECTION SETBACK

INDOOR-OUTDOOR SPATIAL CONNECTION

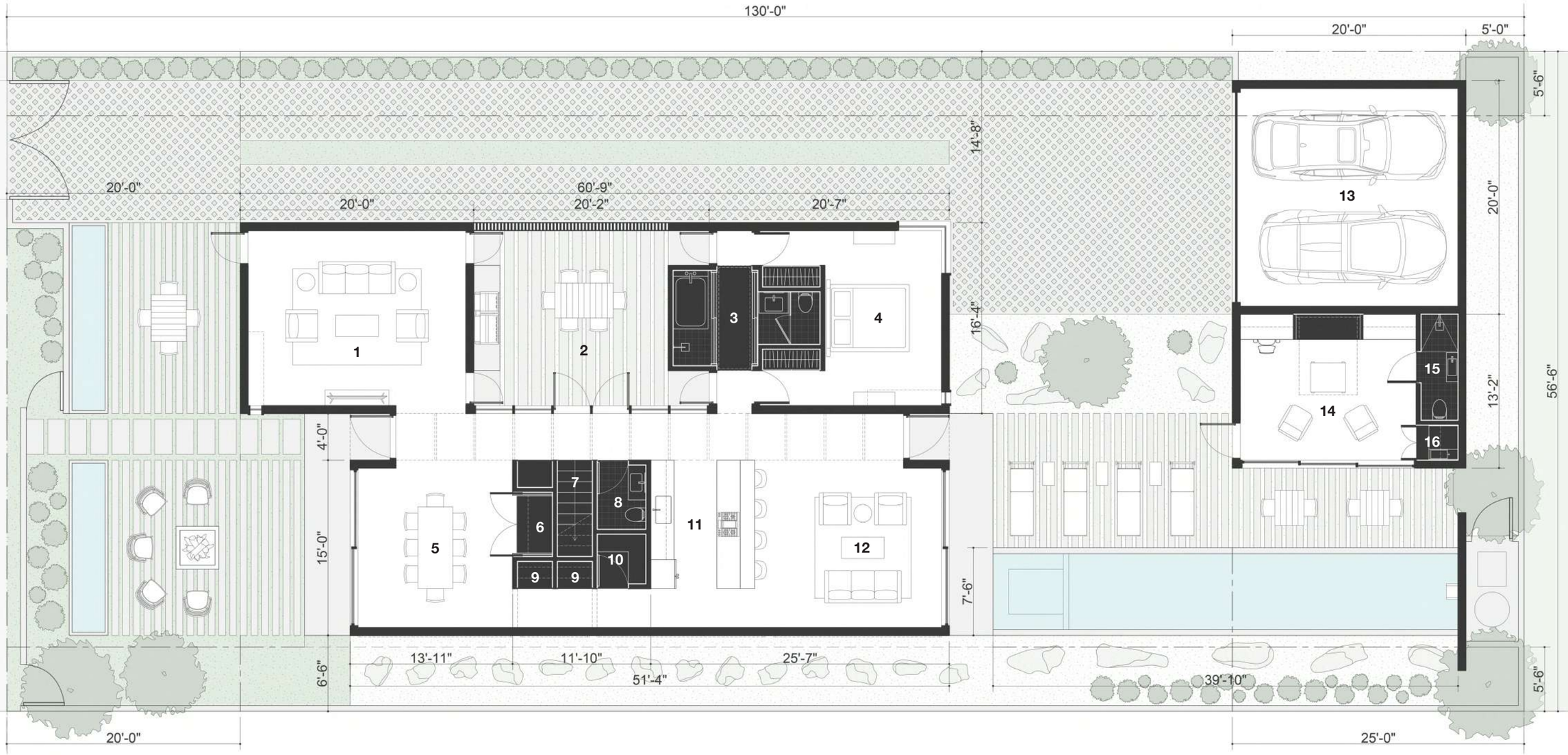
PLANS

SITE PLAN

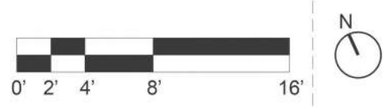


1 - POROUS DRIVEWAY
2 - RETENTION PONDS
3 - OUTDOOR SEATING
4 - OUTDOOR FIRE PIT
5 - OUTDOOR DINING
6 - SOLAR PANELS
7 - GRAVEL LANDSCAPE
8 - POOL AND HOT TUB
9 - SOLAR WATER HEATER
10 - PRIVACY PLANTING
11 - POOL EQUIPMENT
12 - PRIVACY PLANTING

