

CASE STUDY 2.0

REBUILDING LOS ANGELES

*A Visionary
Catalog for
Resilient and
Sustainable
Homes*

SPARCHS
STEPHEN PHILLIPS ARCHITECTS

DELIVERABLES

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INTRODUCTION

ABOUT US



At **Stephen Phillips Architects (SPARCHS)**, we believe it is our responsibility to design livable and socially engaging contemporary environments that satisfy the needs and desires of our clientele. We believe that no design is too small or too large to support greater human values, and that every design has a responsibility to engage in a dialogue with contemporary world culture.



As architects, historians, and educators, we have over 25 years of award-winning professional California experience building passive, fire-resistant, and ecologically sensitive residential designs at a variety of scales. At SPARCHS we engage in the study of a rich building tradition that impacts contemporary design, as we offer to our client's valuable insights that support innovative ideas alongside pragmatic solutions.



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PROJECT NARRATIVE - THE BUTTERFLY HOUSE



On the very first night of the terrifying fires that burst out in Eaton Canyon and Pacific Palisades – longtime SCI-Arc faculty member **Claire Phillips** lost her home. Claire was among so many who were pulled into a vortex of an overwhelming tragedy that has changed our lives in Los Angeles forever.

How does a community recover after losing so much so quickly?

Unsure what to do – her brother, Cal Poly Professor and Los Angeles architect, stepped up quickly to help her and the local community figure a way forward.

The Claire Phillips Butterfly House, now permitted and beginning construction, represents a resilient, fire-resistant, community-minded residence that promotes Passive Home strategies alongside cost-effective technologies to nimbly adapt to the complex ever-evolving construction landscape ahead.

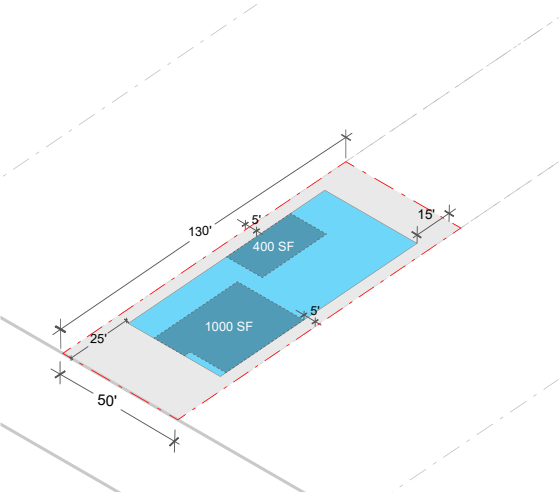
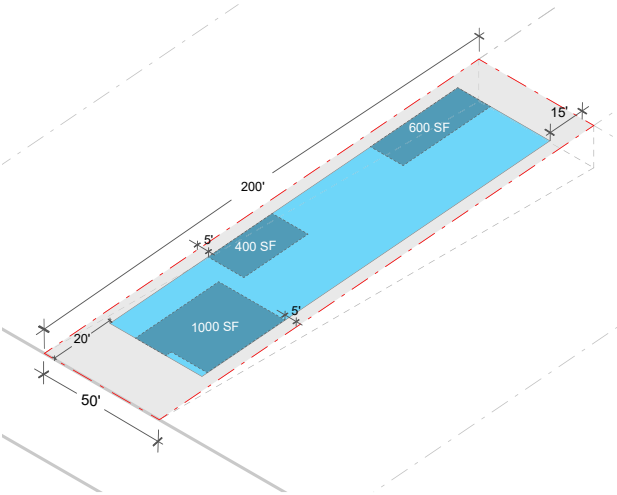
Designed originally for Altadena: **The Butterfly House** fits into its natural topography, climate, and historic surroundings using local readily available building technologies and community labor for its design and construction. Inspired by California mid-century design traditions – the home notably redeploys the brilliance of the butterfly roof with a careful twist, broadening its contemporary use.

Reaching up towards the views while remaining sensitive to local climate conditions of the winter and summer sun, **the roof line carefully mimics the natural topography while creating interior light and amazing views while fulfilling passive sustainability demands.** Designed for Very High Fire Hazard Severity Zones – the hardscape, metal roof, aluminum and concrete skin, ventless insulation cavities, slab-on-grade construction, high-performance windows and all-electric mechanical systems protect the warm, safe, and comfortable interior spaces.

As a Case Study 2.0 home – The Butterfly House can be readily adapted to additional client needs and alternate locations. The one-story design can be permitted and constructed both in Los Angeles County and Los Angeles City as it meets both code jurisdictions. Additionally, The Butterfly House is offered as either a two-bedroom or three-bedroom home, alongside a two-car tandem garage that can be repurposed as a Junior Additional Dwelling Unit (JADU). A one-bedroom attached or detached Additional Dwelling Unit (ADU) is designed to be built in the back yard for rental income.

