



HOUSING OPPORTUNITY CONFERENCE

A Balancing Act: Leveraging Decarbonization to Create and Protect Housing Affordability

ASHLEY BESIC

MODERATOR

BEN EVANS

ANNA LAKE-SMITH

ROGER SHERMAN

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BUILDING
DECARBONIZATION
COALITION

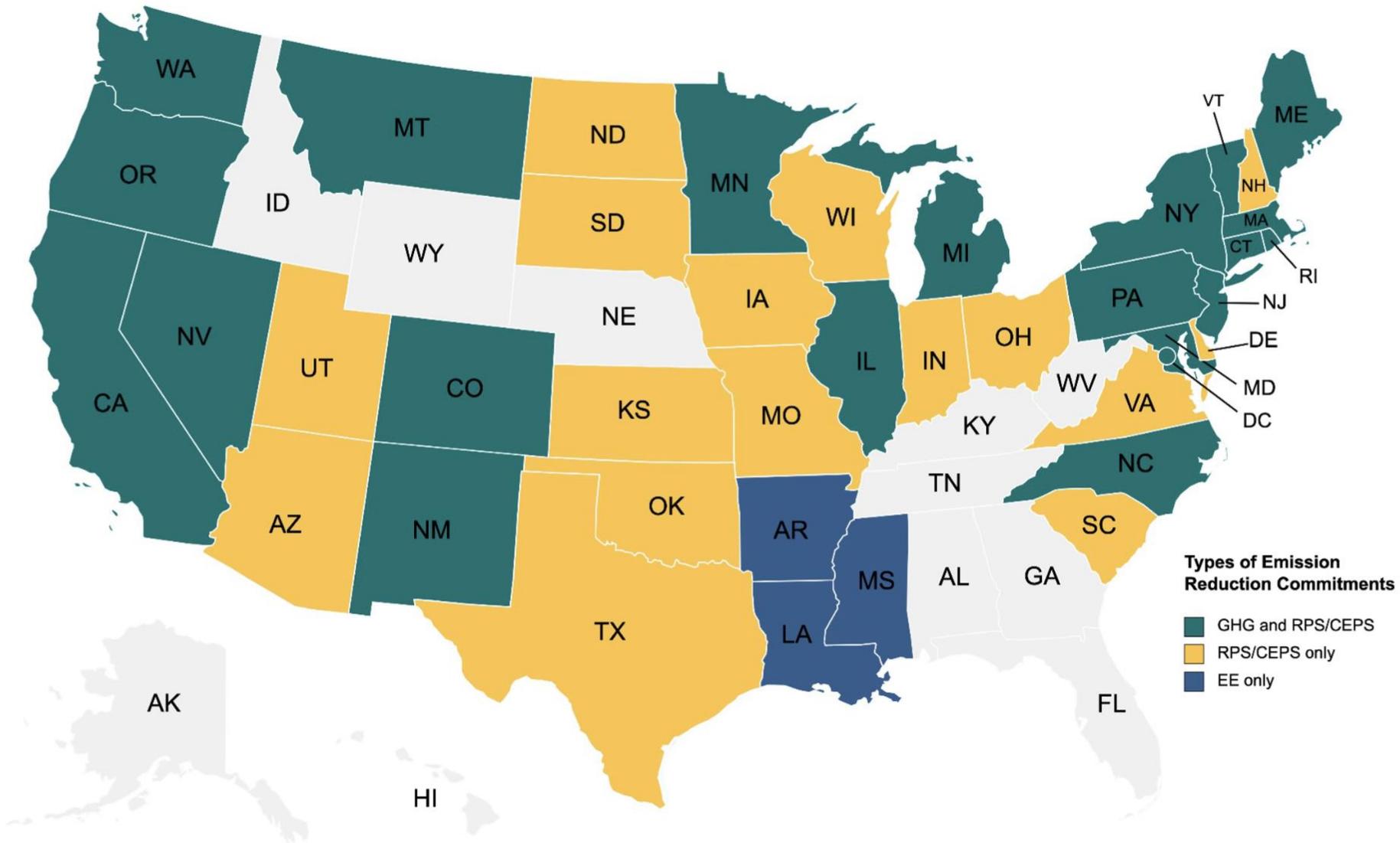
Neighborhood Scale

The Future of Building
Decarbonization

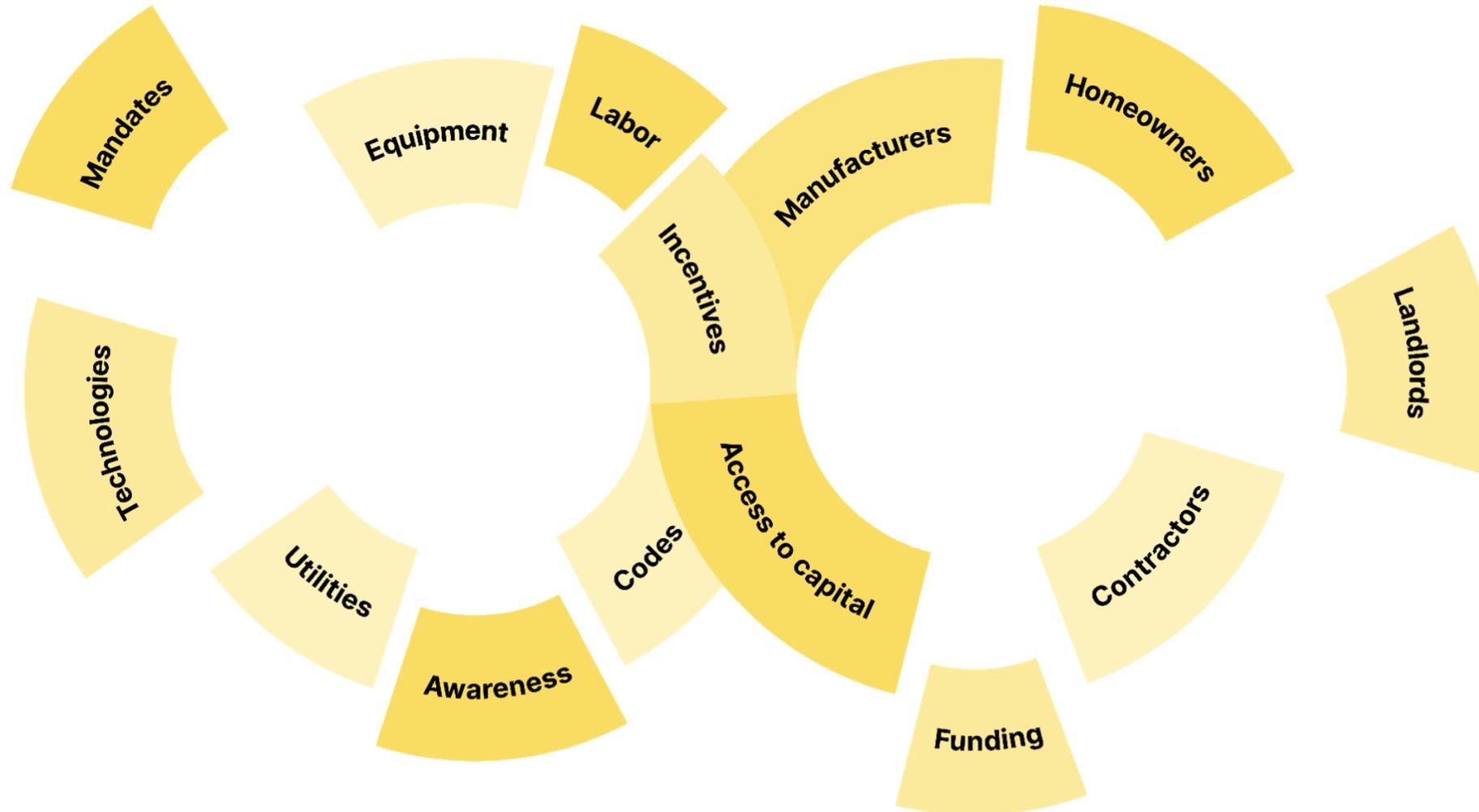


SCAN ME

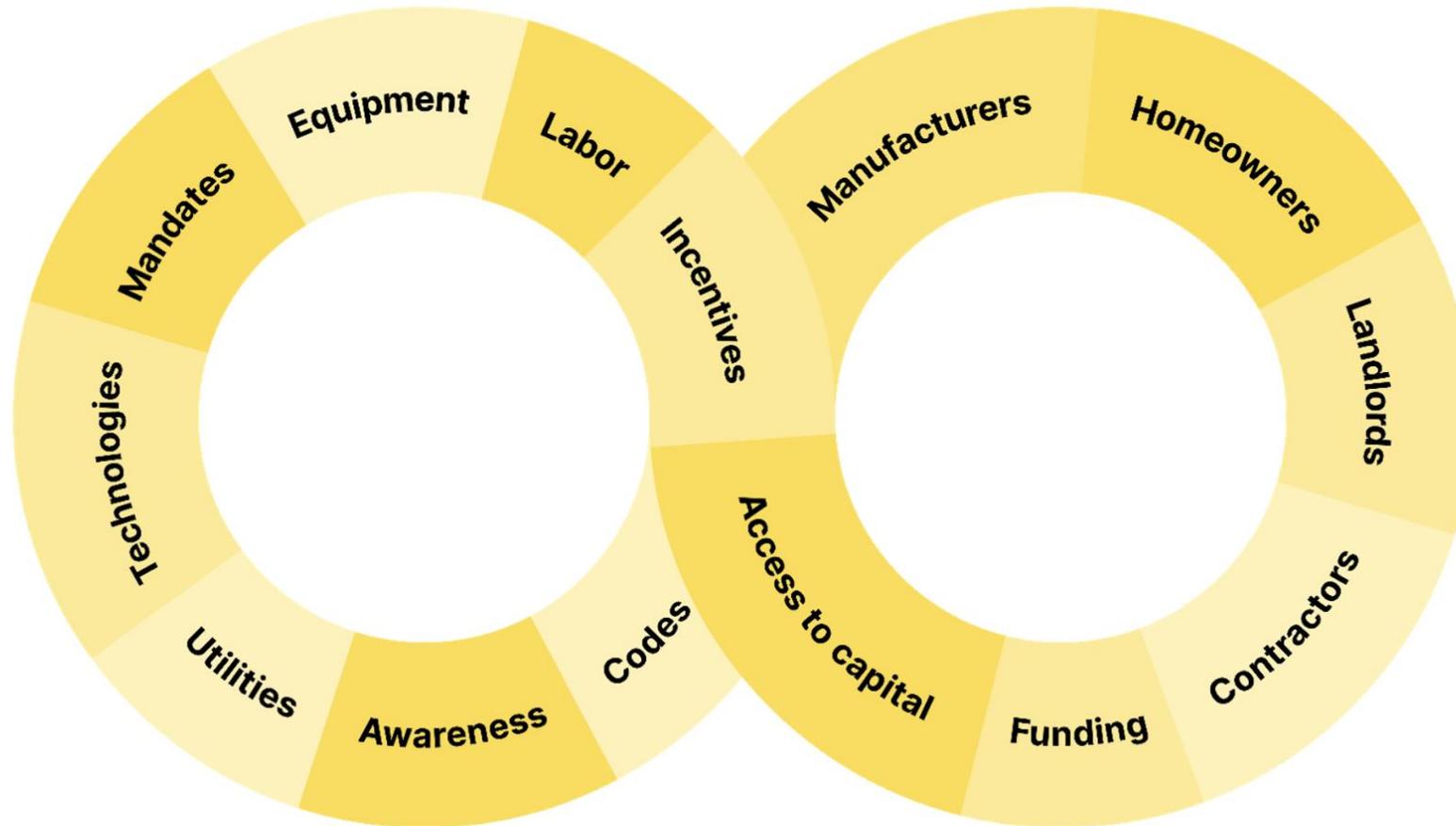
We need to decarbonize buildings to reach our climate goals



Our current approach to decarbonizing buildings is a mosaic of actors, decisions, and resources*



What we need is a coordinated, scaled, and managed transition

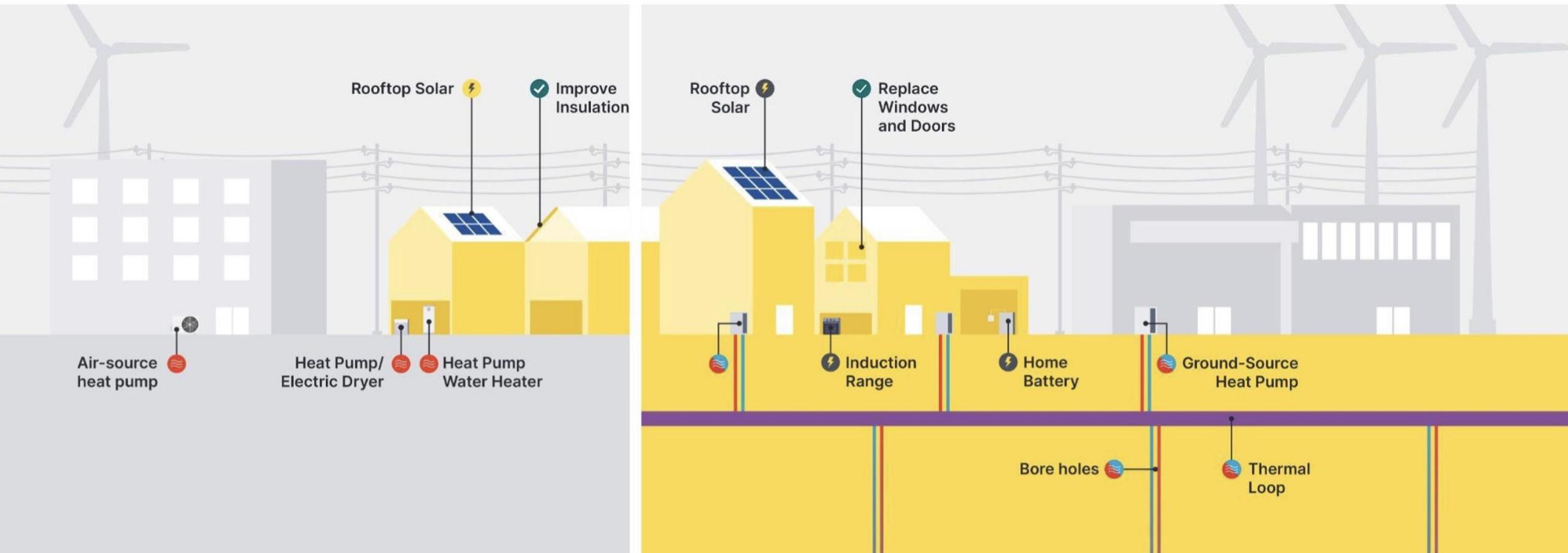


We need neighborhood-scale building decarbonization

A strategy for transitioning entire communities to decarbonized energy sources and electric appliances with the end goal of managing the transition off of the gas system.