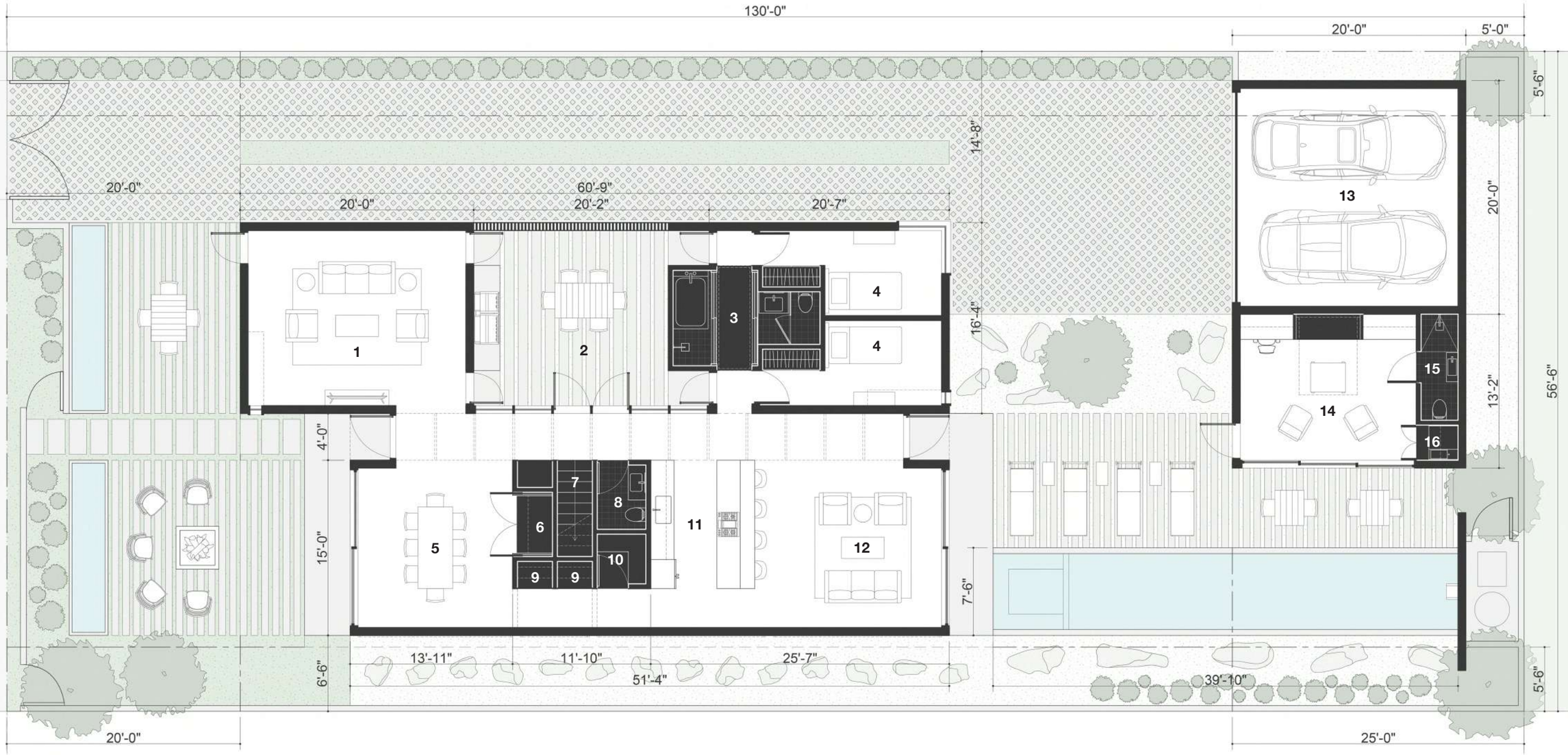
FIRST FLOOR PLAN OPT. 01



1 - LIVING ROOM
2 - OUTDOOR DINING
3 - OFURO BATH
4 - FLEXIBLE BEDROOM
5 - DINING ROOM
6 - BAR/PREP PANTRY
7 - STAIRCASE
8 - POWDER ROOM
9 - PANTRY
10 - LAUNDRY/UTILITY
11 - KITCHEN
12 - FAMILY ROOM
13 - CAR GARAGE
14 - ADU/FLEX SPACE
15 - BATHROOM
16 - KITCHENETTE