PROJECT FACT SHEET

PARCEL INFORMATION



ALTADENA

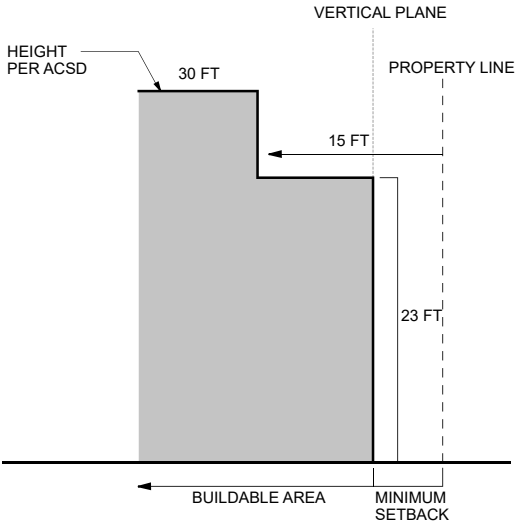
ADDRESS: 221 WAPELLO STREET

Lot Area: 10,000 sf
Zoning: R1-10000 Altadena
Site Dimensions: 50 ft x 200 ft

Front Setback: 20 ft
Side Setback: 5 ft
Rear Setback: 15 ft

Lot Coverage: 60% x Lot Area
= 6000 sf

BUILDING HEIGHT DIAGRAM

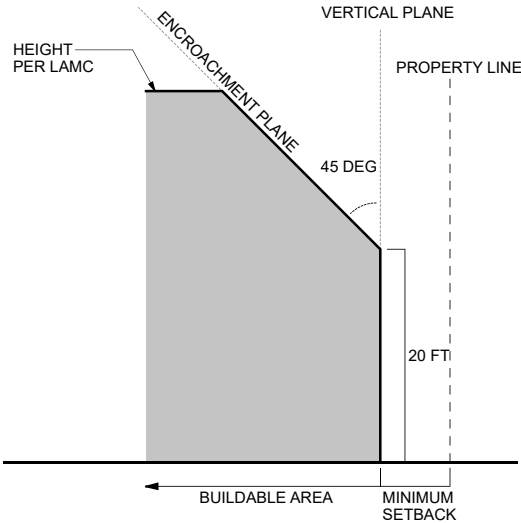


PACIFIC PALISADES

Lot Area: 6,500 sf
Zoning: R1-V1 Pacific Palisades
Site Dimensions: 50 ft x 130 ft

Front Setback: 25 ft
Side Setback: 5 ft
Rear Setback: 15 ft

Lot Coverage: 48% x Lot Area
= 3,120 sf



PROGRAM AND MASSING

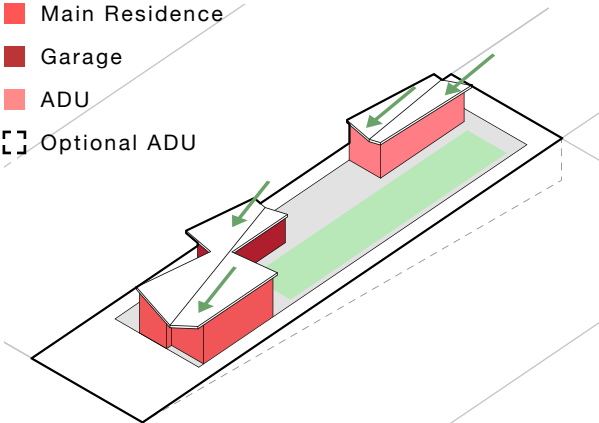
2 Bedroom Single Family Residential w/ ADU

Main Residence (1 Floor): 2B, 2BA @1000 sf
Two-Car Garage (Optional JADU) @ 500 sf
Back & Sideyard Patio

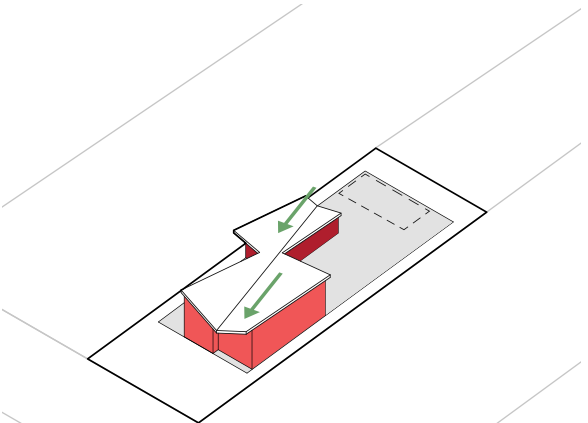
ADU (1 Floor): 1B, 1BA @ 600 sf

Total: 2,100 sf

- Main Residence
- Garage
- ADU
- Optional ADU



50 FT x 200 FT LOT



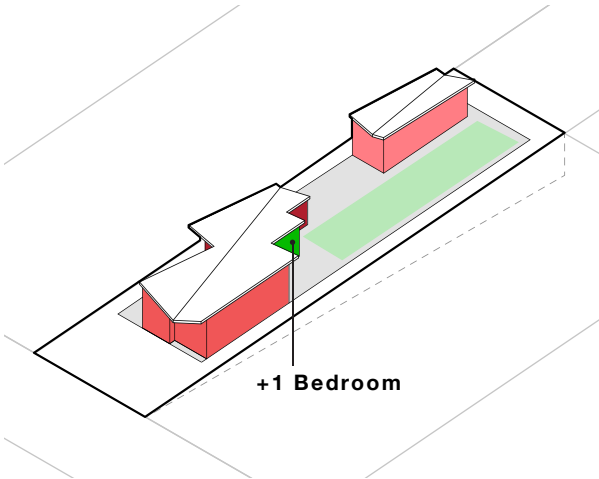
50 FT x 130 FT LOT

3 Bedroom Single Family Residential w/ ADU

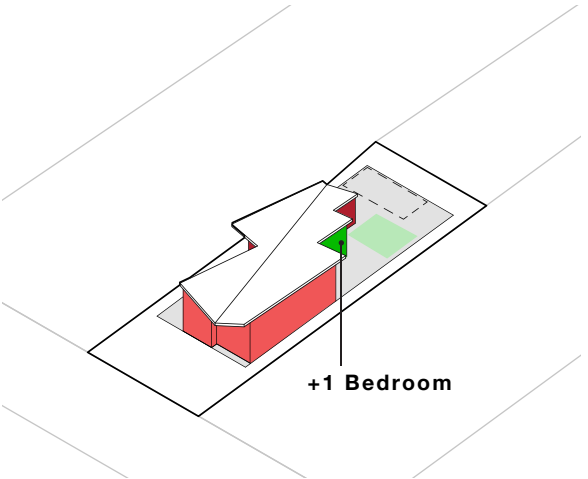
Main Residence (1 Floor): 3B, 3BA @1500 sf
Two-Car Garage (Optional JADU) @ 500 sf
Back & Sideyard Patio

ADU (1 Floor): 1B, 1BA @ 600 sf

Total: 2,600 sf



50 FT x 200 FT LOT



50 FT x 130 FT LOT

The **gently folding roof** plane mirrors the natural environment, embedding the architecture within its surroundings. Expansive additional yard and patio spaces can be shared or separated between the house, garage (JADU) and ADU, offering a variety of individual and communal outdoor living spaces.

