

Sub / Merge : Subdivisions that Connect

Approach

Consideration for sensitive densification in Los Angeles as a response to the city's ongoing housing shortage should focus on the **organic evolution** of neighborhoods toward a more **sustainable community**. The gentrification that so commonly follows densification has potential to be combatted through strategies of retention of existing residents, and more inclusive and **affordable** models of ownership. **Sub/Merge** is a model for a versatile framework that seeks to subdivide existing single family residential parcels into smaller lots that afford a greater range of family types with varying income levels the possibility of owning their own home, while retaining the scale and character of the existing neighborhood. This model addresses the fabric of Los Angeles' single-family residential communities, from Vermont Square to Atwater Village to Van Nuys, while allowing for flexibility that serves the specific needs of each neighborhood.

Subdivision Strategy

Sub/Merge subdivides a typical 7,500 sf lot into components that allow up to three new dwelling units and new community spaces, as well as maintaining the existing single family home:

Lot A includes the existing single family home on a reduced lot size of approximately 3,500 sf that preserves the neighborhood character and scale at the street frontage. The existing house can be reconfigured with a small addition to allow an additional **ADA Dwelling Unit** to encourage multi-generational living. Underutilized front yard space is activated as the primary private outdoor space for the single family home, and a small **Accessory Unit**, aka **The Lemonade Stand**, that can function as a home office or allow for a small-scale entrepreneurial opportunity to sell homemade goods, encouraging community support and connection.

Lot B is a new 2,500 sf subdivided parcel at the rear of the lot that offers potential for private ownership or development by a Community Land Trust (CLT). A **New Duplex** allows for mindful densification with massing that is compatible with the existing context. Careful consideration of indoor-outdoor conditions and relationships between multiple households drive the upside-down space planning that locates living spaces on the upper level and private spaces at the lower level.

The **Communal Easement**, aka **The Shared Backyard**, provides a common space for planned and spontaneous interactions, enhancing the connection for all the residents of Lot A and B.

Agricultural Easements at the street and alley allow for portions of the parcel to be managed and maintained by a CLT for urban agriculture or community gardens to create productive landscapes to serve as a buffer between the public way and private spaces.

The public way can be treated as **Green Alleys** and **Slow Streets** to create protected lanes and additional open space for pedestrians to run, bike or scoot through their neighborhood.

Sustainable Communities

Sub/Merge allows densification to occur **organically**, across separate parcels on each block. Each subdivided parcel allows for a range of **flexibility** in use over time for various needs throughout life and evolving family composition. This **adaptability** encourages multi-generational living, which helps maintain the culture, ideals and family values currently present among the many communities of Los Angeles.

Comprehensive personal **wellness** remains a guiding principle for growth. This framework promotes a balance of private and social spaces, both indoor and outdoor, for residents to work, create, play, and relax. Density is increased without compromising for adequate space, light and airflow throughout the property, creating a healthy environment and connection to nature.

Densification requires that each parcel carry greater **ecological performance** within reduced landscaped areas. The landscape actively seeks to expand the tree canopy, furnish urban agriculture opportunities for residents, and provide low-water landscaping with stormwater gardens positioned to capture and retain rainwater.

Passive and active building strategies are implemented to create a **Zero Net Building** model for Los Angeles by harnessing existing solar and wind patterns for resident comfort throughout the year. The placement of the structures, overhangs, clerestory windows, deciduous planting, and renewable energy sources help to achieve **carbon neutrality** and status as a **Zero Energy Community**.

Expansion of housing opportunities for Angelenos is grounded in economic, environmental and social issues, however the soul of housing embraces **human centered design** principles with the human experience at the forefront.



Site Plan

Site Plan

- A. Proposed Lot
- B. Slow Street
- C. Green Alley
- D. Existing Residences

Lot Plan

- 1. Existing Single Family Residence / Accessible Unit
- 2. New Duplex
- 3. Accessory Unit, aka **The Lemonade Stand**
- 4. Agricultural Easement
- 5. Communal Easement, aka **The Shared Backyard**
- 6. Shared Outdoor Space
- 7. Private Outdoor Space
- 8. Parking Area

Lot A: 4,500 SF

Existing Single Family Home: 903 SF - 2 Bed, 2 Bath

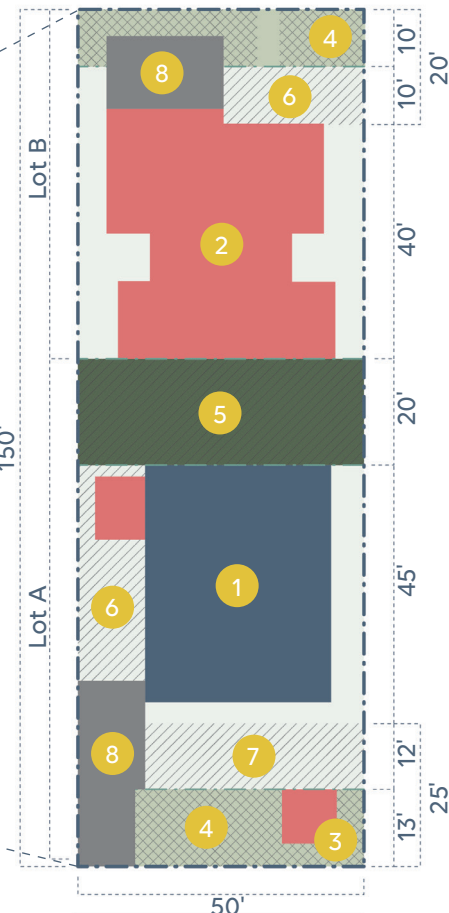
ADA Dwelling Unit: 345 SF - Loft, 1 Bath