FIRST FLOOR PLAN OPT. 02



1 - LIVING ROOM
2 - OUTDOOR DINING
3 - OFURO BATH
4 - FLEXIBLE BEDROOM
5 - DINING ROOM
6 - BAR/PREP PANTRY
7 - STAIRCASE
8 - POWDER ROOM
9 - PANTRY
10 - LAUNDRY/UTILITY
11 - KITCHEN
12 - FAMILY ROOM
13 - CAR GARAGE
14 - ADU/FLEX SPACE
15 - BATHROOM
16 - KITCHENETTE

N

0' 2' 4' 8' 16'

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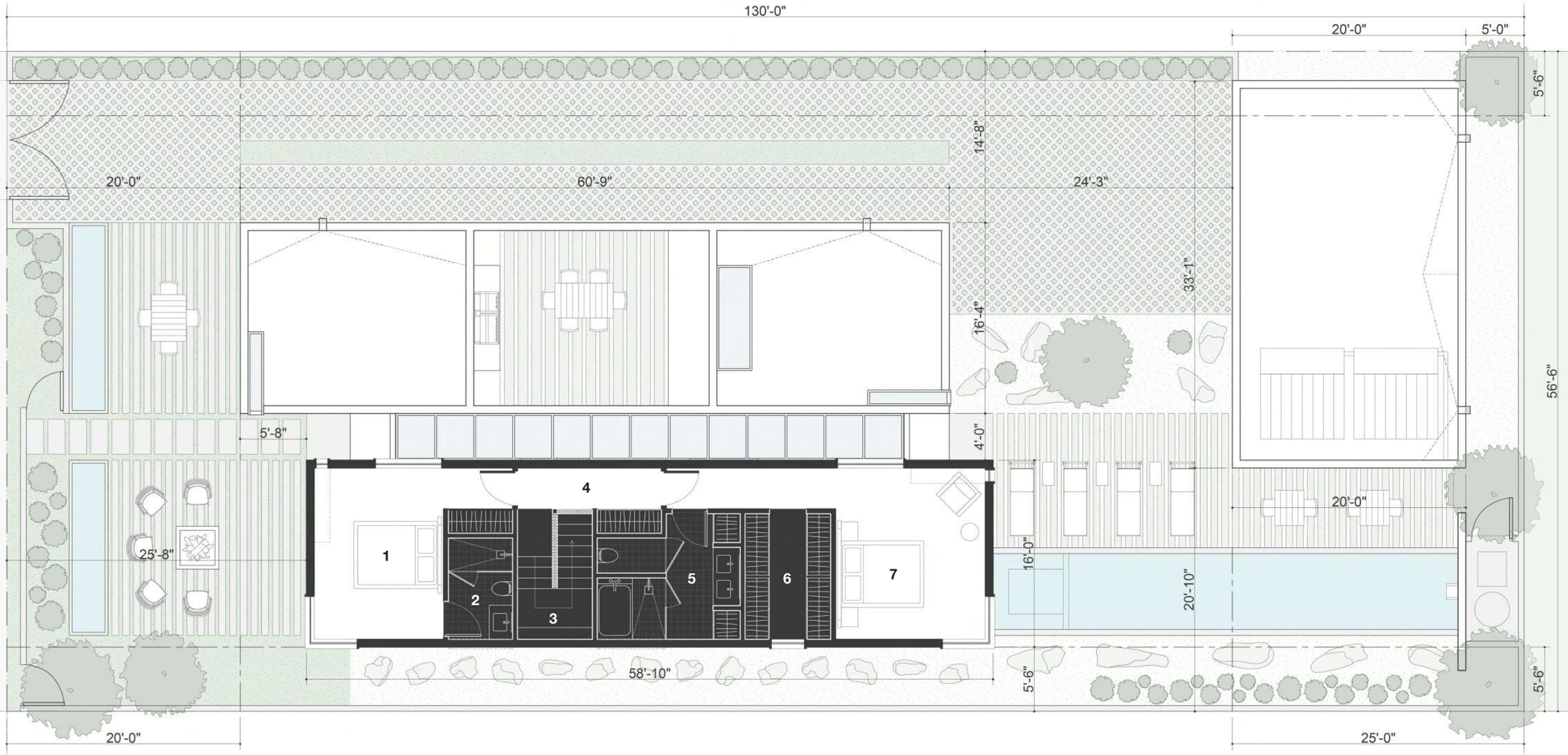
SECOND FLOOR PLAN