Designed with flexibility: The single family home, garage (JADU), and ADU can be attached or detached allowing the buildings to fit together as a kit-of-parts on varying sized lots without changing the overall design. Building units can step up along the hillside terrain or remain at the same height on more flat urban sites.

Whether situated in Altadena, Pasadena, Pacific Palisades, or Malibu the **adaptable massing strategy** of The Butterfly House can adjust to local topographic situations and zoning regulations, allowing the home, garage (JADU), and ADU to accommodate a wide range of conditions.

DESIGN FEATURES

FLEXIBILITY

The kit-of-parts building design with its separate garage (JADU) and ADU can be adjusted to fit on flat, sloping, long, wide, and short sites.

ADDITIONAL SPECIAL FEATURES

The home can include a 600+ square ft. one-bedroom ADU which creates flexible living arrangements and additional renter income. The space between the main home and the ADU can be used as a social outdoor space and garden which seamlessly integrates with the main living spaces of the home. High clerestory windows provide light in areas where privacy is desired.

DEFENSIBLE SPACE INTEGRATION

Low concrete walls surrounding building property lines, dry garden (gravel and pebbles) with fire-resistant and water efficient native plants, pre-cast concrete tile patios and walkways surrounding 5'-0" of all buildings.

EFFICIENCY

The building meets and exceeds California's Title 24 requirements, using an R-38 roof and R-21 wall mineral wool insulated enclosure. Additional solar panels allow for on-site renewable energy generation.

VENTLESS

All roof, floor, eave, overhang, and wall cavities are ventless reducing risk of flame intrusion. Electric heat-pump ducted HVAC (w/ balanced ventilation system where desired) creates an economical heating and cooling solution; ember and flame resistant vents at exhausts vents where required.

BUILDING SIDING

The exterior siding is made of non-combustible cement board panels, manufacturer painted aluminum panels as well as low cast-in-place concrete walls. These materials contribute to a clean and contemporary aesthetic while providing fire hardening and resistance.

WINDOWS & DOORS

High-performance exterior windows and doors are made using aluminum frames, and all glass panes dual-glazed and tempered as required for strength and durability, especially during extreme heat events. Triple glazing is an available option. Openings are strategically located to optimize views, natural cross-ventilation, and daylight access.

SUSTAINABILITY

Roof overhangs and glazing are designed to shade sun during the summer, and allow solar gain during winter for passive temperature control and natural lighting. The ADU or garage (JADU) is equipped with a solar array alongside a back-up battery, rainwater collection, and grey water recycling equipment.

DESIGN QUALITIES

Primary living and dining space are visually and spacially connected with the paved back patio using a custom glass sliding door and clerestory window system.

EMBER-RESITANT FEATURES

Class-A Roof, ventless eaves, non-combustible materials, gutter screens, and concrete hardscape within 5'-0" of buildings all reduce risk of ember ignition.

CUSTOMIZATION POTENTIAL

The home can be customized to both two and three-bedroom schemes. Exterior cladding and interior finishes can be customized to different colors and textures.

ROOFING

Class 'A' Zincalume metal seam roof over DensDeck sheathing, no skylights improve temperature control and prevents unwanted embers and debris.

STYLE FEATURES

The butterfly roof is inspired by California mid-century modern design. Valley-shaped roof line is informed by the natural topography supporting rainwater collection while opening up the interior space to clerestory light and natural view.

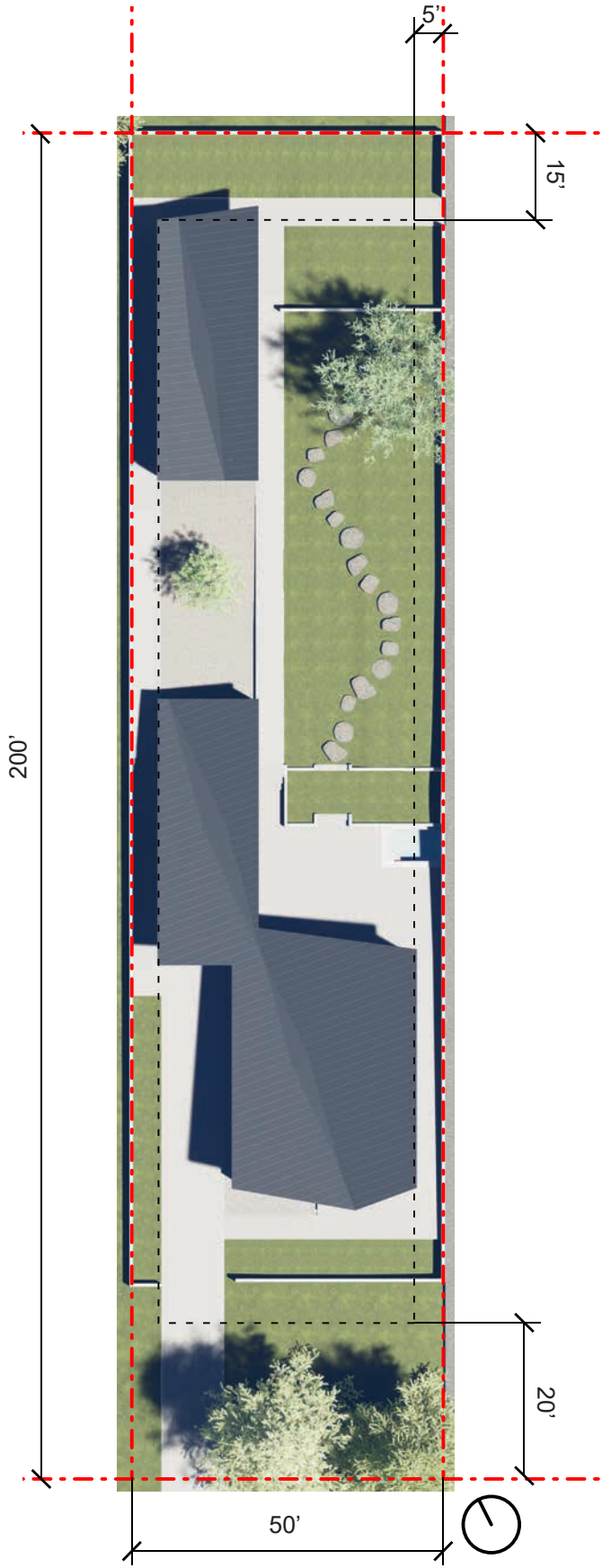
CONSTRUCTION METHODOLOGY

Locally available standard 2x6 timber-frame construction with no primary steel structural members reduces costs and build time. SIP panels can be substituted using pre-fabrication technology.