Accessory Unit: 100 SF

Communal Easement: 1000 SF

Agriculture Easement: 452 SF

Parking: 1 accessible parking stall, 1 standard parking stall



Lot Plan

NTS

Green Alley

2 Parking Stalls

Tenant Unit #1 Lot B: Parents with One Child

Flex Spaces: Add'l bedroom, office, or music room

Resident Lot A: Grandparents

2 Parking Stalls

Agricultural Easement: Community Garden

Agricultural Easement: Community Garden

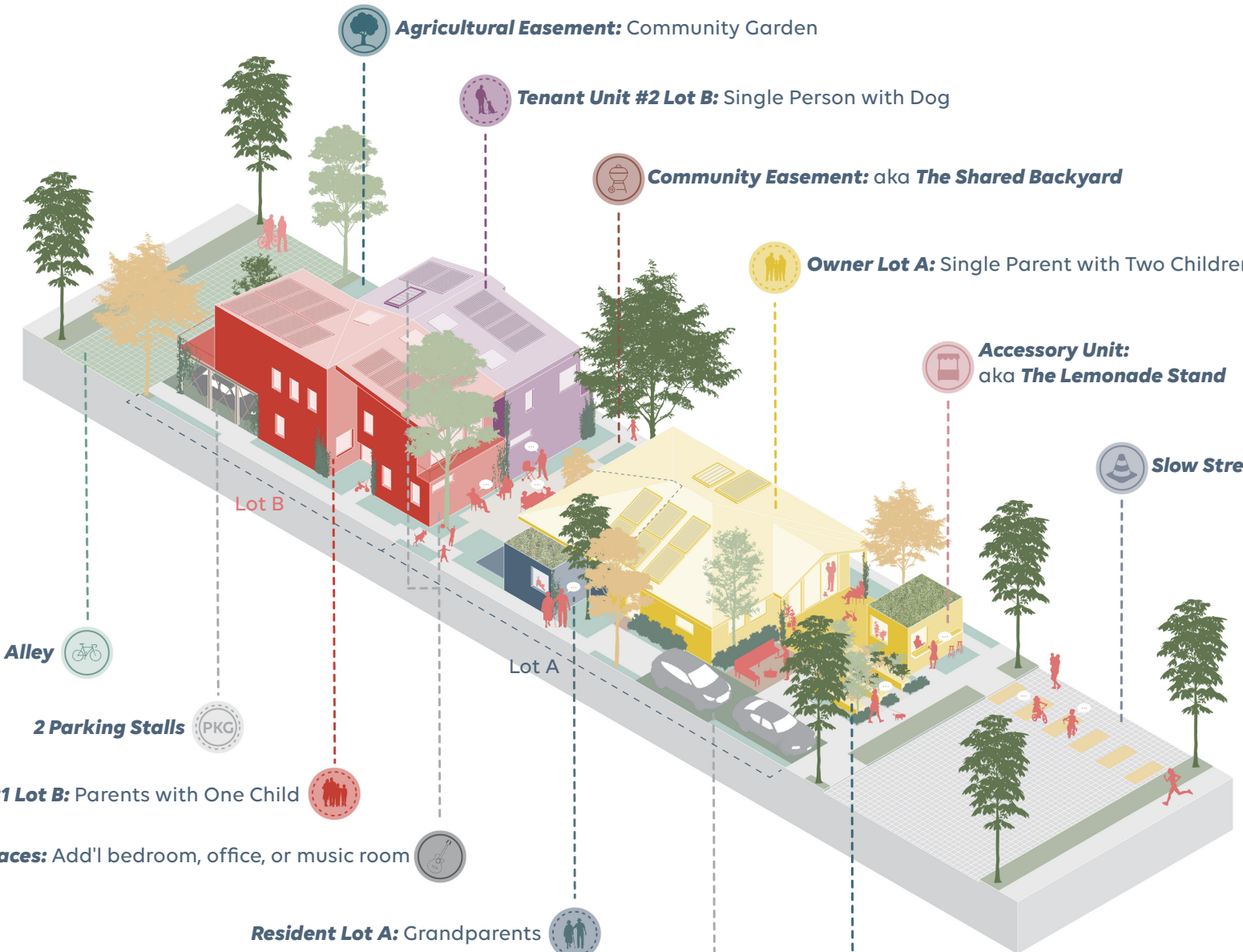
Tenant Unit #2 Lot B: Single Person with Dog

Community Easement: aka **The Shared Backyard**

Owner Lot A: Single Parent with Two Children

Accessory Unit:
aka **The Lemonade Stand**

Slow Street



Program/Use Diagram

The multi generational household uses **the Lemonade Stand** to sell homemade fare based on family recipes and handmade wares on the weekends. **The Shared Backyard** provides all of the residents a common area to cook, dine, play, and relax. There is space available for (3) standard parking stalls and (1) accessible parking stall with flexibility to modify the requirements depending on the needs of each neighborhood.