There are two primary pathways for achieving neighborhood decarbonization



Session Key Takeaways

1. Neighborhood decarbonization aligns stakeholders, prioritizes environmental justice, retires gas systems cost-effectively, and creates high-road jobs, offering a holistic pathway for clean, equitable energy transition.
 2. Integrated sustainability, recognizing resilience, environmental, economic equity, and social aspects, advocates a land use strategy favoring adaptive reuse and passive controls, proving as sustainable and cost-effective as relying solely on "smart" technology.
- The Inflation Reduction Act, gaining momentum this year, presents a historic opportunity to boost clean energy in housing, cutting costs and improving comfort, aligning with homebuyers' energy efficiency preference.



Developing Sustainable Living at Foundation Communities



HOUSING



EDUCATION



FINANCIAL STABILITY



HEALTH



Foundation Communities

- A 34-year-old affordable housing nonprofit in Austin and North TX
- Home to nearly 8,000 residents
- Developer, owner + manager
- Housing + Services model
- Single adult and multifamily properties
- Two Prosper Centers



Sustainability Priorities

1. Our Residents

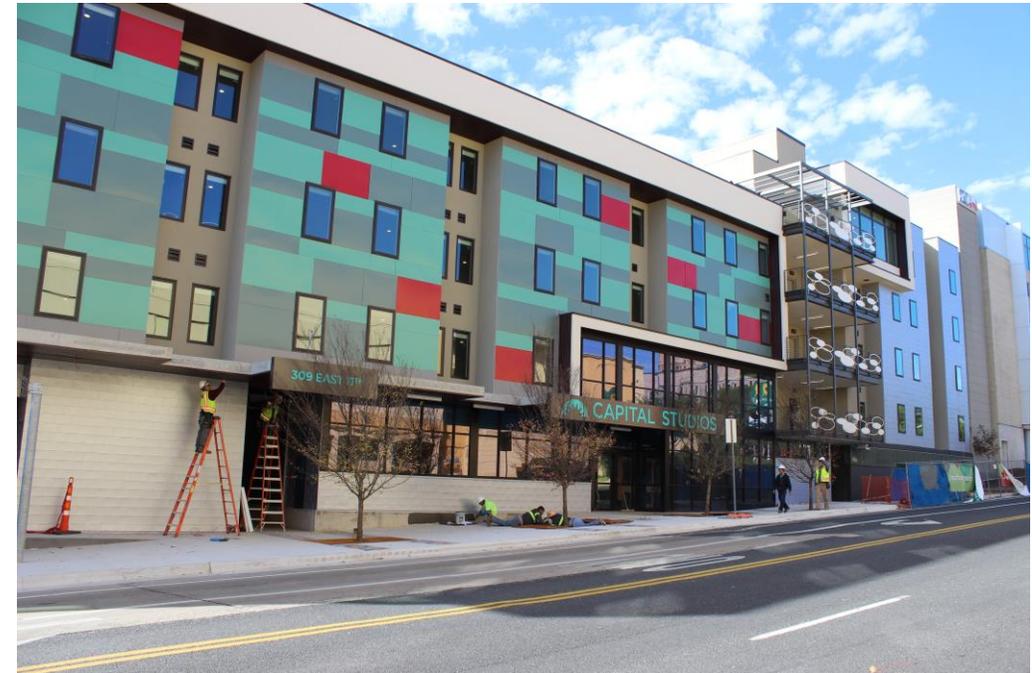
- Designing for quality of life
- Reducing utility cost burden

2. The Organization

- Building for efficiency, longevity, and resilience

3. The Community

- Reducing resource consumption
- Being a good neighbor



Sustainable Design – New Construction

1. Site Selection and Feasibility

- Connectivity

2. Design

- Integrated team approach
- Owner spec requirements
- Certifications

3. Construction

- Testing
- Commissioning

4. Operations

- Utility benchmarking
- Resident + staff education
- Feedback sessions



Owner Standards

Foundation Communities' non-negotiables:

- ENERGY STAR appliances
- LED lighting
- Ultra low-flow toilets
- Faucet aerators and low-flow showerheads
- Low U-value + SHGC windows
- Formaldehyde-free cabinets
- Ceramic tile or PVC-free flooring





Zilker Studios

2023

EUI: 27

Water use: 22 gal/unit/day

AEGB 4-Star



Waterloo Studios

2020

EUI: 30

Water use: 48 gal/unit/day

AEGB 4-Star

LEED Gold



Bluebonnet Studios

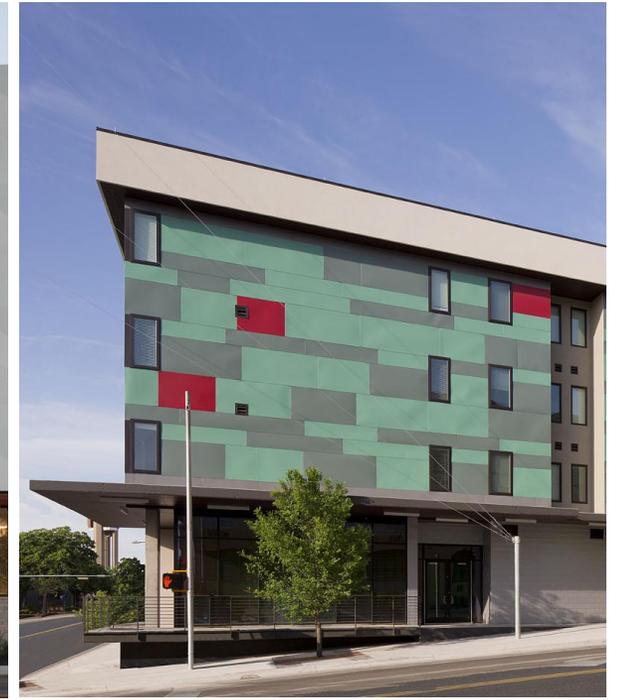
2016

EUI: 45

Water use: 37 gal/unit/day

AEGB 4-Star

LEED Gold



Capital Studios

2014

EUI: 53

Water use: 39 gal/unit/day

AEGB 5-Star

LEED Platinum

Existing Portfolio – Prioritize larger retrofits

Skyline Terrace: installed low-flow toilets and showerheads + faucet aerators in bathroom and kitchen sink

	2013	2020		
 Water Index	110.7 D	44.2 A	 -60%	-66.5 gal/bdrm/day

Spring Terrace: installed low-flow toilets and showerheads + faucet aerators in bathroom and kitchen sink

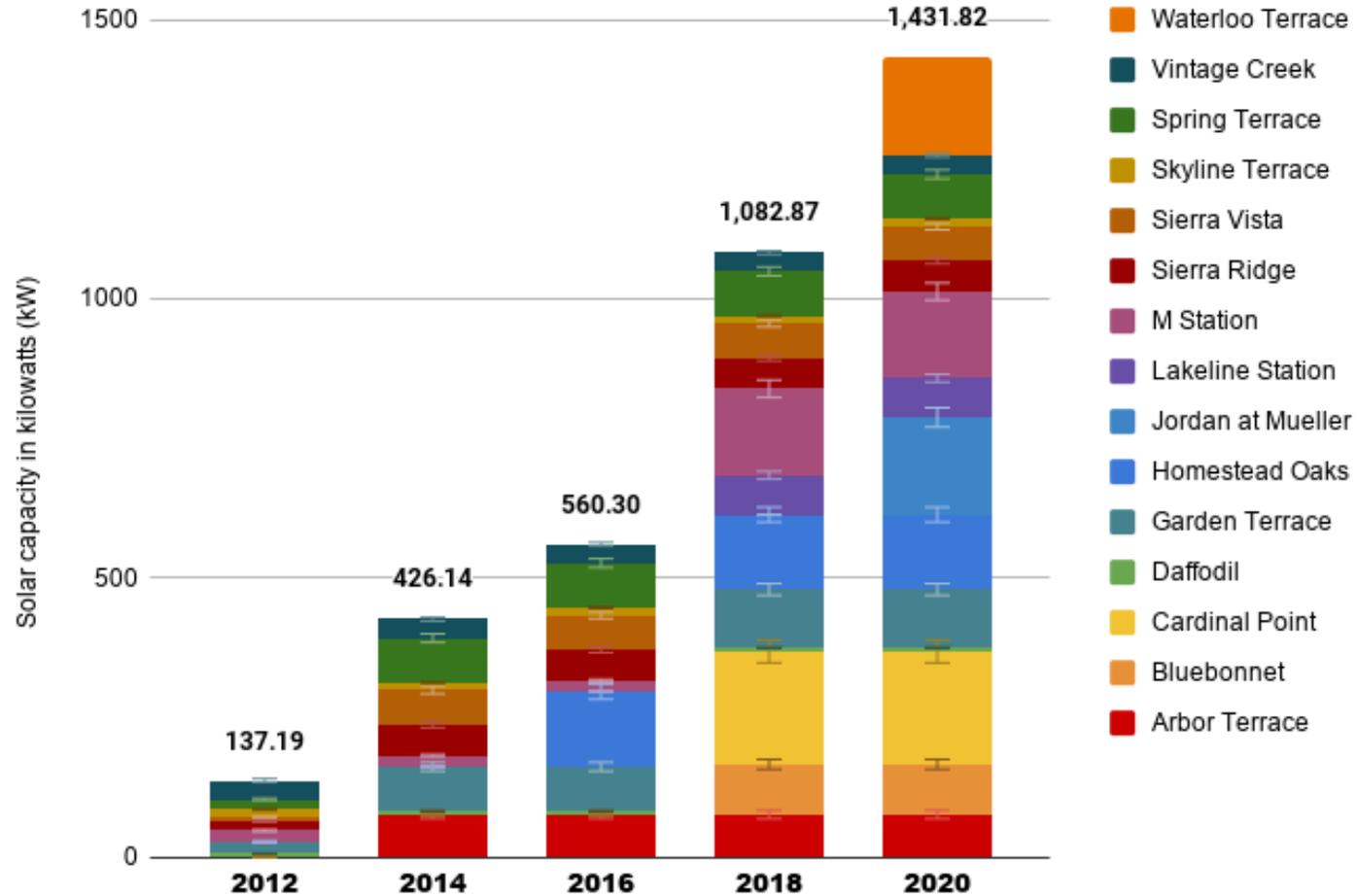
	2013	2020		
 Water Index	148.1 D(!)	45.2 A	 -69%	-103 gal/bdrm/day

Garden Terrace: installed low-flow toilets + replace shower valves + faucet aerators + boiler replacement

	2013	2020		
 Water Index	69.4 B	40.6 A	 -42%	-28.8 gal/bdrm/day



Foundation Communities Solar Capacity

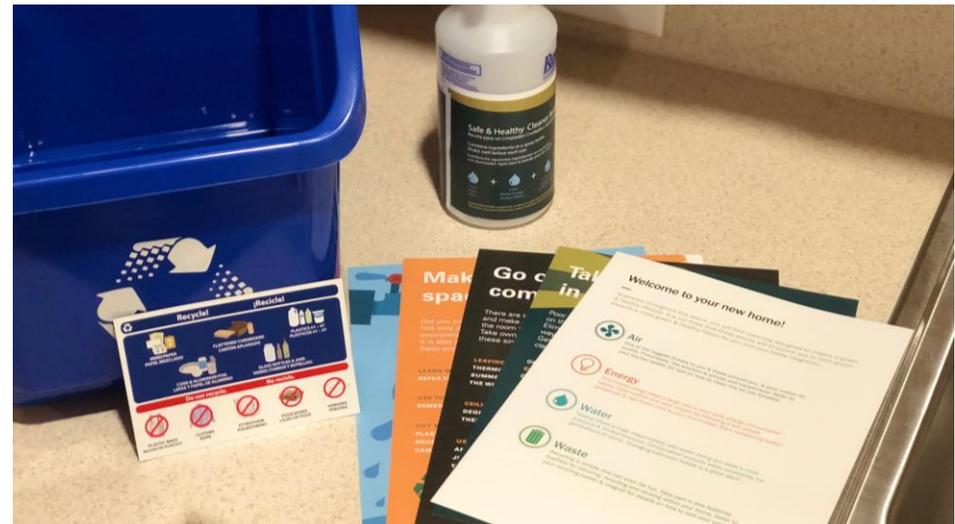


Resident Impact



83%

Say they live a more
'green' lifestyle after
living with FC





“To me the Community Garden is wonderful. Being disabled I don't get out, and get as much fresh air as I should. With the Community Garden I don't have an excuse. I get to experience nature, learn something new every day about gardening, and socialize with my neighbors.”