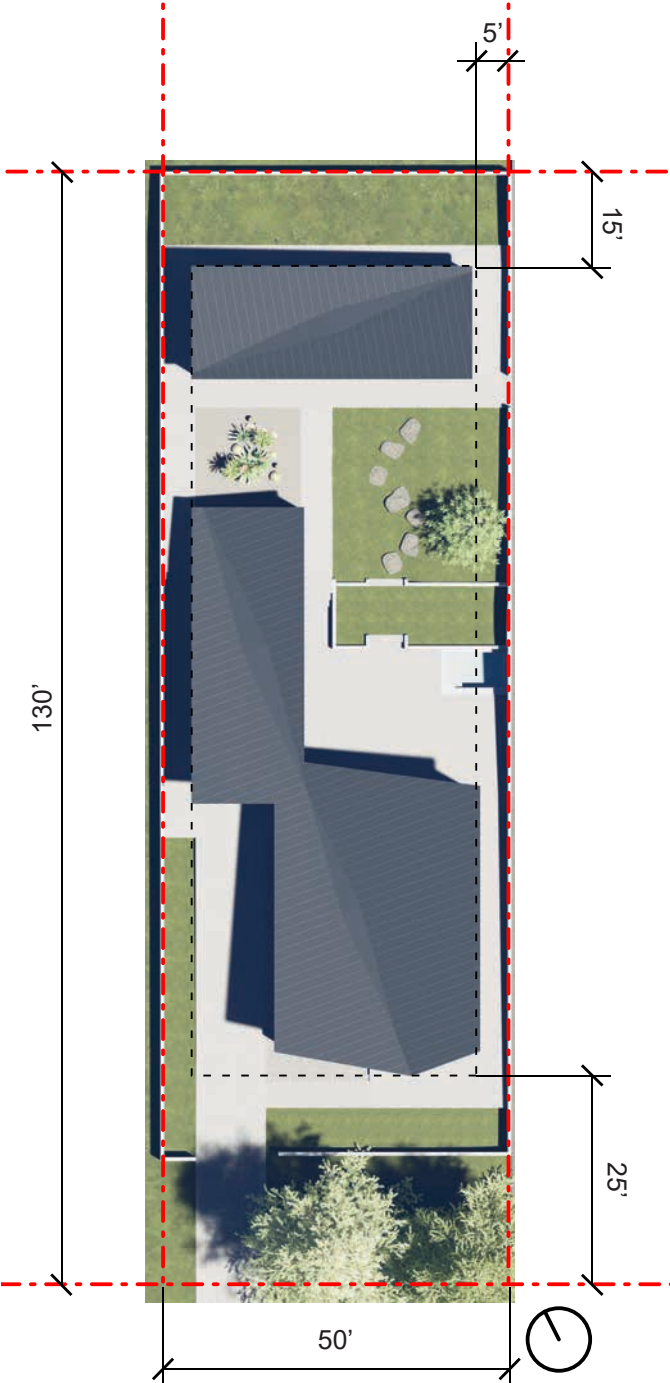
ACCESSIBILITY

The driveway is raised gradually to meet the garage, yard, and side door entries at the rear of the house providing an accessible path of travel for aging in place. The house is built as one-story and has the same finish-floor height throughout with ample 9'-0" min. to 14'-0" max. ceiling heights. The kitchen, living, and dining area can be rearranged based on individual preferences.