33'



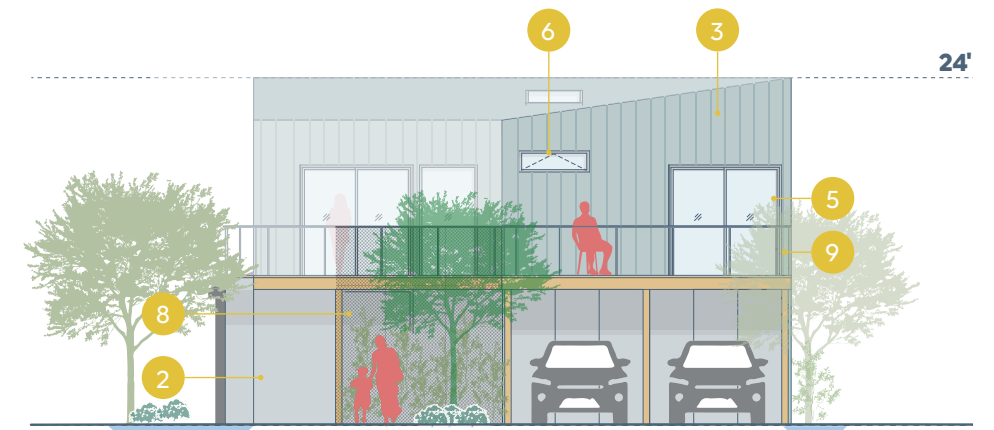
South Elevation - Existing Single Family Home

33'



South Elevation - Duplex (Communal Easement)

33'



North Elevation - Duplex (Green Alley)

33'



West Elevation

Lot B

Lot A

Elevations

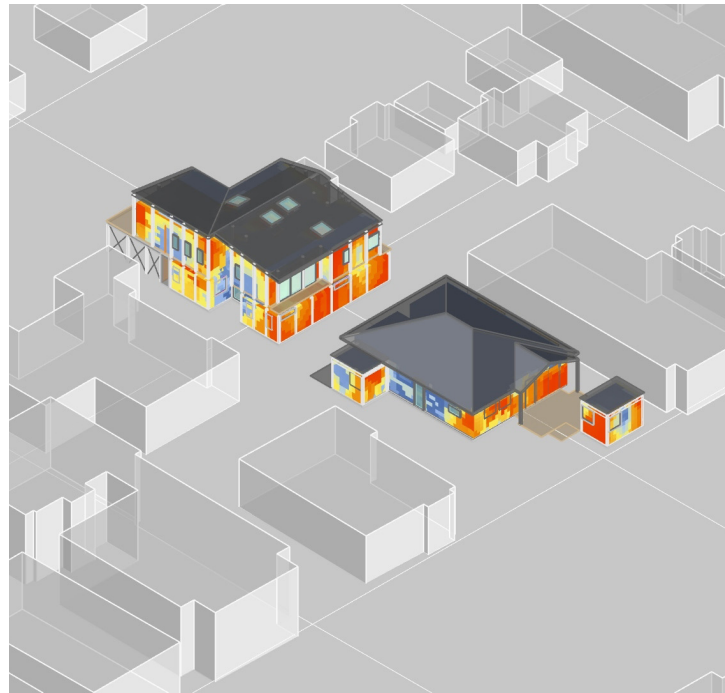
1. Cool Roof
2. Stucco Finish
3. Metal Cladding
4. 4'x4' Casement/Fixed Window
5. 8'x8' Sliding Door
6. 1'-6"x4' Clerestory Hopper Window
7. 2'x4' Casement Window
8. Cable Net with Vine Screen
9. Metal Guardrail with Cable Net
10. Operable Skylight
11. Stormwater Infiltration Planters

Maximum Height

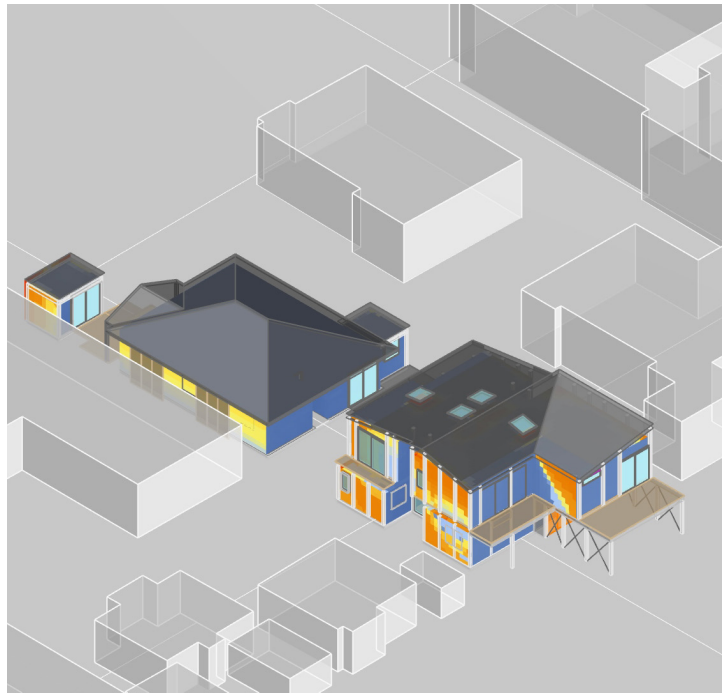
Sub/Merge demonstrates that densification does not necessarily equate to building taller structures. Proper arrangement of program and new methods of construction can create dense urban housing that still provides natural daylight and ventilation into each individual space.