Michael Schelnick
Resident of Homestead Oaks Apartments

Leveraging Decarbonization Toward Housing Affordability

*ULI National Housing Opportunity Conference, Austin, TX
20 February 2024*

Roger Sherman, Director, Stone Soup Group, GenslerLA

- Smart land use strategy, adaptive reuse, and use of passive environmental controls are of a higher order of magnitude toward carbon reduction than “smart” technology
- Environmental impact is inseparable from its economic (equity, affordability) and social (inclusivity) counterparts
- Think carbon *negative*, by creating supply (and *revenue*) not just reducing demand
- Sustainability is insufficient without resilience

-Smart land use strategy, adaptive reuse, and use of passive environmental controls are of a higher order of magnitude in carbon reduction than “smart” technology

- .search for, and mine excess capacity**

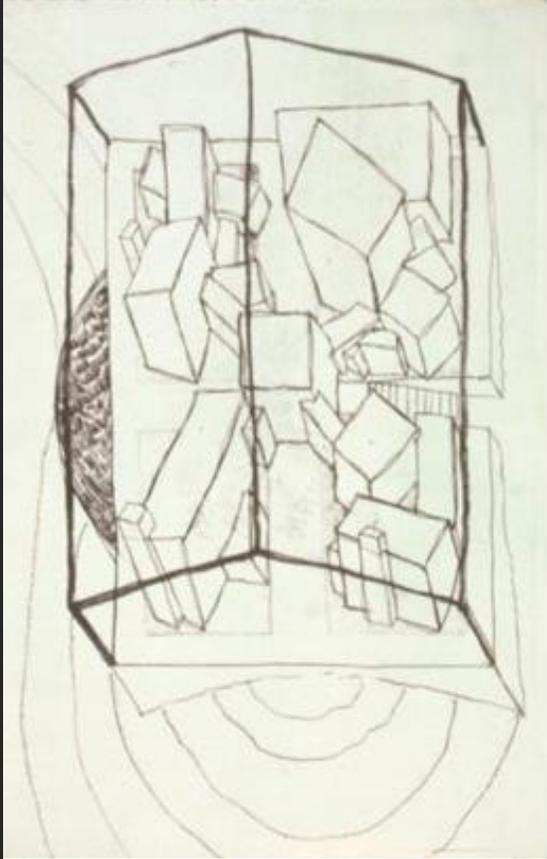
- .more cost effective**

- .pertains to both active embodied carbon**

 - .reduction in commute time, construction waste, etc.**

URBAN AWNING Transitional Housing, Los Angeles





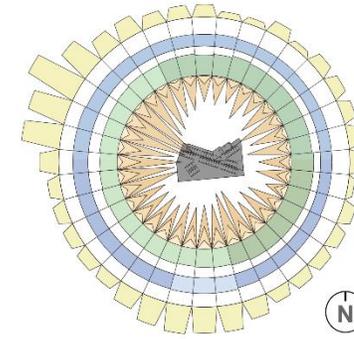




Legend

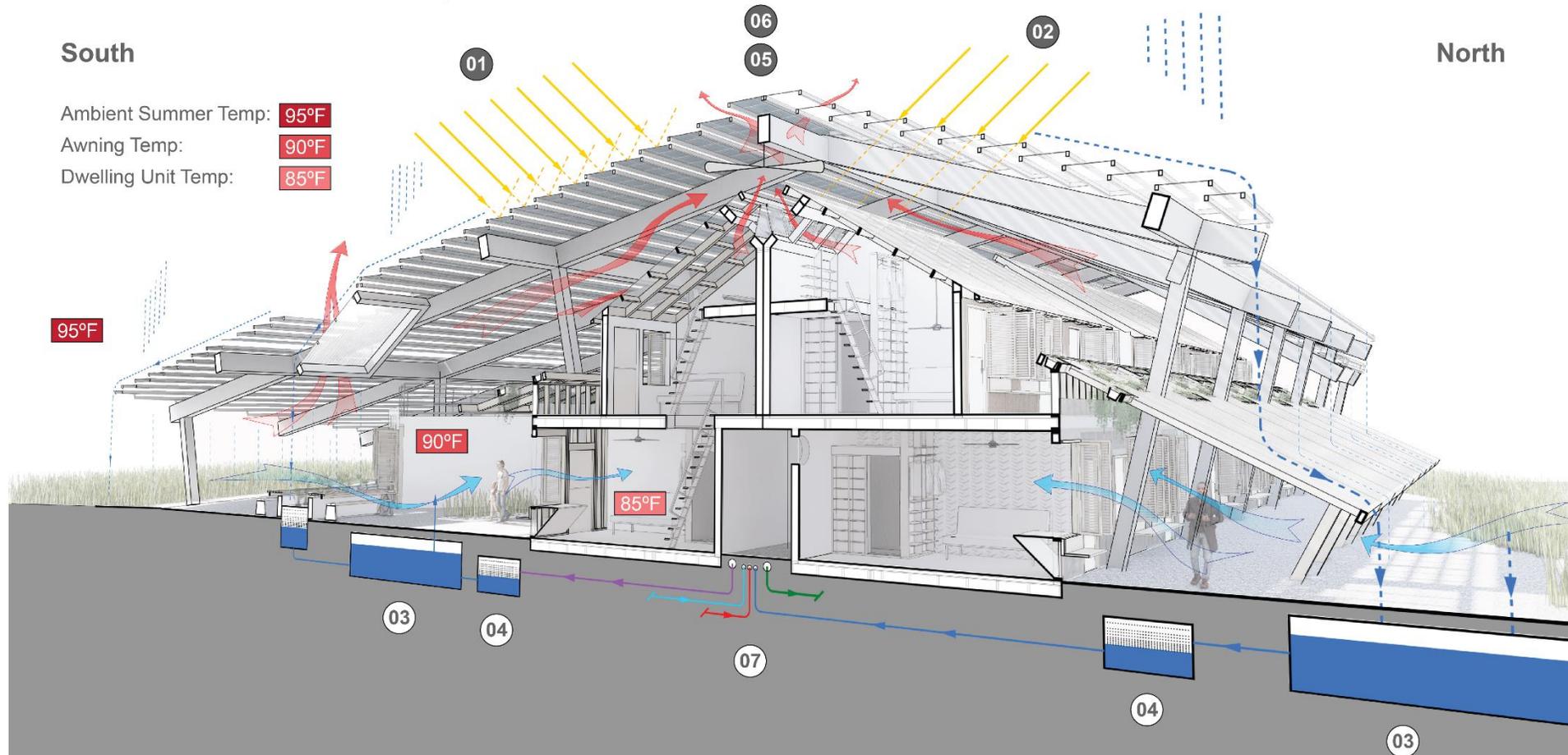
- 01 Solar Panel Cladding
- 02 Translucent Cladding
- 03 Rainwater/Greywater Cistern for Vegetation
- 04 Rainwater/Greywater Treatment
- 05 Fan
- 06 Roof Vent
- 07 Hot Water/Cold Water/Sanitary