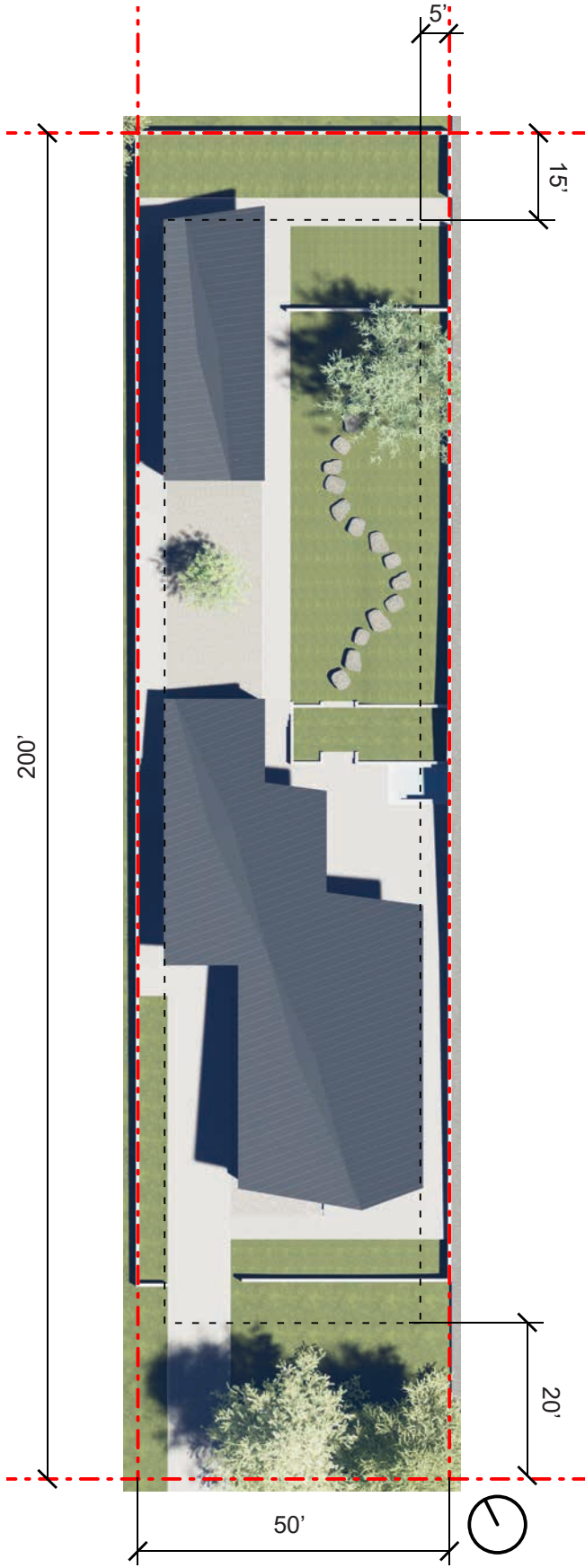
SITE PLANS



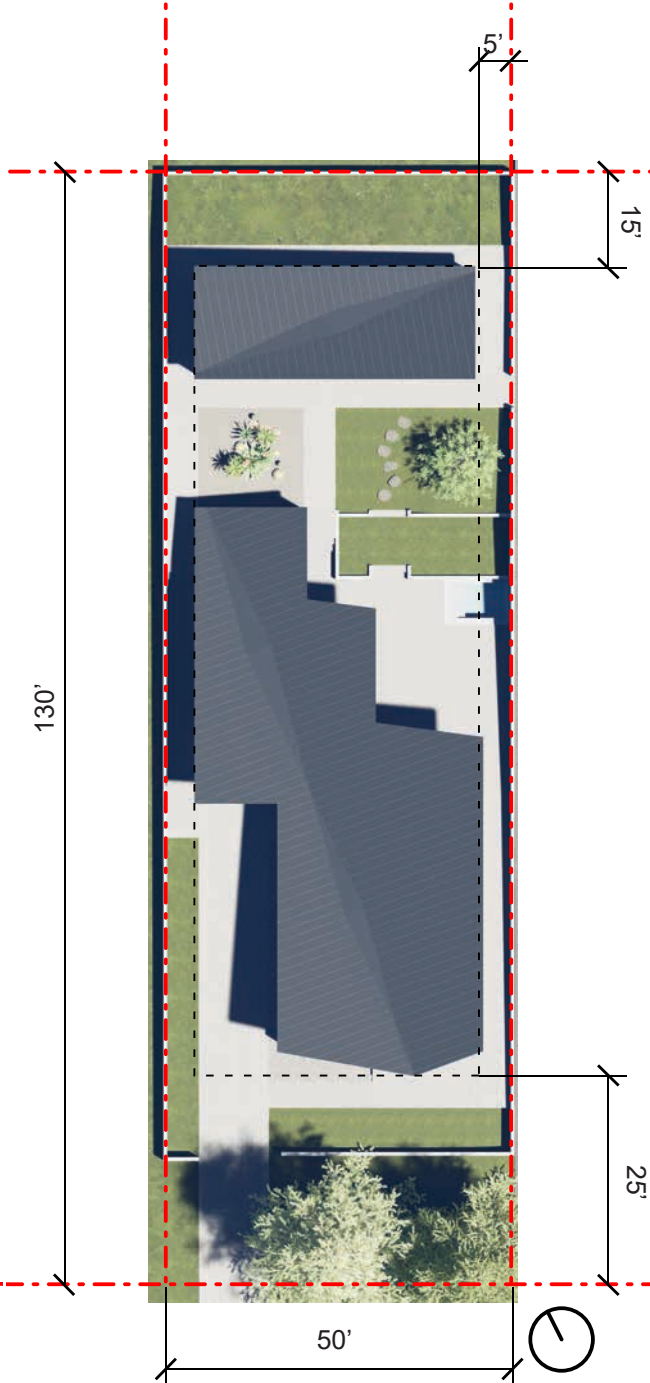
2 BEDROOM 50'x200' LOT



2 BEDROOM 50'x130' LOT



3 BEDROOM 50'x200' LOT



3 BEDROOM 50'x130' LOT

GROUND LEVEL PLAN

2 BEDROOM SCHEME

LEGEND

- BD#

BA#

DR

FP

GA

KI

LR

PA

ST

WD

ABD

ABA

ALR

AKI

AWD
- Bedroom Number

Bathroom #

Dining Room