Upside-Down Space Planning

Upside down space planning positions sleeping spaces at the ground level, which are more compatible with the adjacent existing bedrooms of the single family home. Locating the living spaces on the upper level allows them to be directly connected to the private outdoor spaces.



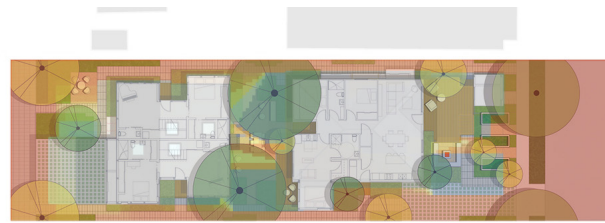
Peak solar radiation massing study - Southwest



Peak solar radiation massing study - Northeast



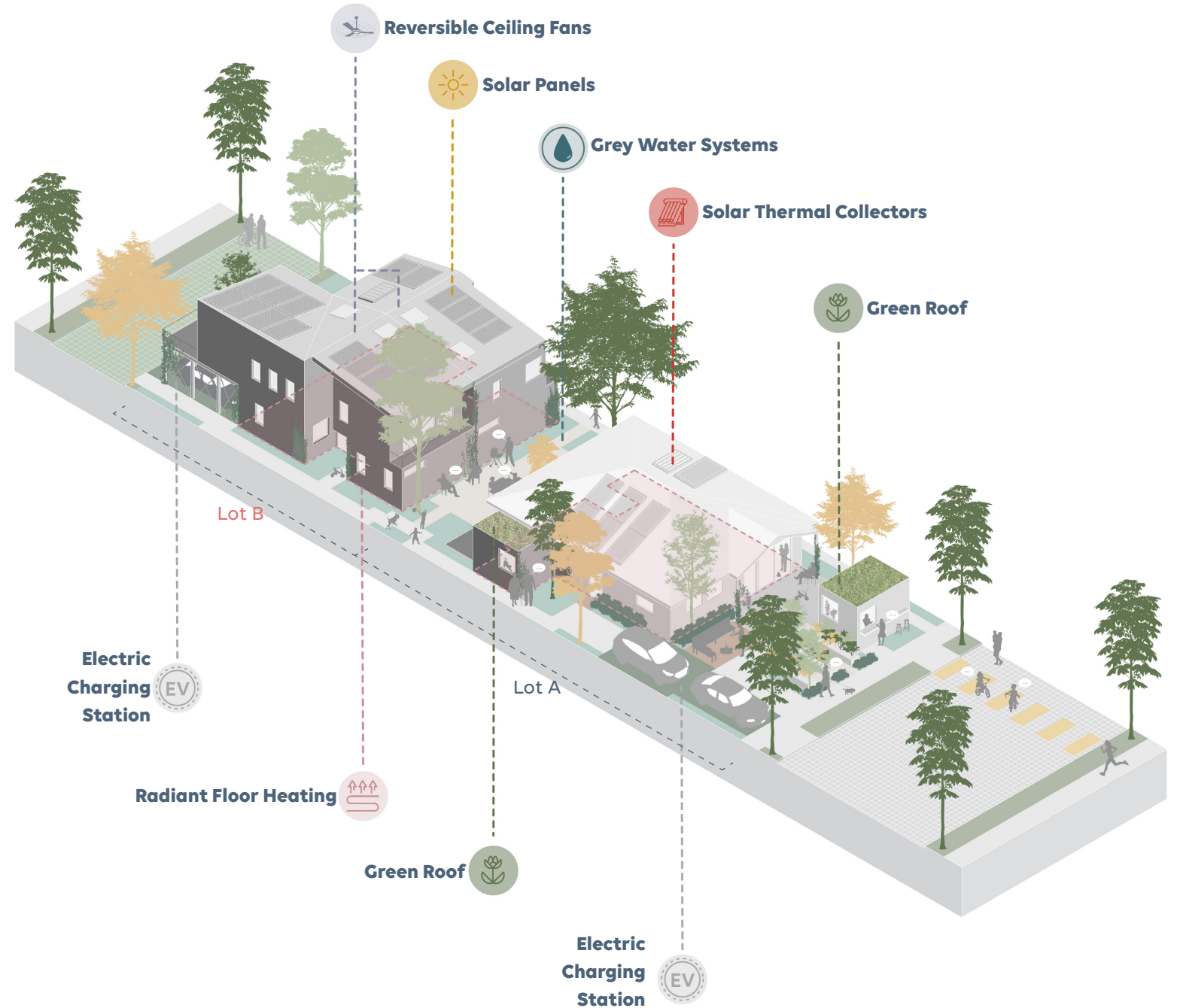
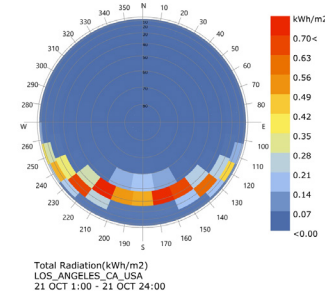
Outdoor micro climate map