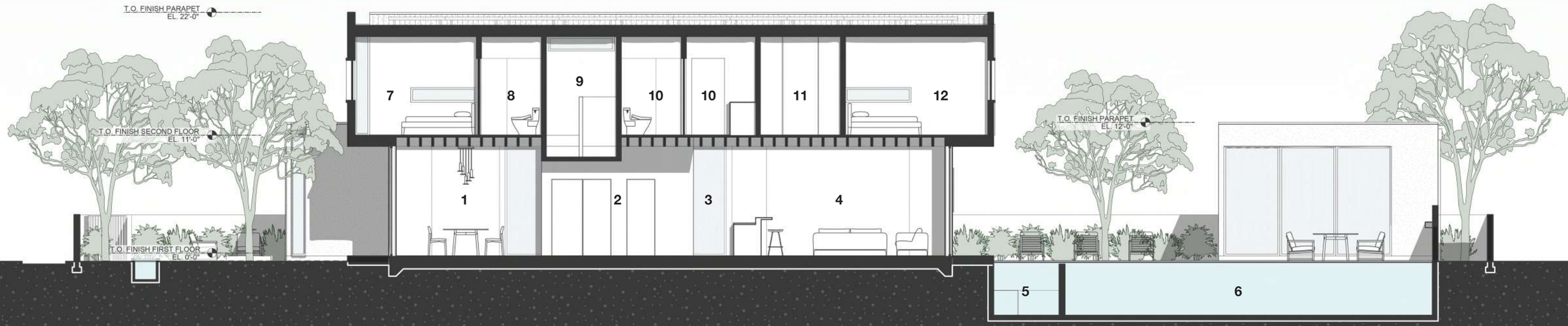
1 - BEDROOM
2 - BATHROOM
3 - STAIRCASE
4 - HALLWAY
5 - MASTER BATHROOM
6 - MASTER CLOSET
7 - MASTER BEDROOM

0' 2' 4' 8' 16'

N

SECTIONS

LONGITUDINAL SECTION

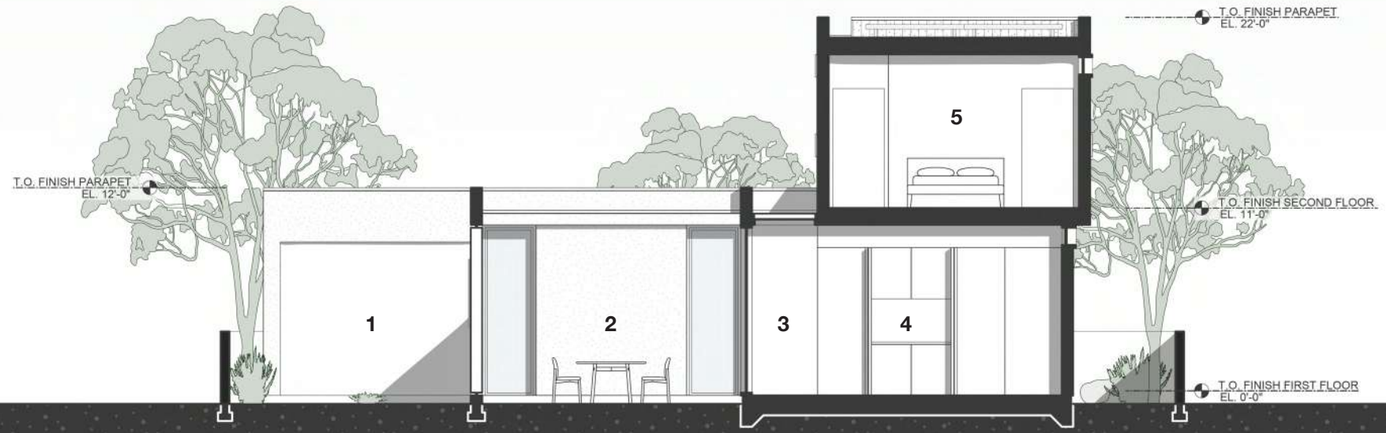


1 - DINING ROOM
2 - HALLWAY
3 - KITCHEN
4 - FAMILY ROOM
5 - HOT TUB
6 - POOL
7 - BEDROOM
8 - BATHROOM
9 - STAIRCASE
10 - MASTER BATHROOM
11 - MASTER CLOSEET
12 - MASTER BEDROOM