Front Porch

Two- Car Garage

Kitchen

Living Room

Patio

Storage

Washer / Dryer

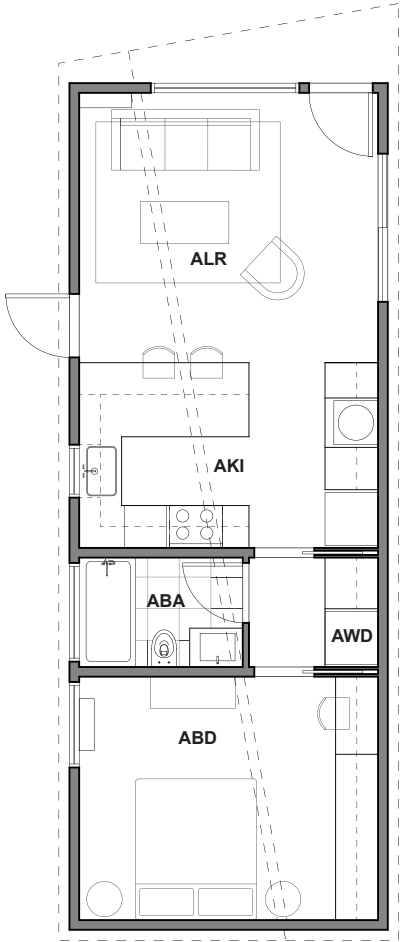
ADU Bedroom

ADU Bathroom

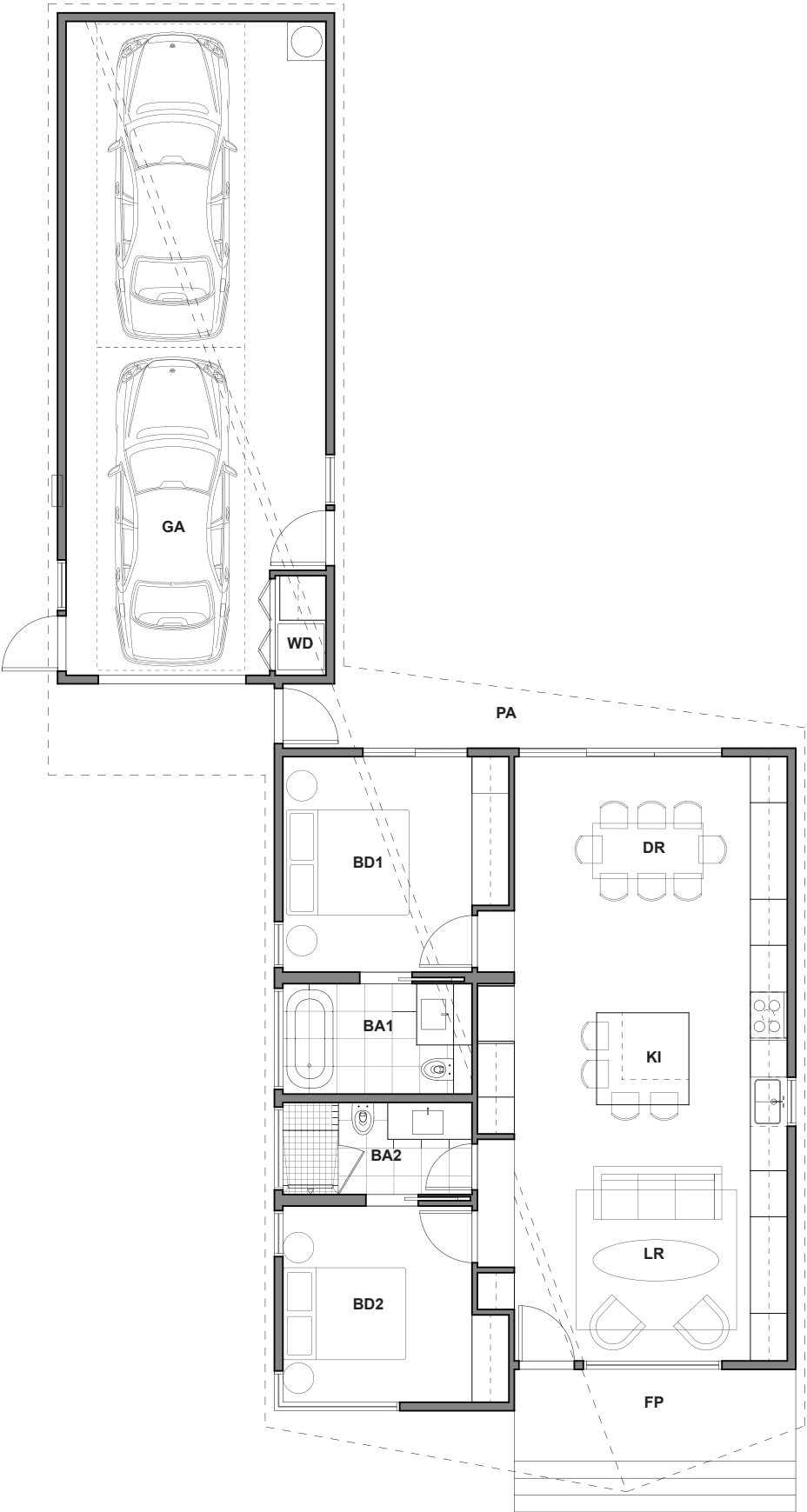
ADU Living Room

ADU Kitchen

ADU Washer / Dryer



ADU FLOOR PLAN



MAIN RESIDENCE
FLOOR PLAN



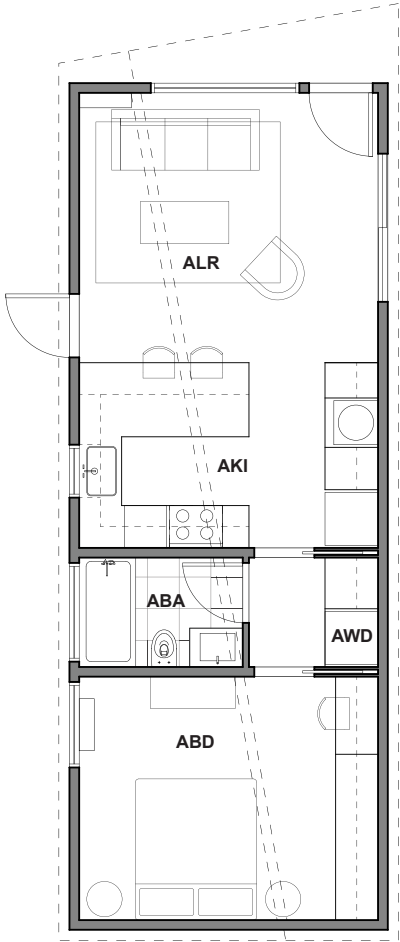
SCALE: 0' 5' 10' 20'