Maximum sun exposure for the location of planting on site

Passive Building and Landscape Strategies

- The massing of the building allows for south-western winds to cool down the communal easement and the units during the summer, while blocking northern easterly winds in the winter to stop any cold fronts from entering the site.
- Overhangs, recessed windows, large shade trees and vine screens are built within the architecture and landscape to allow for cooling in the summer, but allow to heat the units in the winter.
- Operable Skylights and Clerestory windows are designed for daylight and air to penetrate deep within the units, which would minimize electrical usage during the day.
- Roof slopes are directed internally towards the open spaces where the landscape could retain and filter the runoff before it goes to the street or alley.
- Light colored permeable pavers and green roofs reduce the **heat island effect** for the lot and if the model is implemented throughout the neighborhood it would drastically reduce it for the whole block and even the city.
- Climate appropriate drought tolerant plants and large shade trees are located at open spaces and courtyards with the most sun exposure, which are able to shade and cool the structures and site to minimize the **heat island effect**.



Active Building Strategies

- Active building strategies like solar panels, solar thermal collectors, radiant heating, EV charging stations, drain water recovery and reversible fans are implemented within the units to keep them comfortable and efficient all year long.
- Low emissivity glazing and **"healthy"** local materials are used for construction to achieve a **Net Zero Carbon** footprint.

Active Landscape Strategy

- Incorporate vegetated swales increasing storm water capture and use greywater and roof water to irrigate planting areas
- Incorporate food gardens and the communal easement for social interaction, community well-being & health.