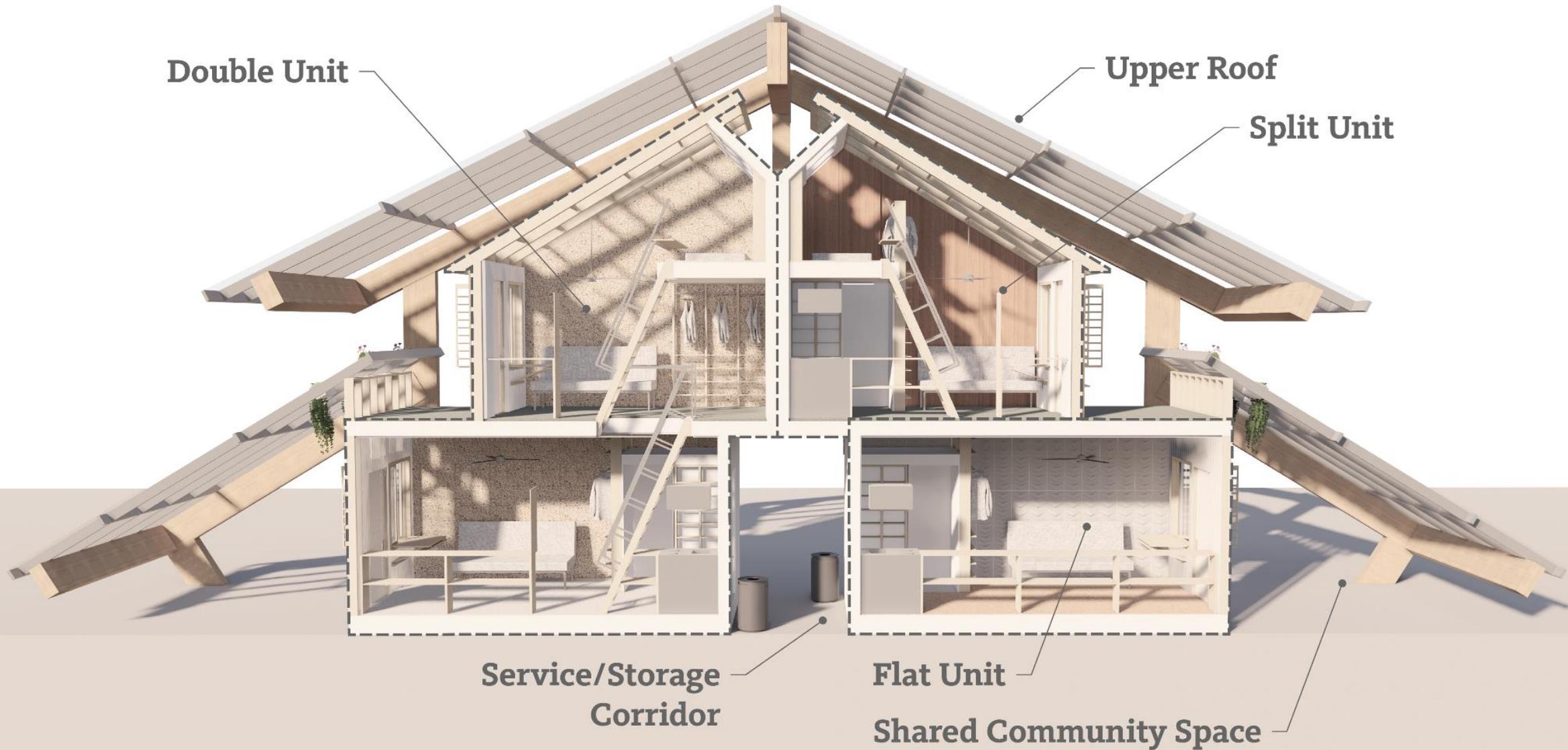
Site Wind Rose

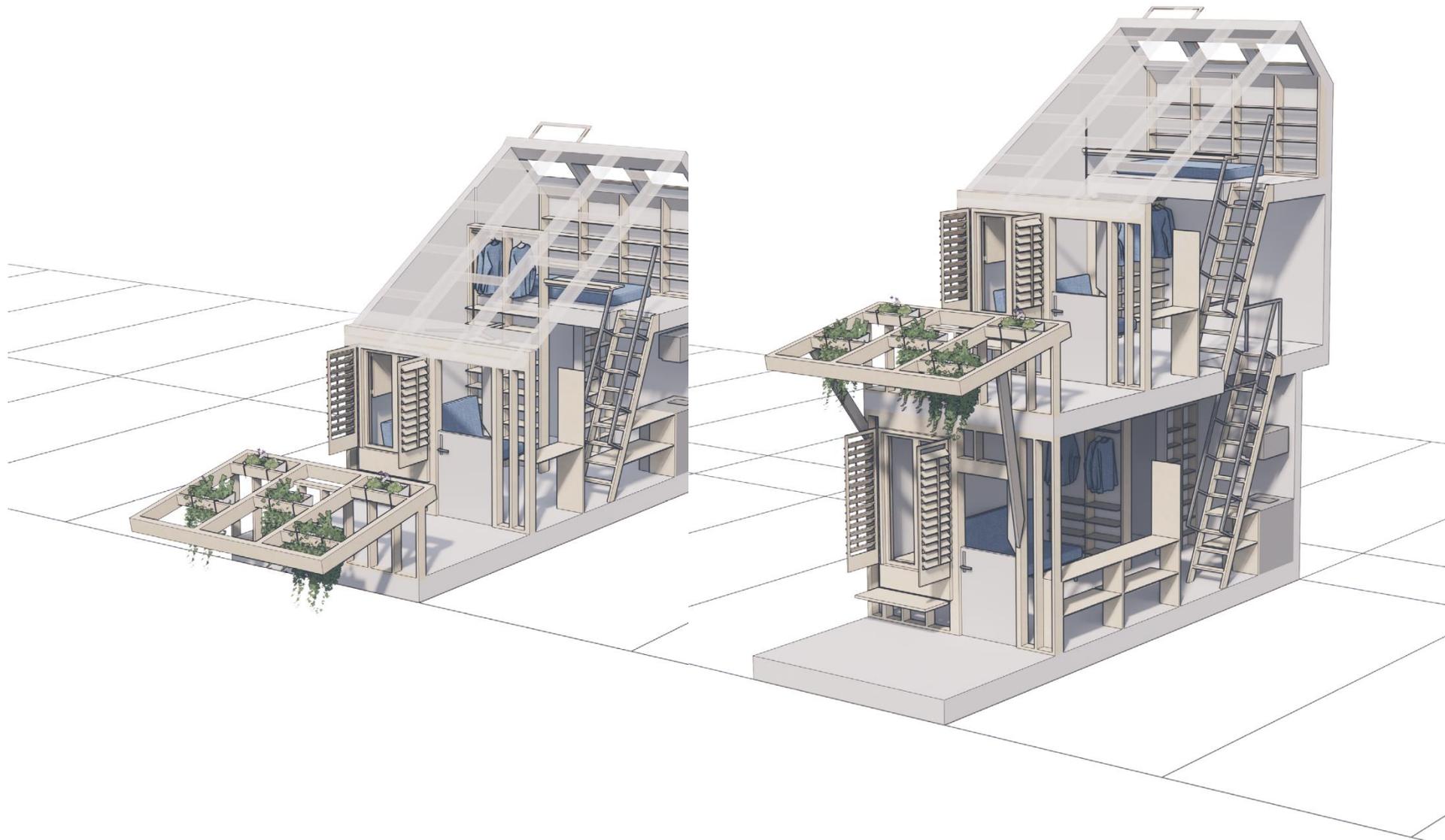


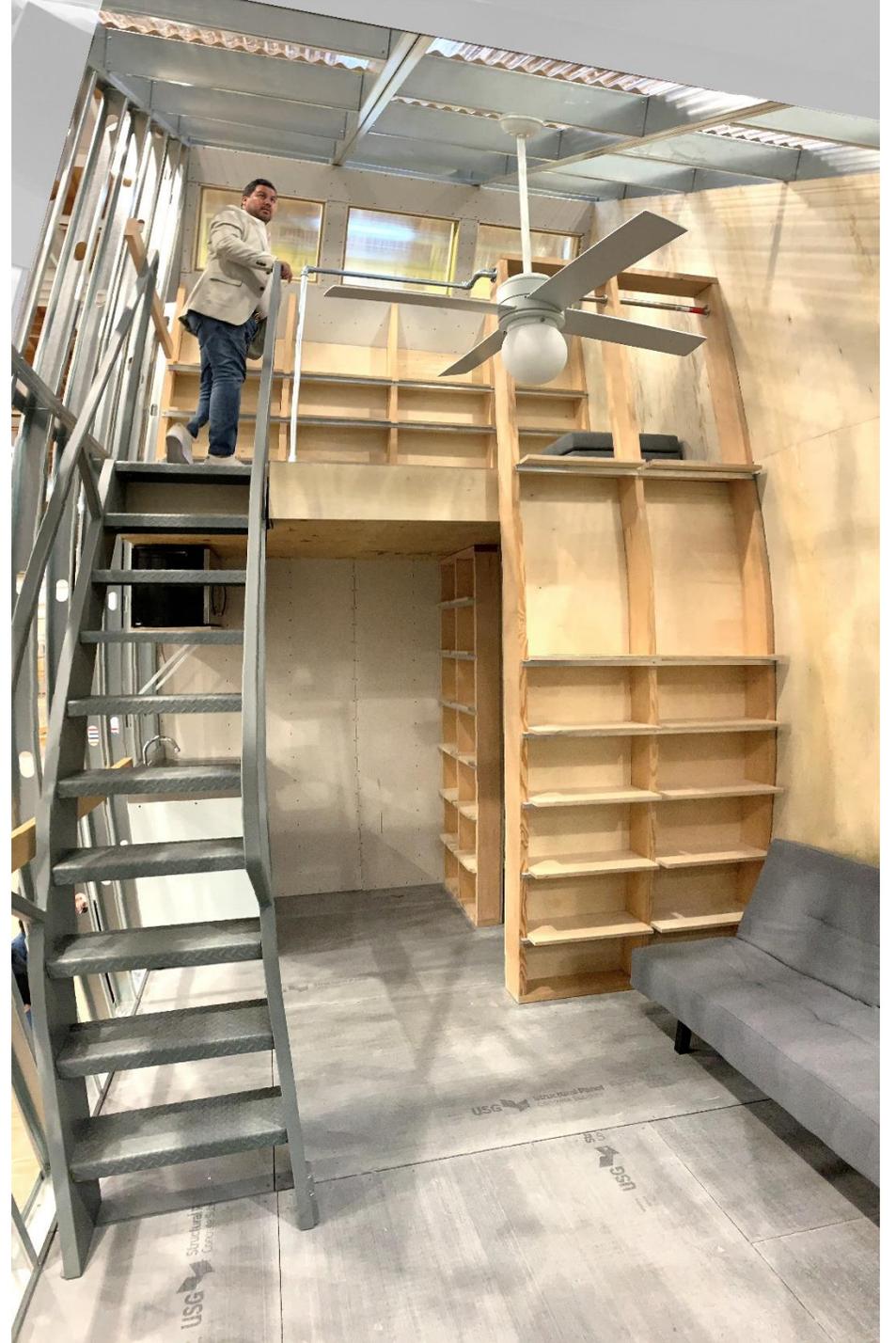
South

Ambient Summer Temp: 95°F
Awning Temp: 90°F
Dwelling Unit Temp: 85°F

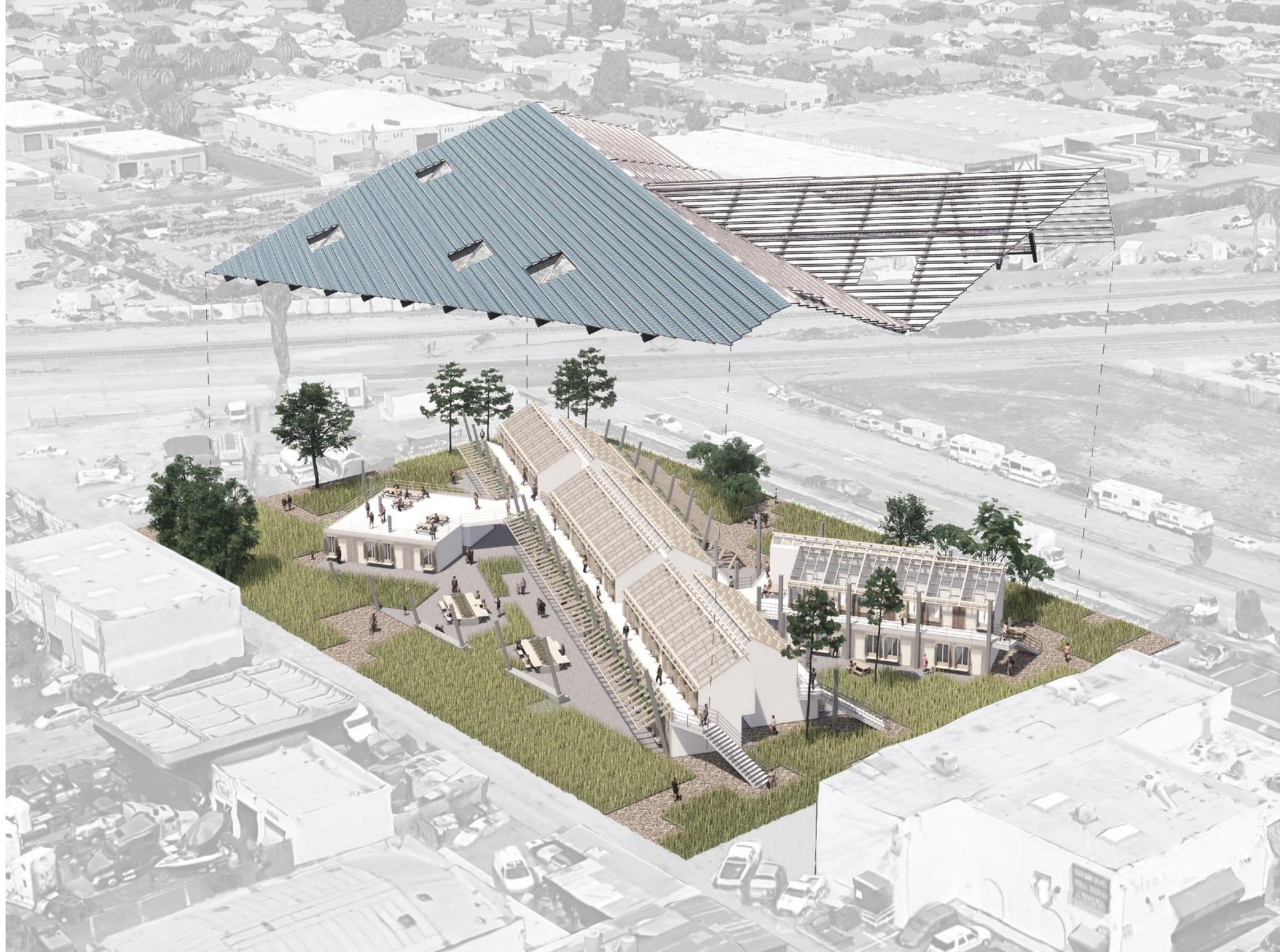






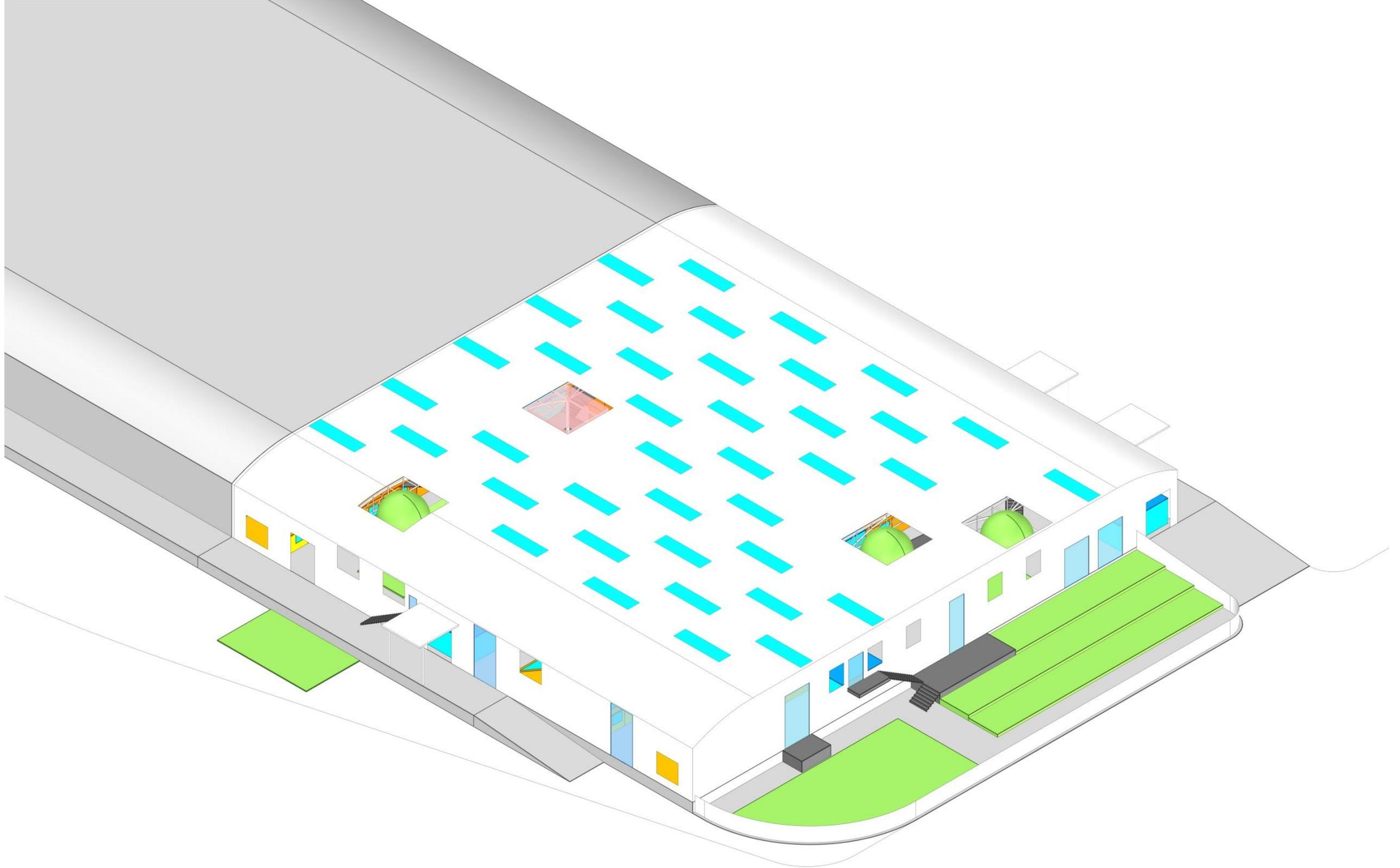




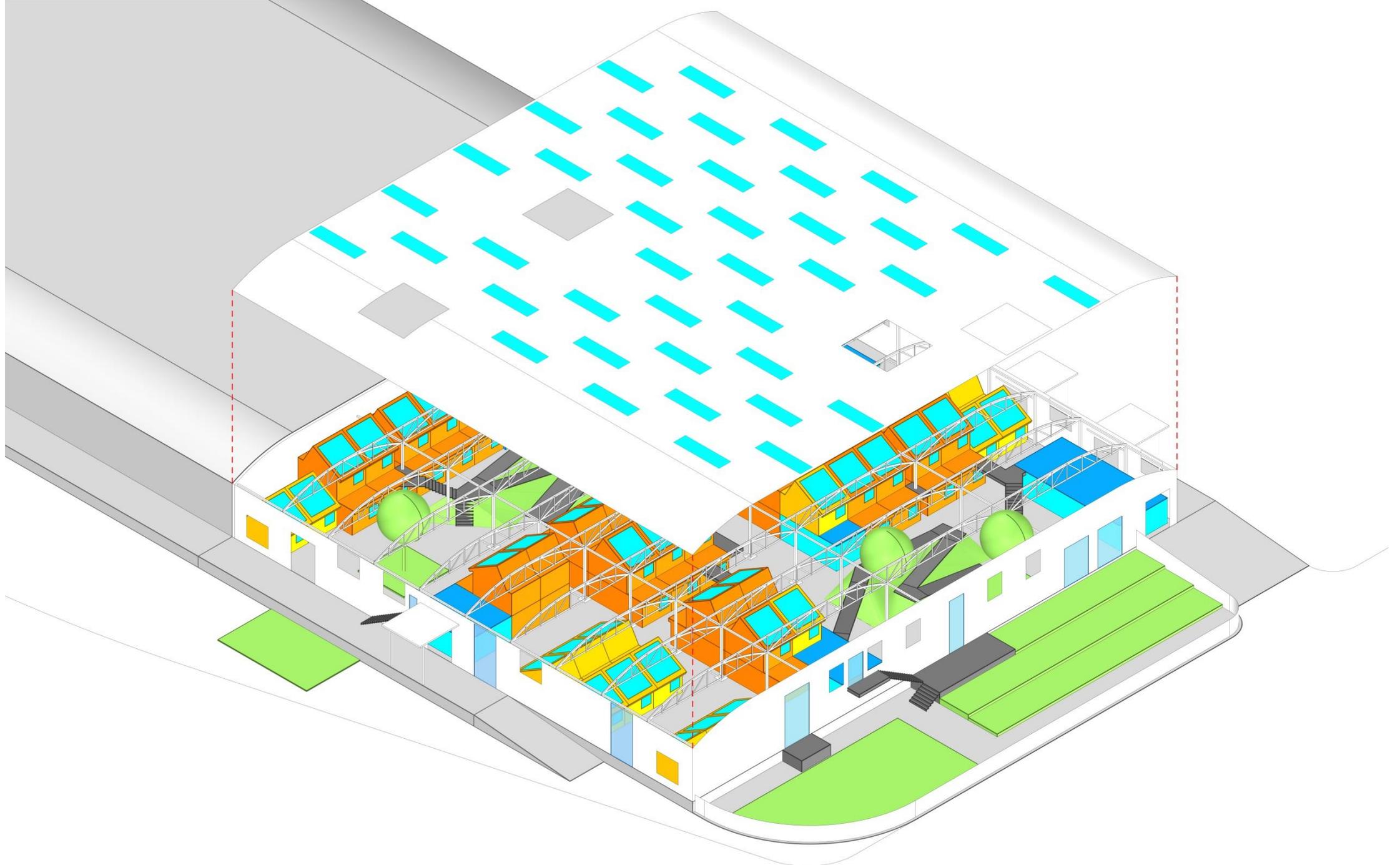


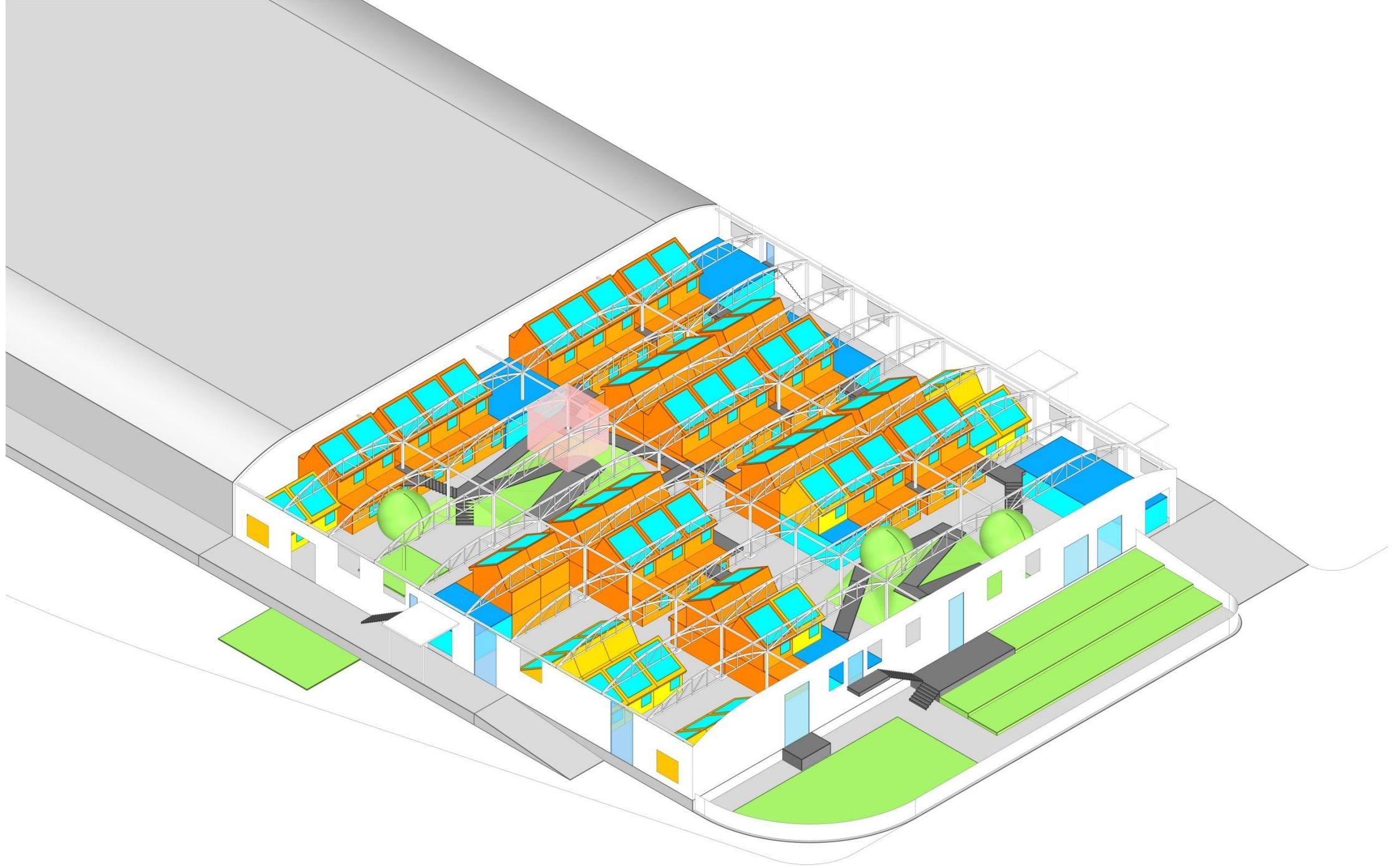


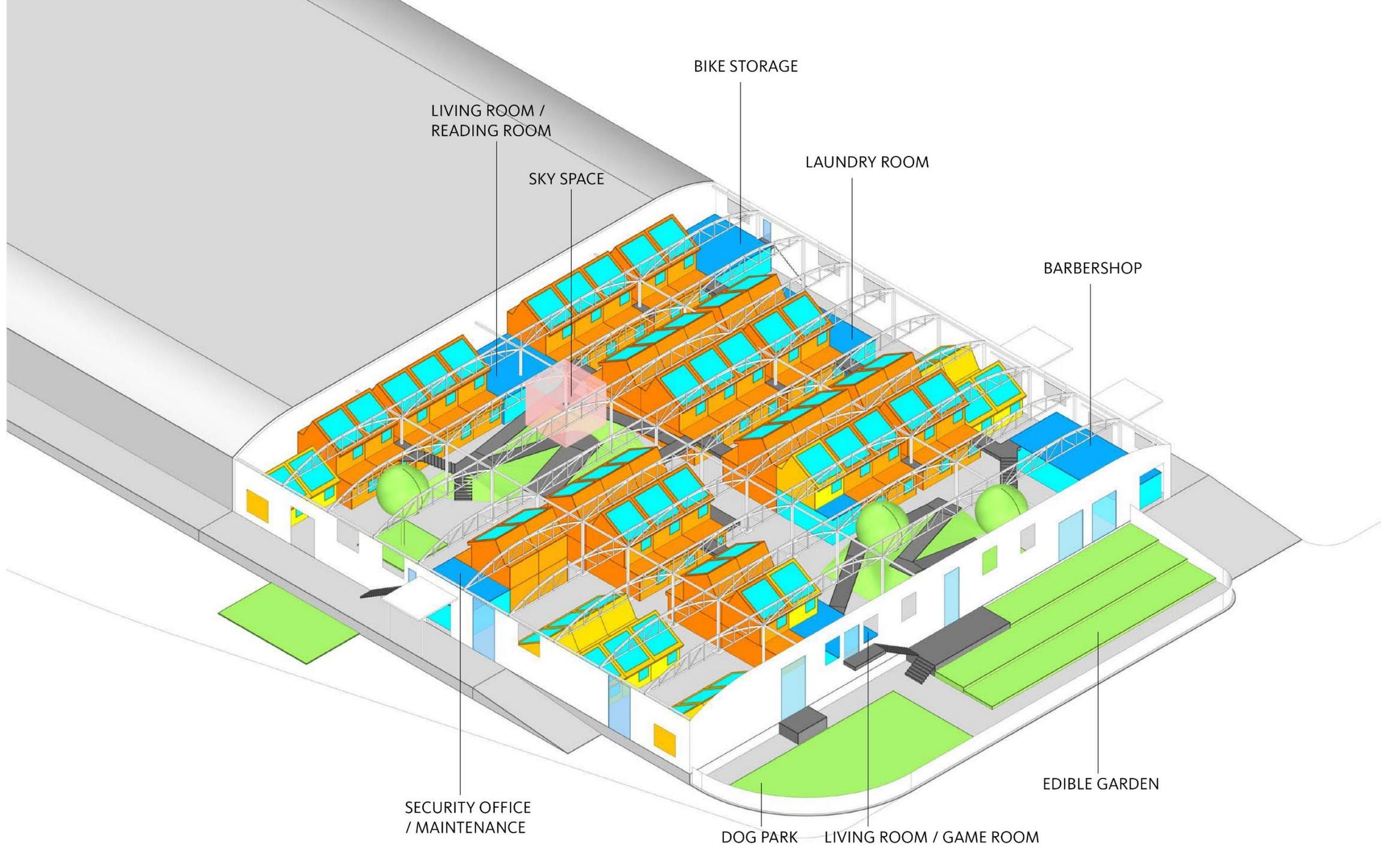
URBAN AWNING Salvation Army, Bell











BIKE STORAGE

LIVING ROOM /
READING ROOM

LAUNDRY ROOM

SKY SPACE

BARBERSHOP

SECURITY OFFICE
/ MAINTENANCE

DOG PARK — LIVING ROOM / GAME ROOM

EDIBLE GARDEN







-Smart land use strategy, adaptive reuse, and use of passive environmental controls are of a higher order of magnitude in carbon reduction than “smart” technology