GROUND LEVEL PLAN

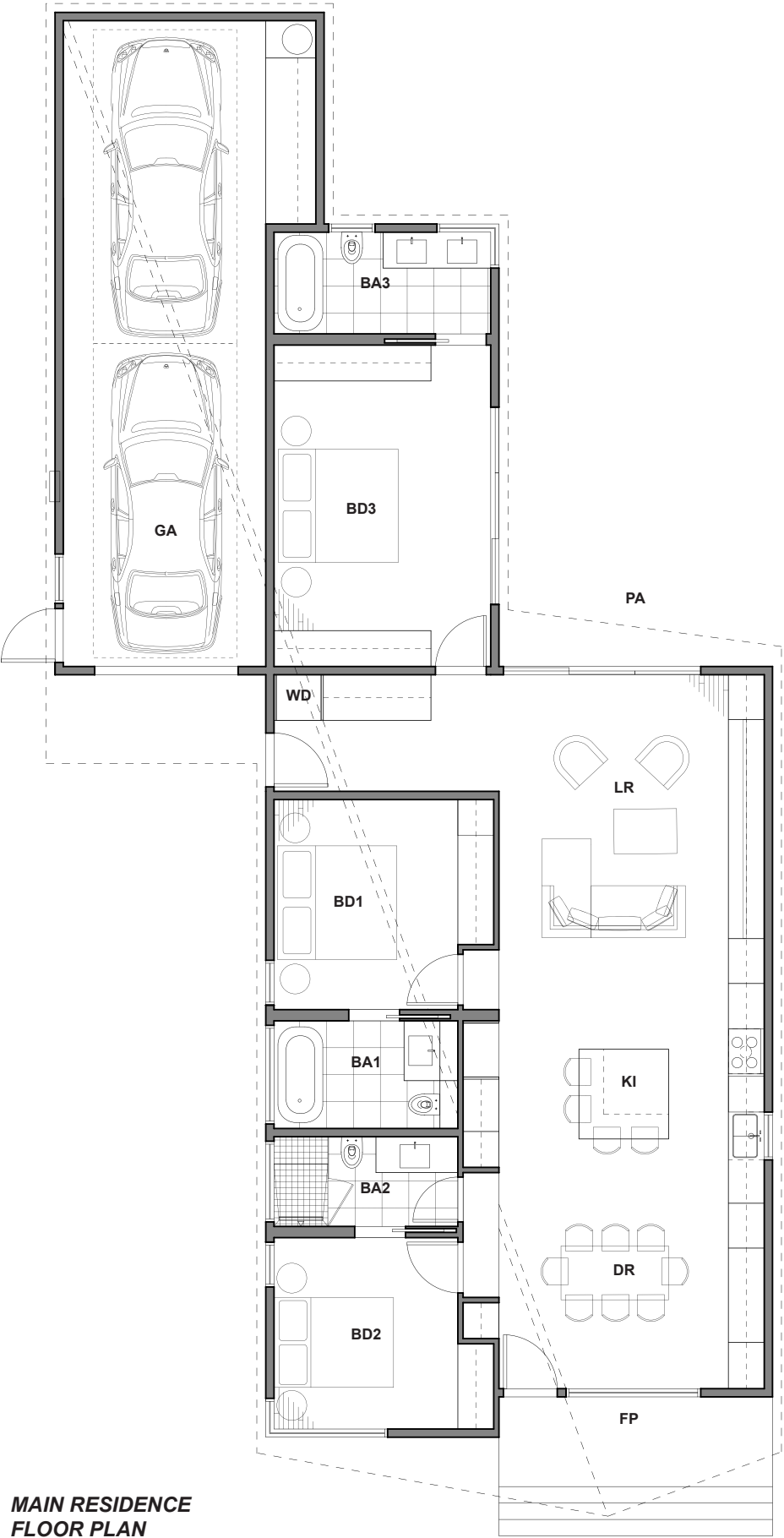
3 BEDROOM SCHEME

LEGEND

- BD# Bedroom Number
- BA# Bathroom #
- DR Dining Room
- FP Front Porch
- GA Two- Car Garage
- KI Kitchen
- LR Living Room
- PA Patio
- ST Storage
- WD Washer / Dryer
- ABD ADU Bedroom
- ABA ADU Bathroom
- ALR ADU Living Room
- AKI ADU Kitchen
- AWD ADU Washer / Dryer



ADU FLOOR PLAN



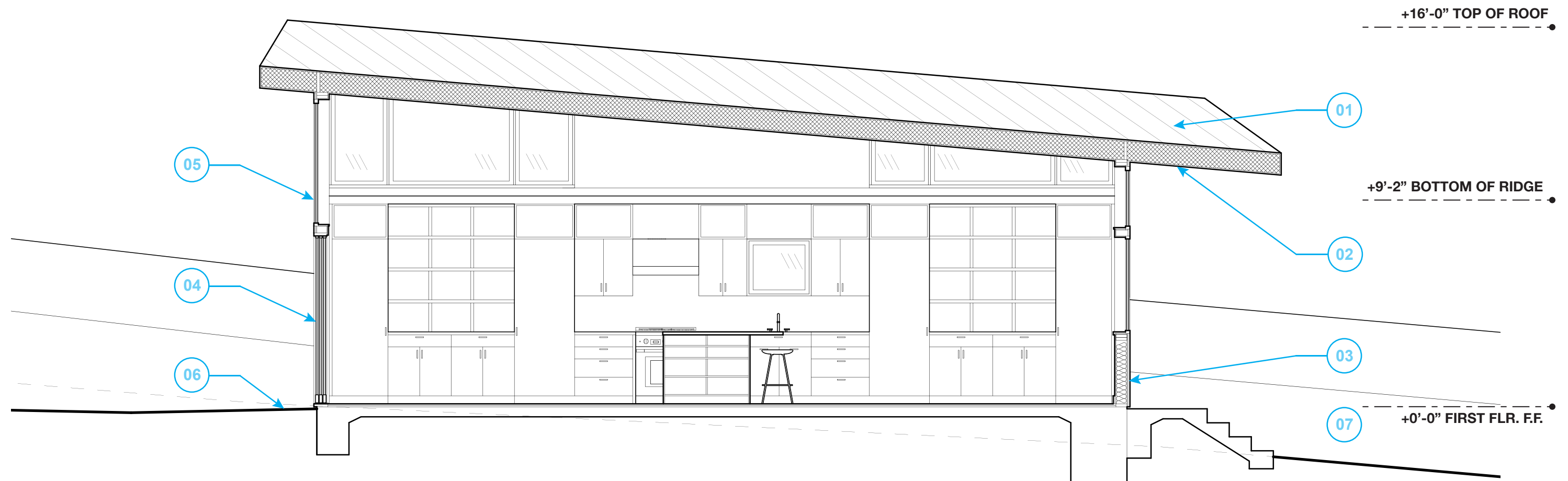
MAIN RESIDENCE FLOOR PLAN



SCALE: 0' 5' 10' 20'