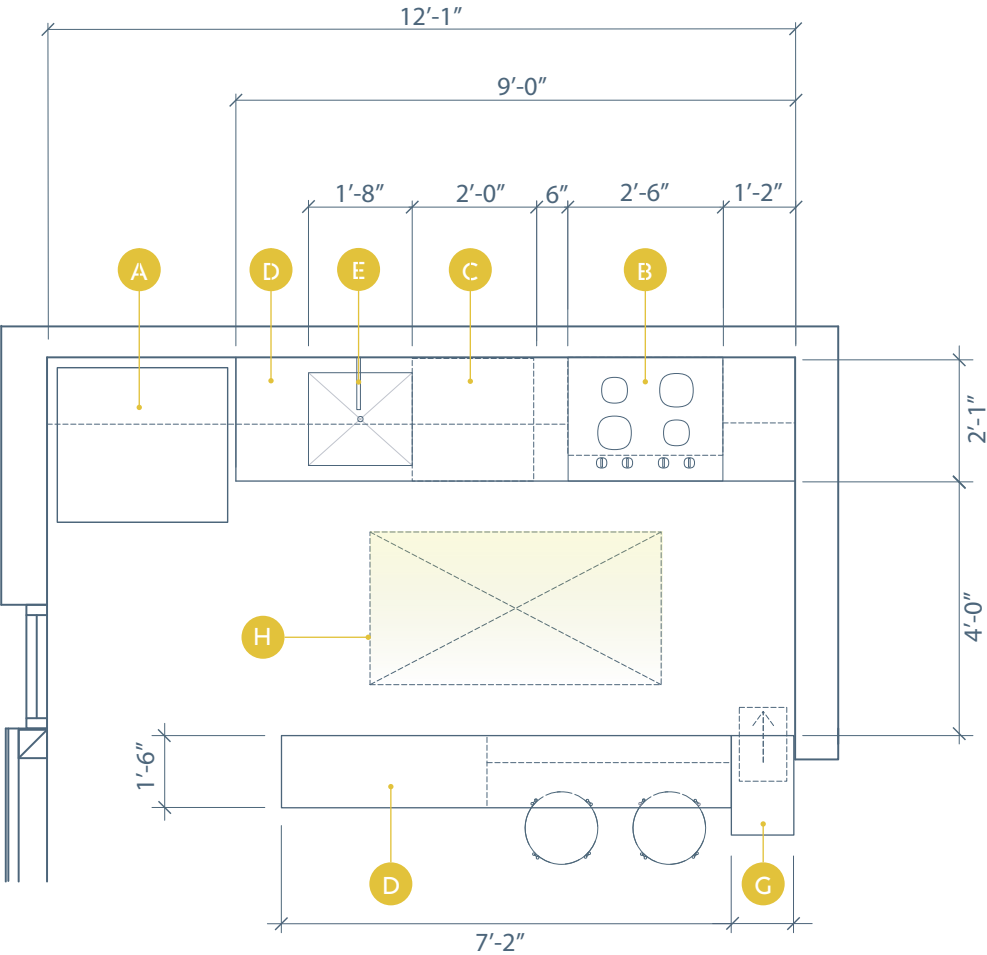


Kitchen

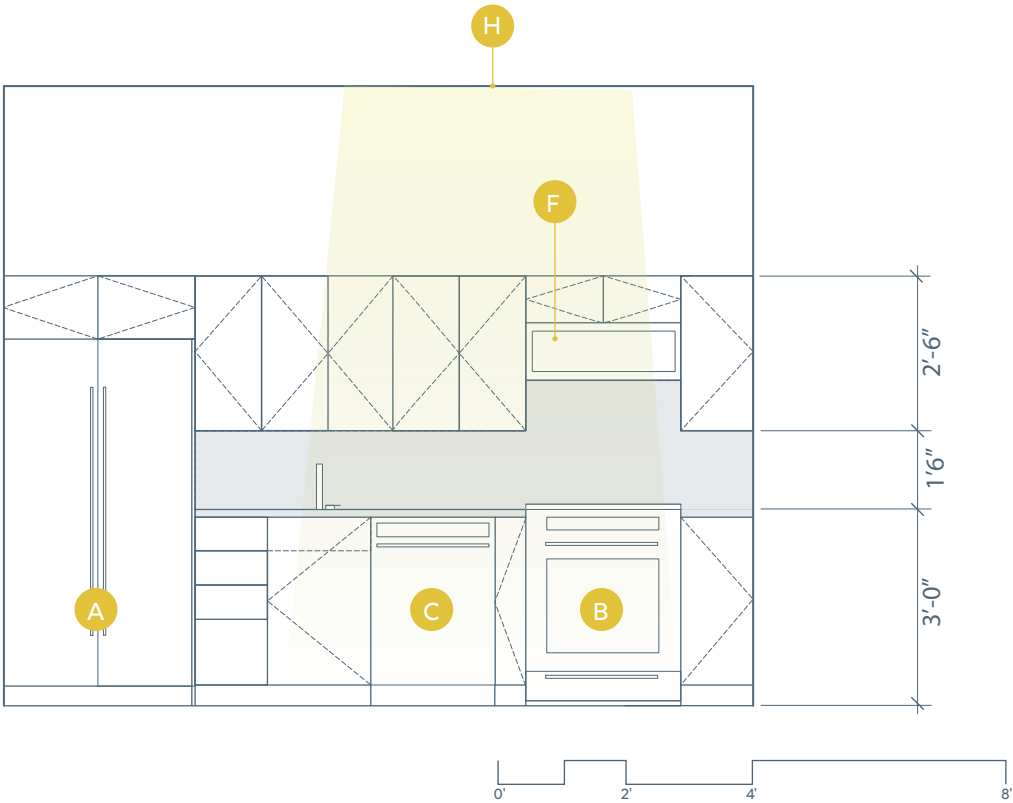
- A. Refrigerator
- B. Induction Cooktop & Range
- C. Dishwasher
- D. Engineered Stone
- E. S.S. Faucet & Single Basin Sink
- F. Microwave Hood
- G. Pull Out Pantry
- H. Operable Skylight

Kitchen Design

- Kitchen's should have access to natural light to serve as the primary light source during daytime hours. For non daytime hours dimmable LED lighting should be provided for general ambient light as well as accent lighting over islands or under cabinets.
- Neutral color palettes for cabinetry in warm earth tones. Kitchens should feel warm and inviting not sterile. Cabinet boxes to use **FSC certified** wood and non-chemical adhesives.
- Greenguard certified engineered stone that mimics natural stone but is maintenance free and easy to clean with soap and water providing durability for all family sizes and levels of use. Product is certified for **low chemical emissions**.
- Minimize hardware costs by providing routed finger pulls in cabinetry.
- The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons (4.54 L) per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons (3.03 L) per minute at 20 psi.
- Induction Cooktop, Range and Microwave Hood.
- **Energy star** appliances including refrigerators and dishwashers.
- Provide ample storage or flexible shelving solutions.