- .search for, and mine excess capacity

- .more cost effective

- .pertains to both active embodied carbon

 - .reduction in commute time, construction waste, etc.

-Think carbon *negative*, by creating supply (and *revenue*) not just reducing demand

An aerial, black and white photograph of a city grid. In the foreground, a large, empty parking lot with white lines is visible. The surrounding city blocks are densely packed with buildings. The text is overlaid on the image.

**LOST AND FOUND
RECOVERING ROOFTOPS, EMPOWERING STUDENTS**

EAST LA COMMUNITY COLLEGE / GENSLER / DIGNITY MOVES / JOVENES

-Environmental sustainability is inseparable from its economic (equity) and social (inclusivity) counterparts

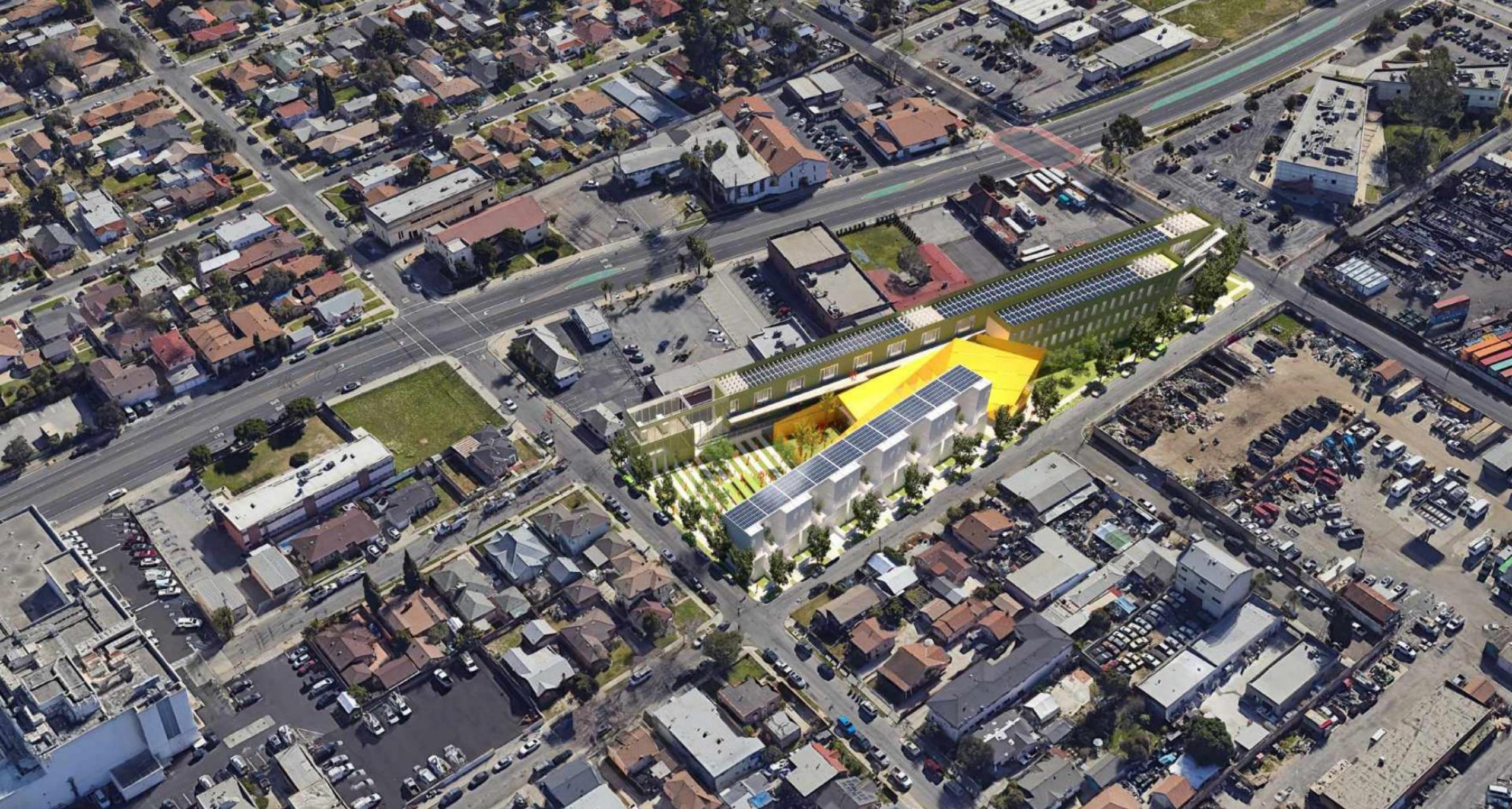
.Preferencing lower tenant (long-term utility) costs over savings upfront to developer/owner