SECTIONS

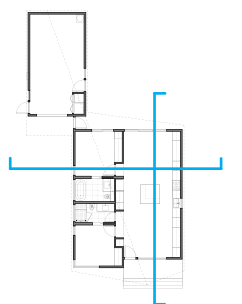
LONGITUDINAL SECTION



EAST FACING SECTION

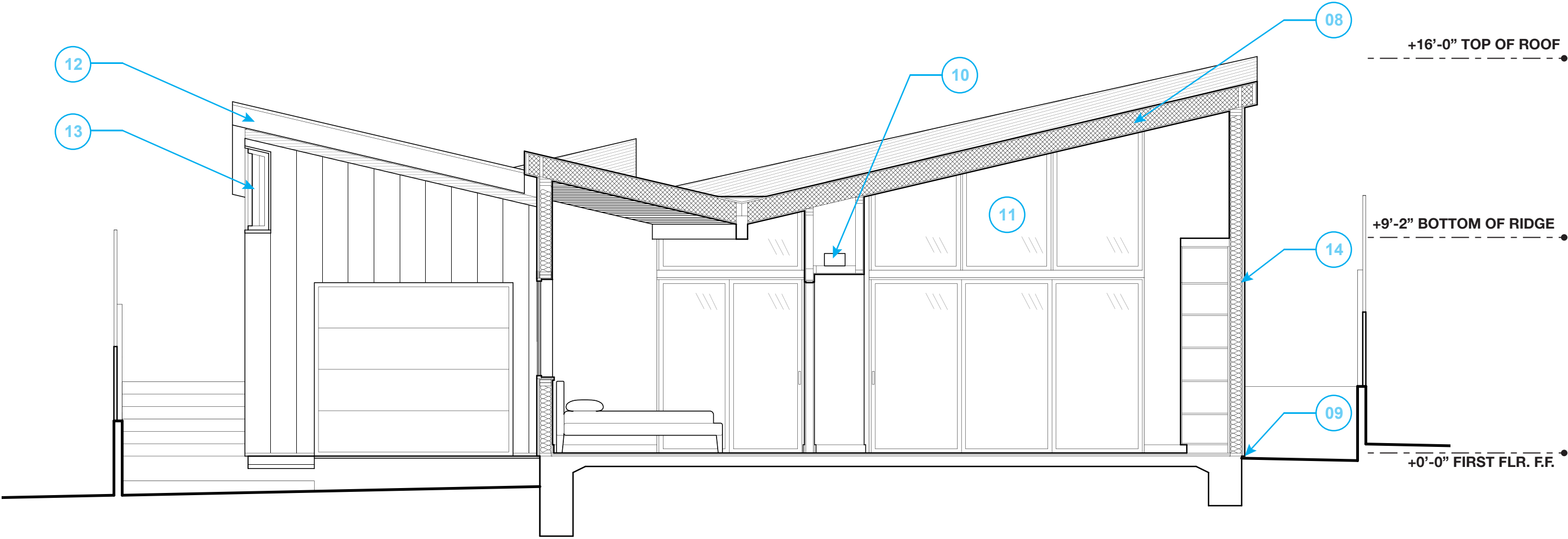
Adaptations to Heightened Fire Risk

- 01 Class 'A' Zincalume roof over DensDeck sheathing
- 02 Ventless roof and eaves with mineral wool insulation
- 03 Concrete and aluminum panel exterior cladding over DensDeck sheathing
- 04 Aluminum frame doors, with tempered, dual- or triple- glazed panels
- 05 High-performance aluminum frame windows, tempered and dual- or triple glazed
- 06 Pre-cast concrete tile patios and walkways 5' width alongside all buildings
- 07 Low concrete perimeter walls



SCALE: 0' 5' 10' 20'

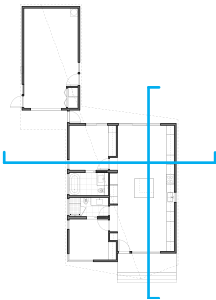
LATITUDINAL SECTION



NORTH FACING SECTION

Passive House Strategies

- 08 R-38 roof and R-21 wall mineral wool insulated high-performance enclosure
- 09 Air-tight construction at windows, doors, and ground connections
- 10 Electric heat-pump ducted HVAC (w/ balanced ventilation system where needed)
- 11 Dual- or triple- glazed tempered windows, operable for cross-ventilation
- 12 Southern overhang blocks summer sun while allowing natural heat gain during winter months
- 13 Clerestory windows instead of skylights, improving temperature control while providing natural light
- 14 Vapor barriers on all exterior walls to prevent unwanted moisture



SCALE: 0' 5' 10' 20'

ELEVATIONS

MAIN BUILDING



MAIN BUILDING



+16'-0" TOP OF ROOF

+9'-2" BOTTOM OF RIDGE

+0'-0" FIRST FLR. F.F.

WEST



+16'-0" TOP OF ROOF

+9'-2" BOTTOM OF RIDGE

+0'-0" FIRST FLR. F.F.

EAST

ADU



NORTH



+12'-2 1/2" TOP OF ROOF

+8'-0" BOTTOM OF ROOF

+0'-0" ADU FIRST FLR. F.F.

WEST



SOUTH



+12'-2 1/2" TOP OF ROOF

+8'-0" BOTTOM OF ROOF

+0'-0" ADU FIRST FLR. F.F.

EAST

RENDERINGS



EXTERIOR VIEW - FRONT



INTERIOR VIEW - MAIN KITCHEN



INTERIOR VIEW - ADU KITCHEN



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EXTERIOR VIEW - BACK YARD AND PATIO

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