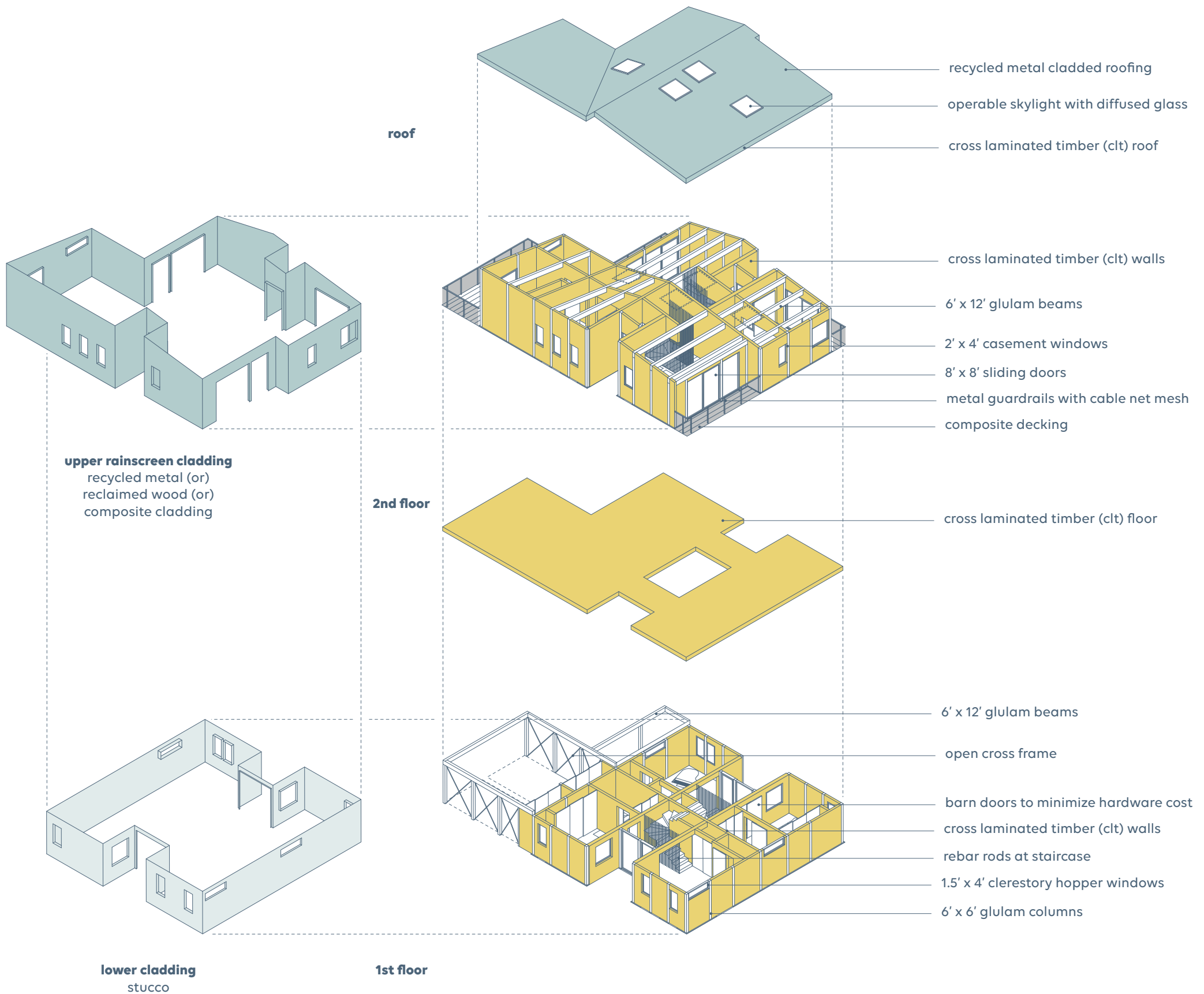
Kitchen Plan



Kitchen Elevation





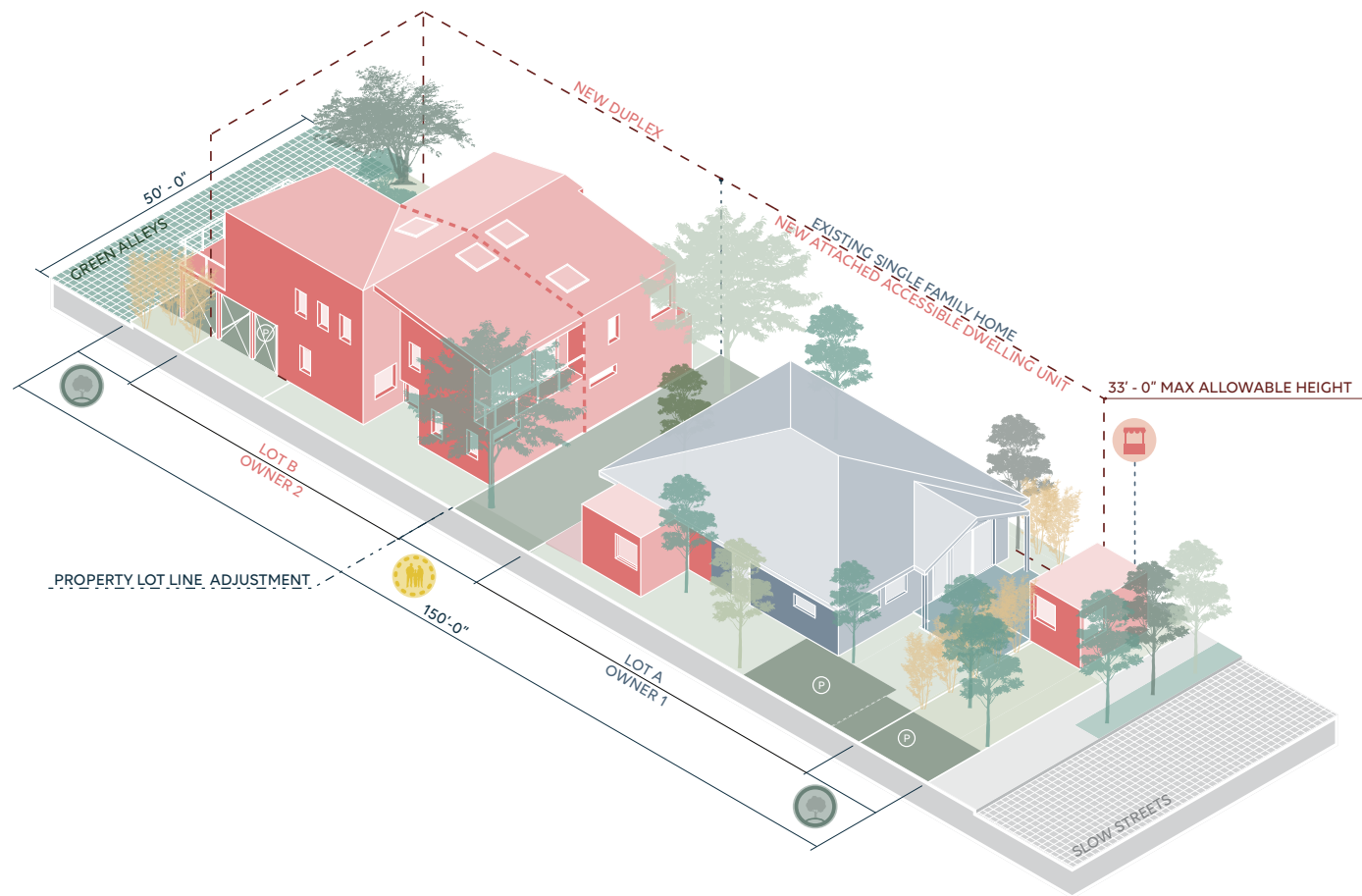


Building Components

Cross Laminated Timber (CLT) has several distinct advantages including shorter onsite construction times, reduced waste, and a **low carbon footprint**. By systematizing the design and construction, the Community Land Trust could create efficiencies across multiple sites.

Recycled metal cladding and roof shroud the upper floor of the **New Duplex** to help **cool down** the building in the summer and helps with **fireproofing** the structure during Southern California's fire seasons.

-  Existing Single Family Home
-  New Structures
-  Accessory Unit
-  Communal Easement
-  Agricultural Easement



Planning Policy Ideas

The framework for **Sub/Merge** consists of ideas for modifications to current planning policy that encourage flexibility and incentivize sensitive density while avoiding heavy requirements.

Street Frontage:

Allow for flexibility in utilization of existing front yards by providing private outdoor space while reducing the screens between the front yard and public way. Residents and pedestrians should experience a greener, more enjoyable experience at the public way with stepped back, layered screening and landscaping rather than fortress-like barrier.

- Provide a vegetated swale at parkway to treat stormwater runoff.
- Incentivize development of an **Accessory Unit** by providing a portion of Lot A for **Agricultural Easement**. Restrict Accessory Unit size to be a maximum of 10' high and 12' wide.
- Allow for a privacy screen set back from the sidewalk if an **Accessory Unit** is constructed on site.
- Allow for stepped **privacy screening** with a shorter screen at the property line and a taller privacy screen set back further from the street if an Accessory Unit is not constructed on site.

Alley Frontage:

Allow for flexibility in utilization of a new alley front yard that allows **densification** while encouraging more landscape and stepping new construction back from the alley.

- Provide a 4' landscape buffer with vegetated swale to treat stormwater runoff.
- Require some outdoor common and private areas to front alley.

Communal Easement:

Encourage shared backyards for more **green space**.

- Ownership and maintenance by one of the Lot owners or a **CLT** for combined parcels.
- Use by residents of both lots, and/or allow for potential to connect with neighboring lots for a more connected communal backyard space.
- Communal easements shall be complimented by private outdoor space for each residence.