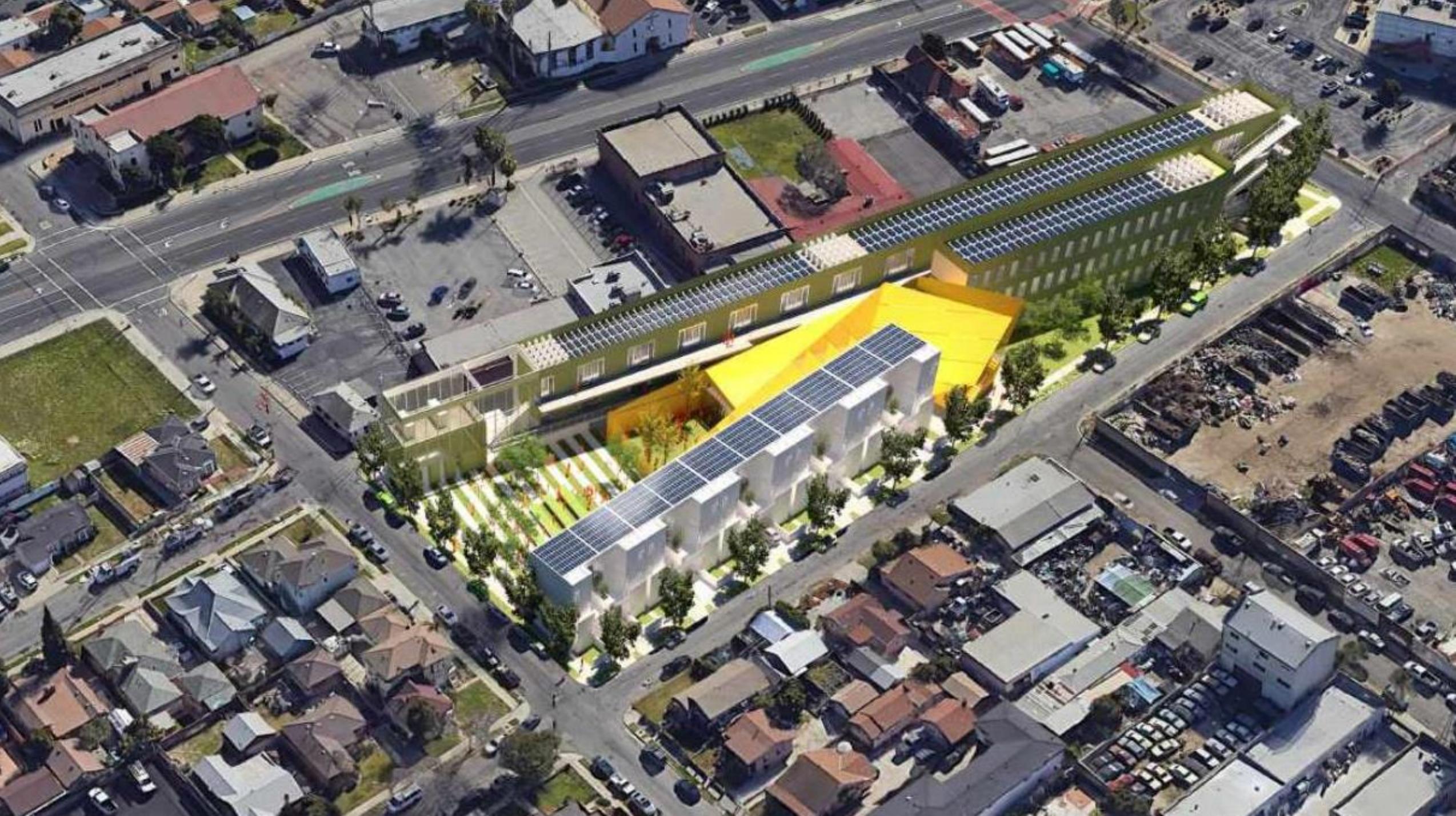
.single vs. double-loaded corridors

.deferring install of PV

.larger, operable windows/shutters vs. fixed

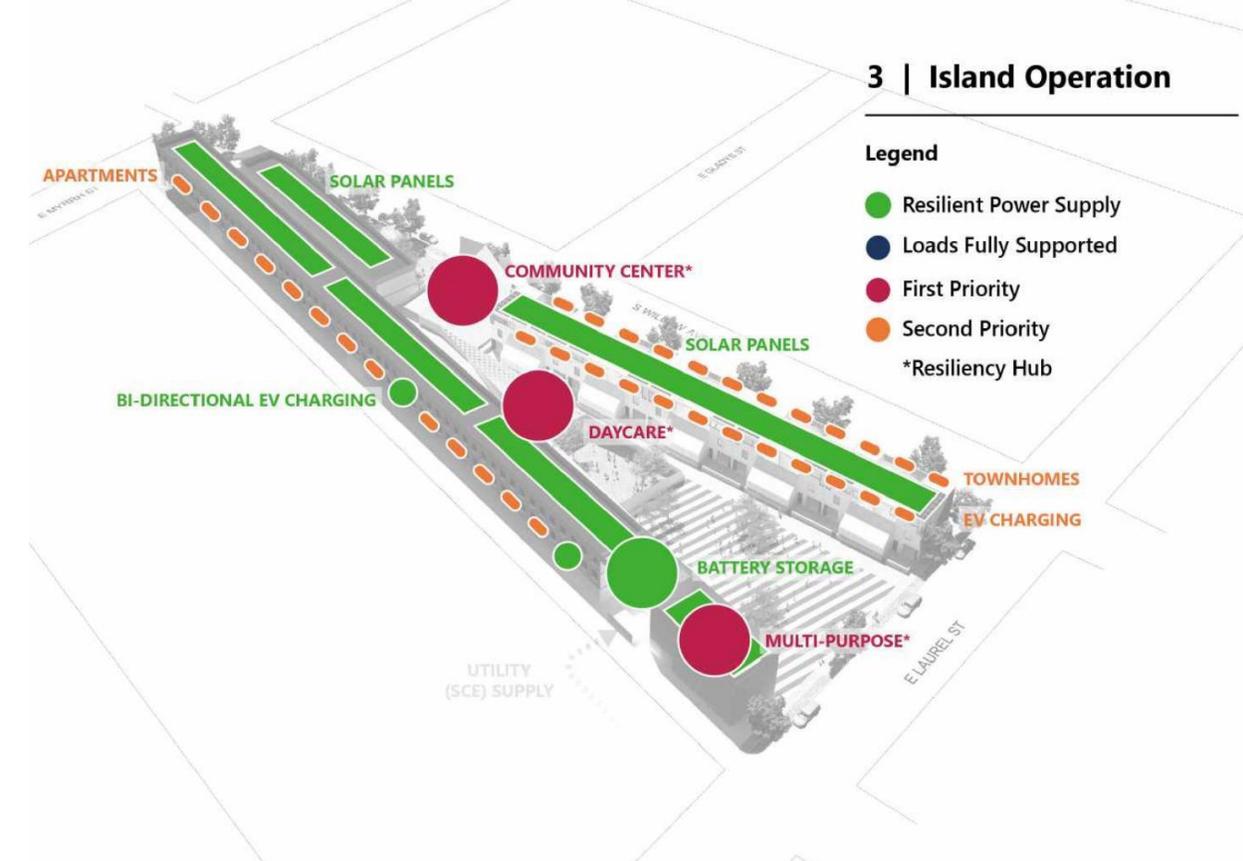
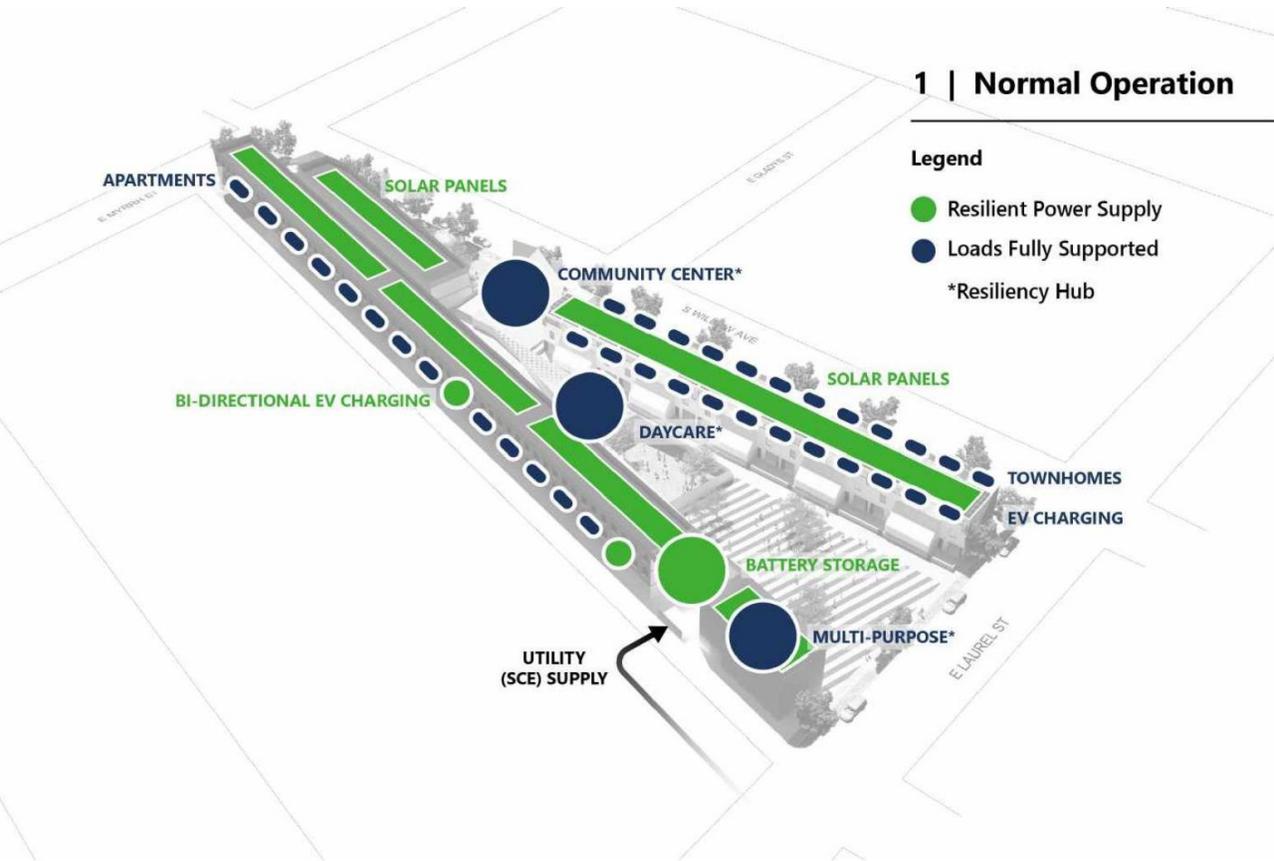
.Incorporation of program elements contributing to the resiliency of the surrounding neighborhood