0' 2' 4' 8' 16'

STUDIO HAU

TRANSVERSE SECTION



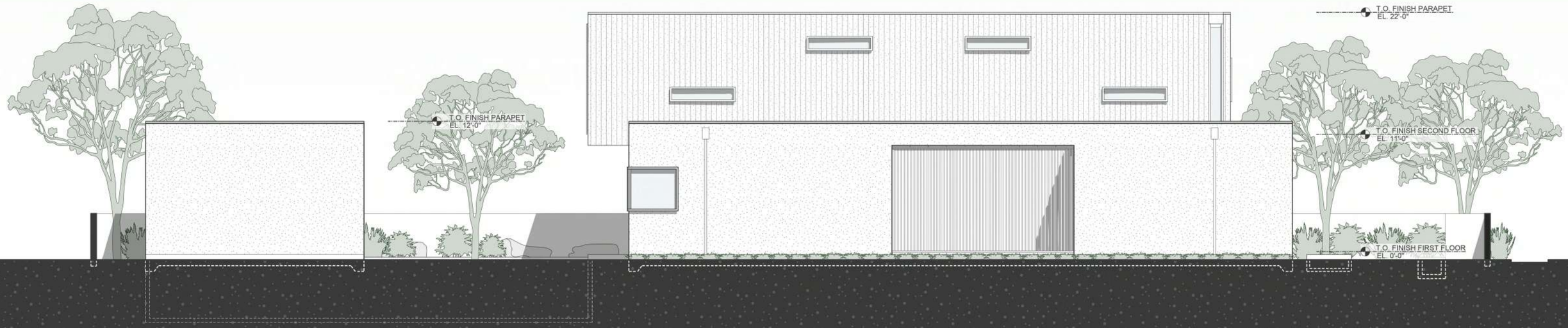
1 - DRIVEWAY
2 - OUTDOOR DINING
3 - HALLWAY
4 - DINING ROOM
5 - BEDROOM

0' 2' 4' 8' 16'