- Adjacent buildings may build to the easement line. The easement provides a setback and space between buildings on the site.
- Sites without alleys may maintain vehicular access on the side of the lot to the new rear lot parcel by way of the Communal Easement.

Maximum Height:

Encourage flexibility for new construction height tied to width of Communal Easement so that outdoor space is not compromised by height of new construction.

- This scheme shows a 24' high duplex with a 20' wide communal space. An alternate scheme may accommodate a taller building, up to the maximum height of 33', but with a wider communal space.

Landscape:

Encourage sustainable landscape features and increase **ecological performance** requirements of open outdoor areas.

- Implement low-water landscaping with gray water systems and stormwater gardens positioned to capture and retain rainwater from roof surfaces.
- Locate large deciduous trees to shade high heat-gain building surfaces.
- Incentivize permeable site paving while minimizing hardscape by allowing for a maximum of 10% site coverage of impermeable surfaces.

Parking:

Allow for flexibility to reduce or increase parking requirements depending on specific community needs.

- Parking areas may be supplemented with **electric vehicle charging** or bike storage to provide residents with access to a variety of mobility options.
- Allow open, un-covered parking areas as well as parking under upper level decks.



Block Development

This partial block diagram shows subdivision improvements to approximately half of the fourteen existing lots per the proposed model. **Sub/merge** allows densification to occur **organically** as appropriate for each neighborhood, whether it's one parcel on a block or several.

- This partial block could increase ownership of property from fourteen single family home owners to approximately **twenty-four** home owners.
- Backyards may be grouped and clustered to create enlarged shared spaces through **Communal Easements**.
- Street and Alley frontages will be lined with **Agricultural Easements** and landscape buffers that could include fruiting trees and shrubs, vegetated swales, and pollinator gardens.
- **Accessory Units** have potential to bring light touches of **commerce** and opportunity for additional income, or extra spaces to work from home for residents.
- Ability to create a **Zero Energy Community**. An energy-efficient community where, on a source energy basis, the actual annual delivered energy is less than or equal to the on-site renewable exported energy.
- A framework to promote urban agriculture and incentivize the community to grow their own food for a **healthier life style**.