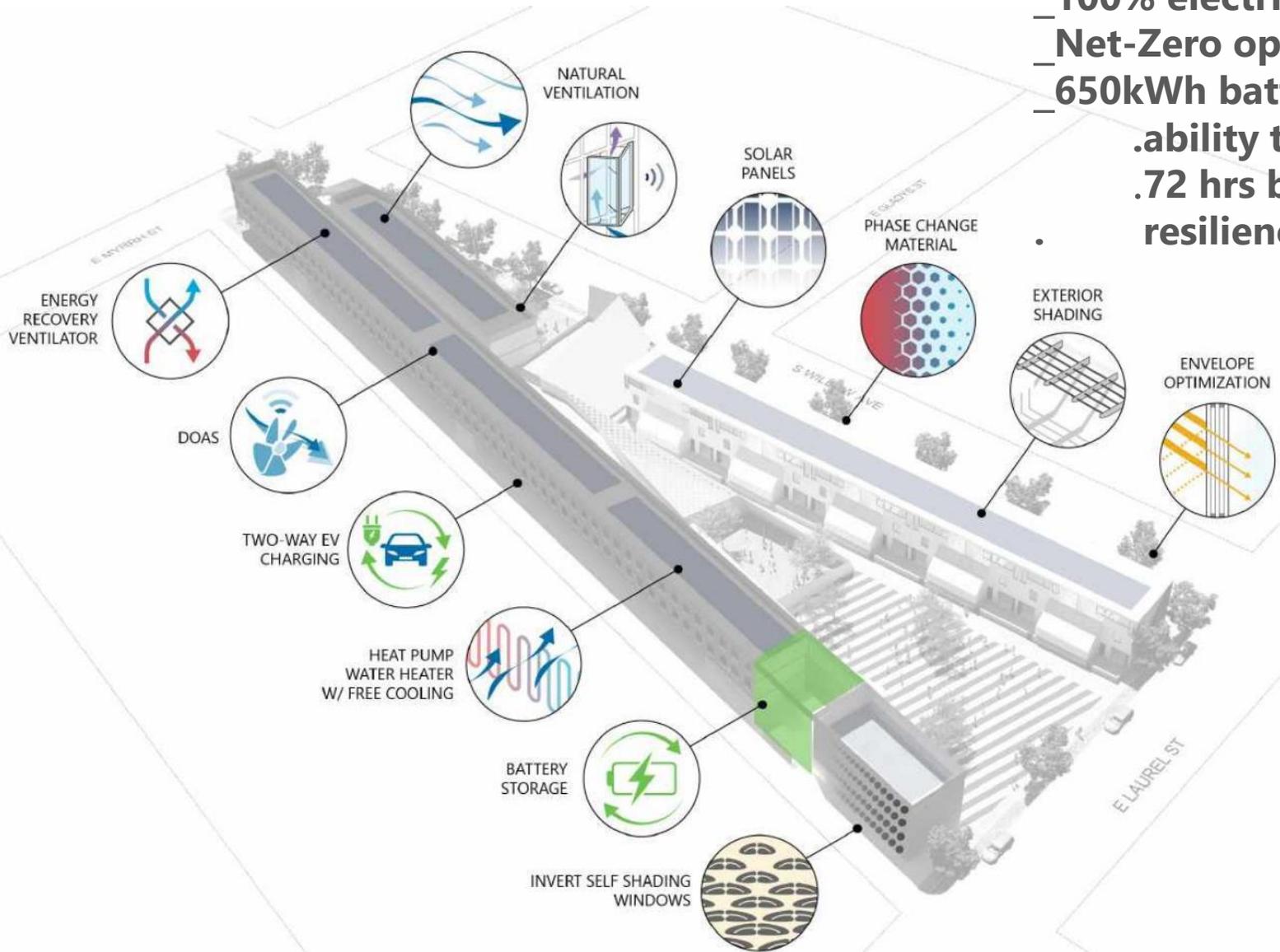








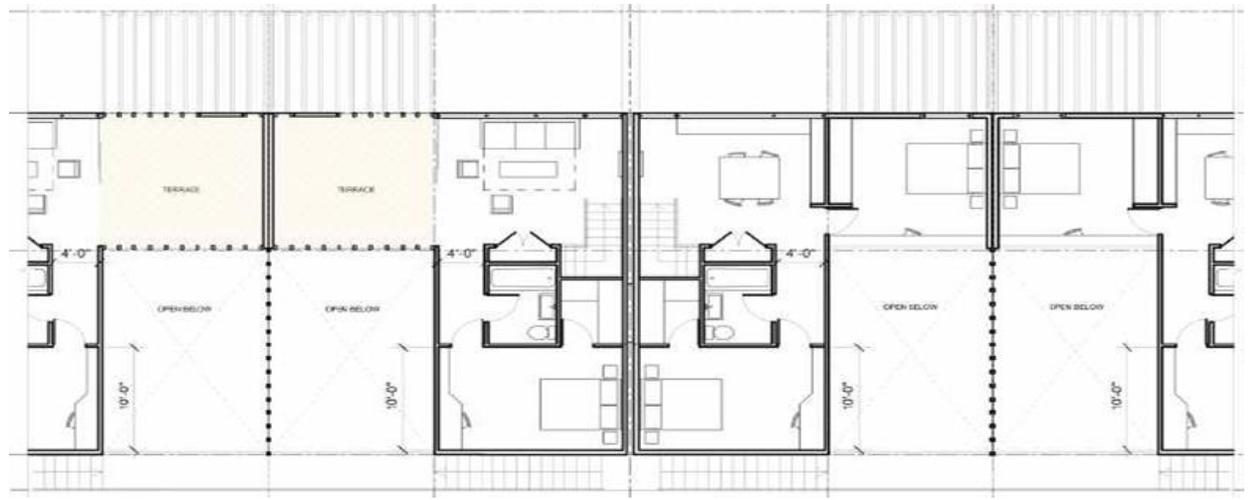
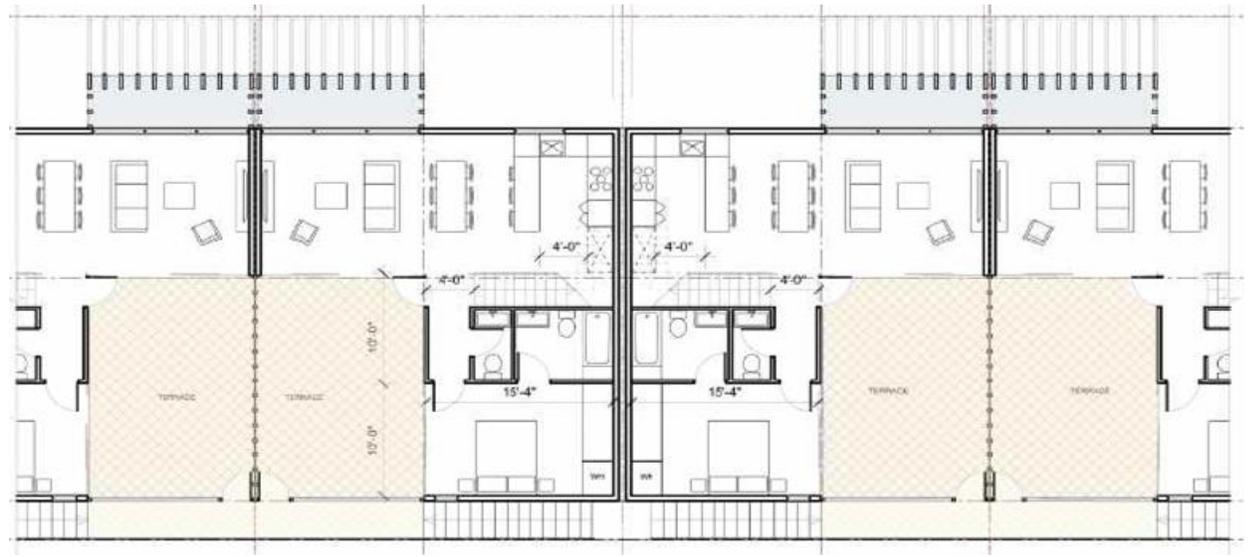
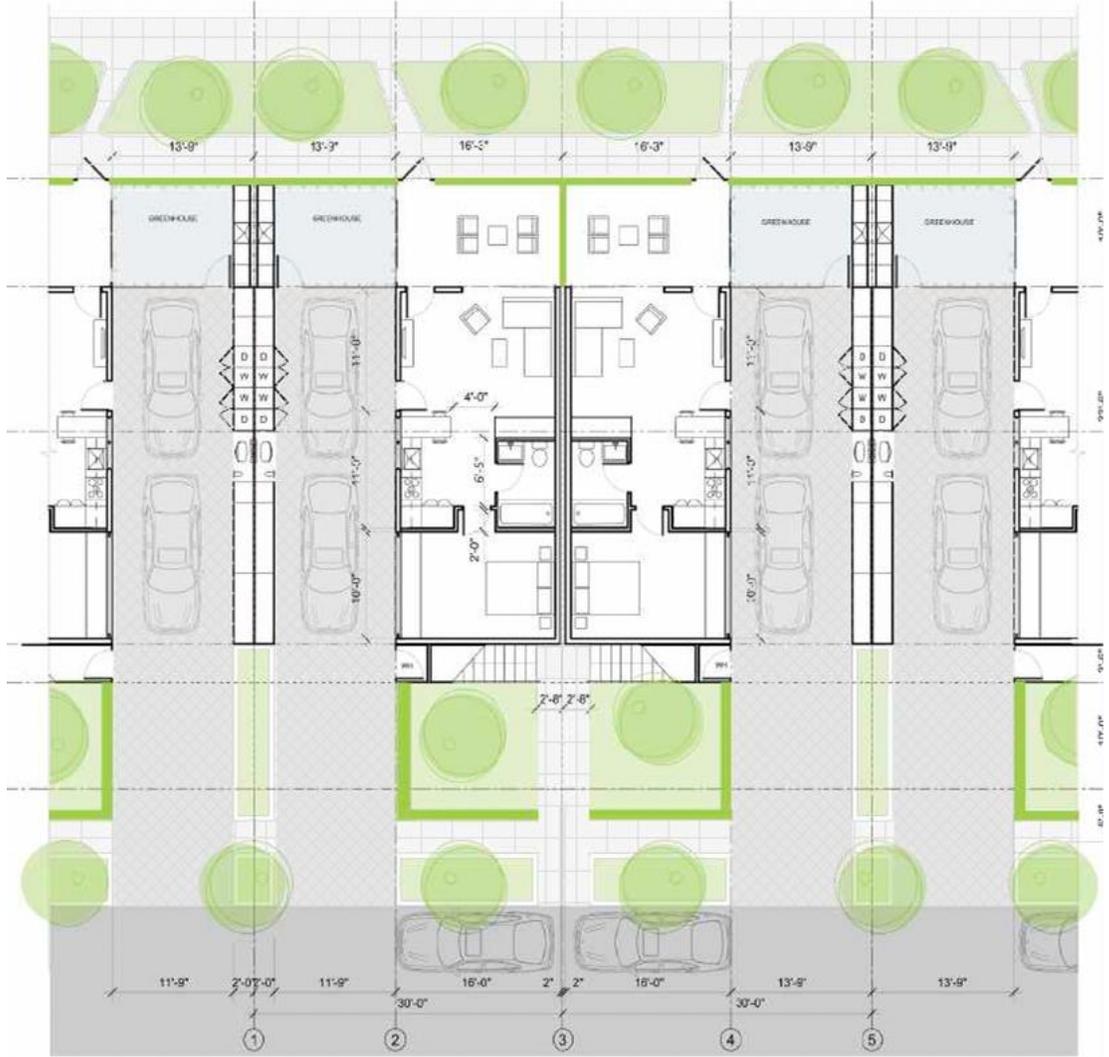
- _27 kBtu/sf/year EUI**
- _687 MWh annual rooftop PV power generation**
- _100% electric**
- _Net-Zero operational carbon**
- _650kWh battery and microgrid system**
- .ability to island in case of utility power failure**
- .72 hrs back-up power for community**
- .resilience hub**



For Sale Townhomes



For Sale Townhomes: Plans



-Sustainability is insufficient without resilience

.Sustainability: achieving a steady state over the long term

.ie moderating energy use, balancing production and consumption, achieving renewability

.Resilience: capacity to adapt to “shocks” and “stresses” due to climate, economic and demographic change

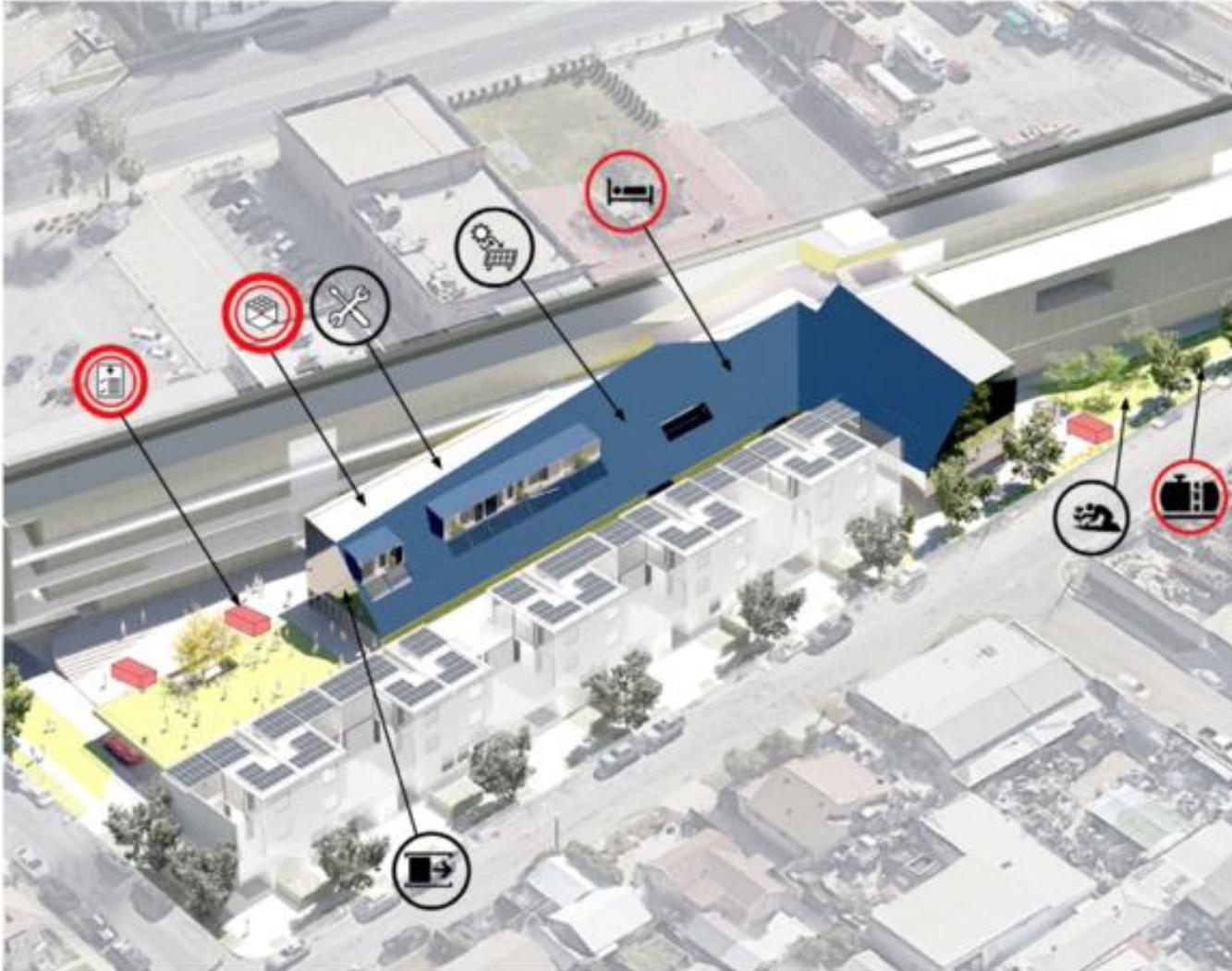
.floods, earthquakes, power outages, recessions