STUDIO HAU

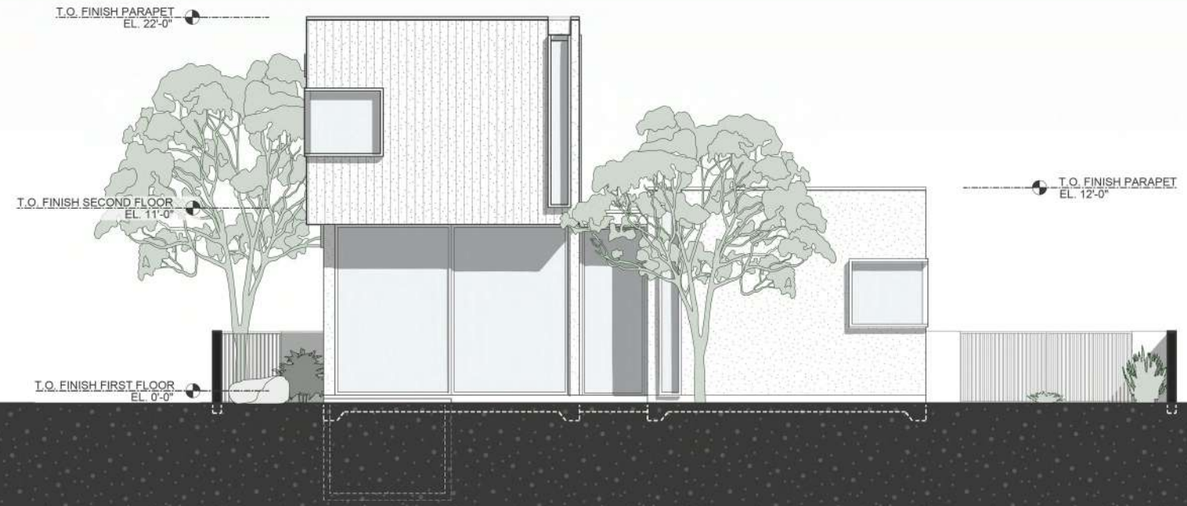
ELEVATIONS

NORTH ELEVATION



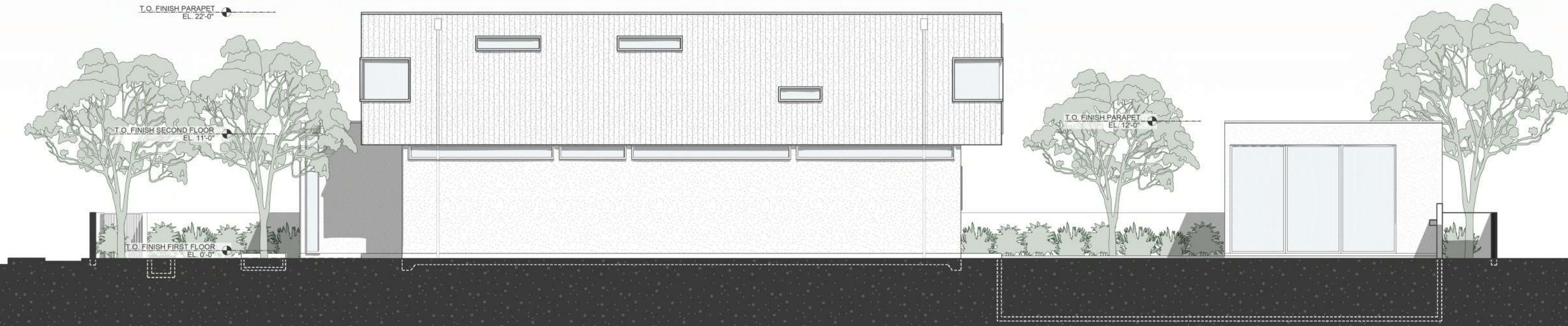
0' 2' 4' 8' 16'

EAST ELEVATION



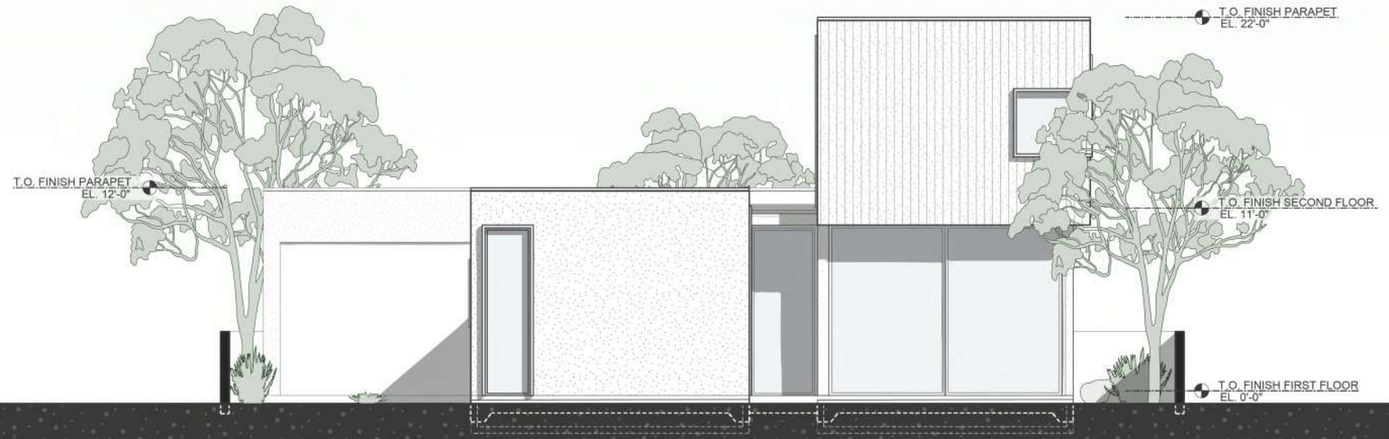
0' 2' 4' 8' 16'

SOUTH ELEVATION



0' 2' 4' 8' 16'

WEST ELEVATION



0' 2' 4' 8' 16'

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RENDERINGS


STUDIO HAUS


ARCHITECTURAL DIGEST