.”just-in-case” mindset, energy and resource storage

Resilience Hub



Resilience Hub: Program Component Locations



Campus Infrastructure

Legend

-  Resilient Roots: Flat Packed Tent Storage / Community Farmers Market
-  Photovoltaic Panels / Solar Collection
-  Garden / Nursery
-  Rooftop Garden Tools Storage / Hydroponic System Storage (Extra Component Pieces)
-  Accordion Glazing System
-  Flat Packed Sleeping System
-  Cistern / Water Storage
-  Canopy Supplemental Tools / Extra Component Pieces
-  Community Canopy / Ceiling System

Resilience Hub: Program Components

SHELTER: INTERIOR



CABLES SITE-SPECIFIC
SCREENS CENTRALLY STORED
DELIVERED TO SITES OF NEED

WATER: UNDERGROUND CISTERN

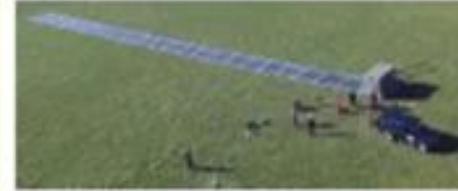


1000 occ (4 days) 4000 gal
500 occ (10 days) 5000 gal
8000 gal
= 1200 cu ft
= 10'x12'x10'



INLINE CONNECTION TO POTABLE SOURCE
CONTINUALLY REFRESHED
STORMWATER CAPTURE/FILTER/REUSE

POWER: PORTABLE PV STRIPS



CENTRALLY STORED
DEPLOYED AT SITES OF NEED

SHELTER: EXTERIOR



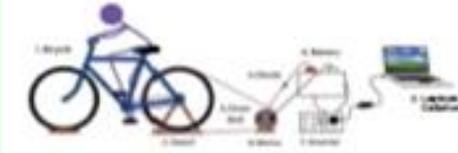
CENTRALLY STORED
DELIVERED TO SITES OF NEED

FOOD: SHORT AND LONG TERM



CAFETERIA FOOD
ENERGY BARS/DRIED FOOD FOR SHORT TERM
REPLENISH FOR LONG TERM

POWER: BICYCLE GENERATOR



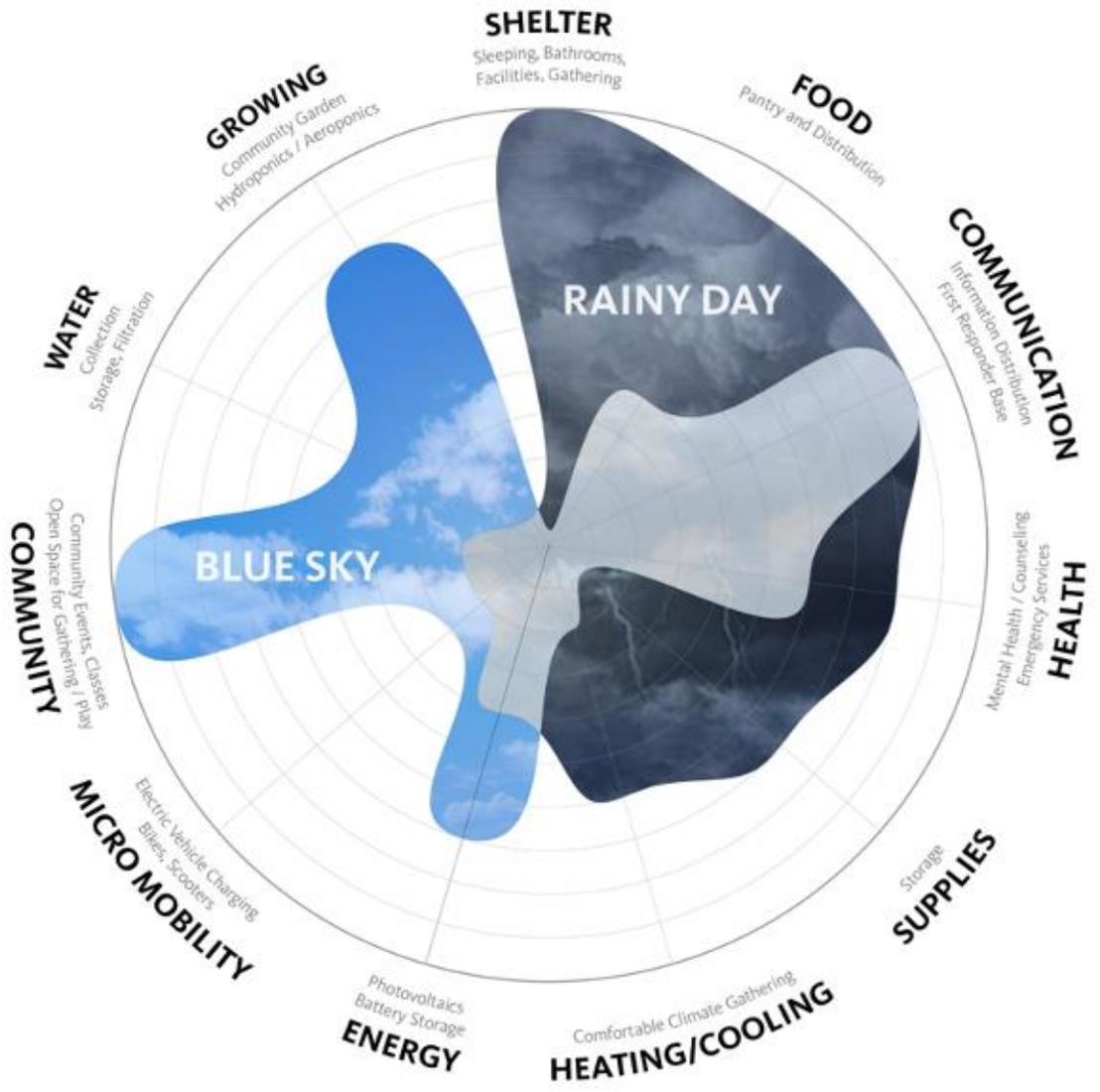
DEVICE CHARGING
PHYSICAL ACTIVITY
SCIENCE/TECHNOLOGY EDUCATION

POWER: PV CANOPIES



SUPPLEMENTAL POWER
VEHICLE CHARGING
SHADED PARKING

Resilience Hub: “Blue Sky” v. “Stormy” Days



Resilience Hub: “Blue Sky” Day Scenario

Disaster Shelter Programming | Three Scenarios



1. BLUE-SKY DAYS

	WEEKDAYS		WEEKENDS	
	8 AM - 5 PM	5 PM - 10 PM	8 AM - 5 PM	5 PM - 10 PM
MULTI-PURPOSE SPACE	• Community		Church	
INDOOR & OUTDOOR SPACE FOR KIDS	• Daycare		Church	
COMMUNITY KITCHEN	• Daycare • Community		Church	
MEETING ROOM	• Daycare • Community		Church	
Office / Staff Room	• Daycare • Community		Church	
COMPUTER LAB/ EQUIPMENT ROOM	• Community			
OUTDOOR SPACE	• Community		Church	

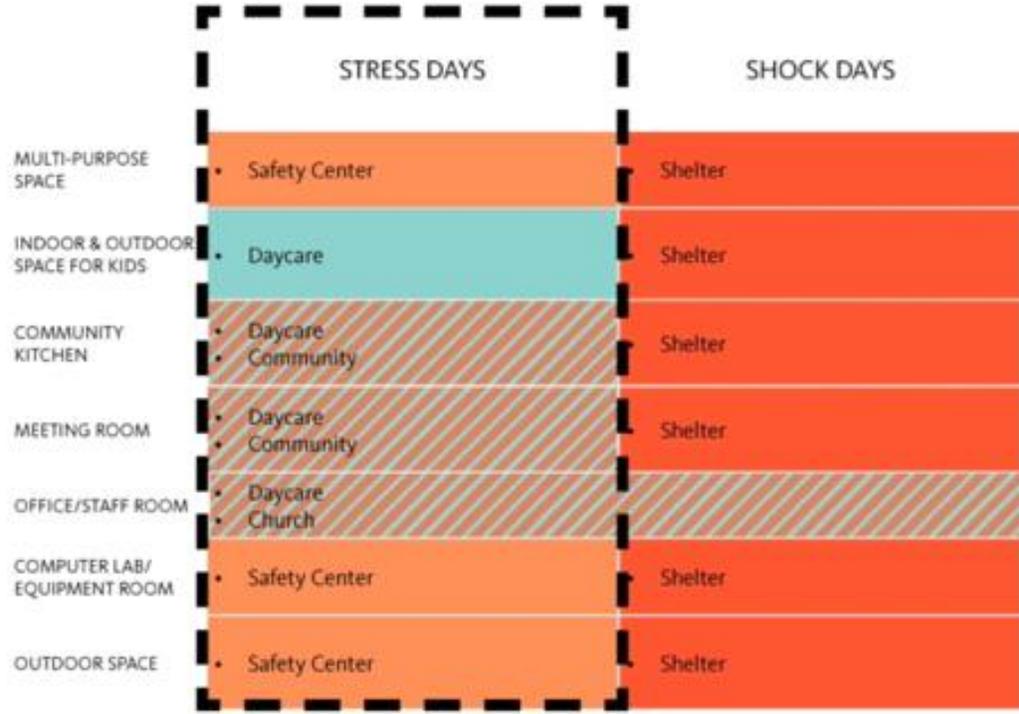
 Community	 Safety Center
 Daycare	 Shelter
 Church	

Resilience Hub: Stress Day Scenario

Disaster Shelter Programming | Three Scenarios



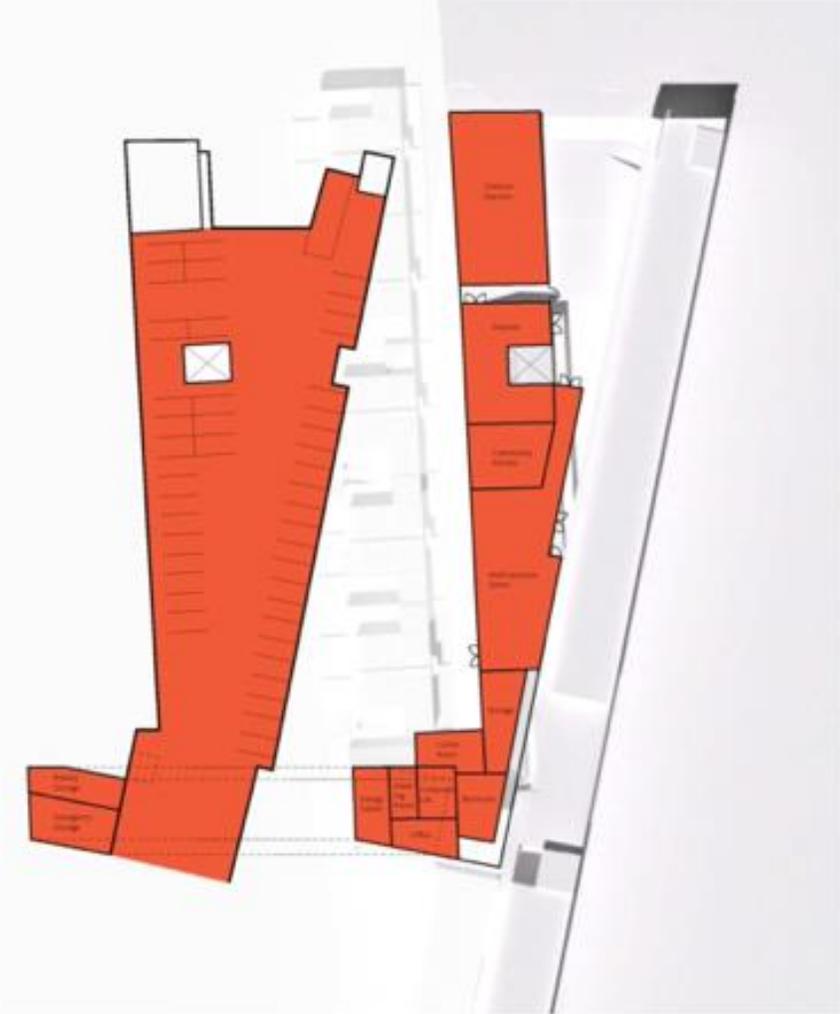
2. STRESS DAYS



- Community
- Safety Center
- Daycare
- Shelter
- Church

Resilience Hub: Stormy Day Scenario

Disaster Shelter Programming | Three Scenarios

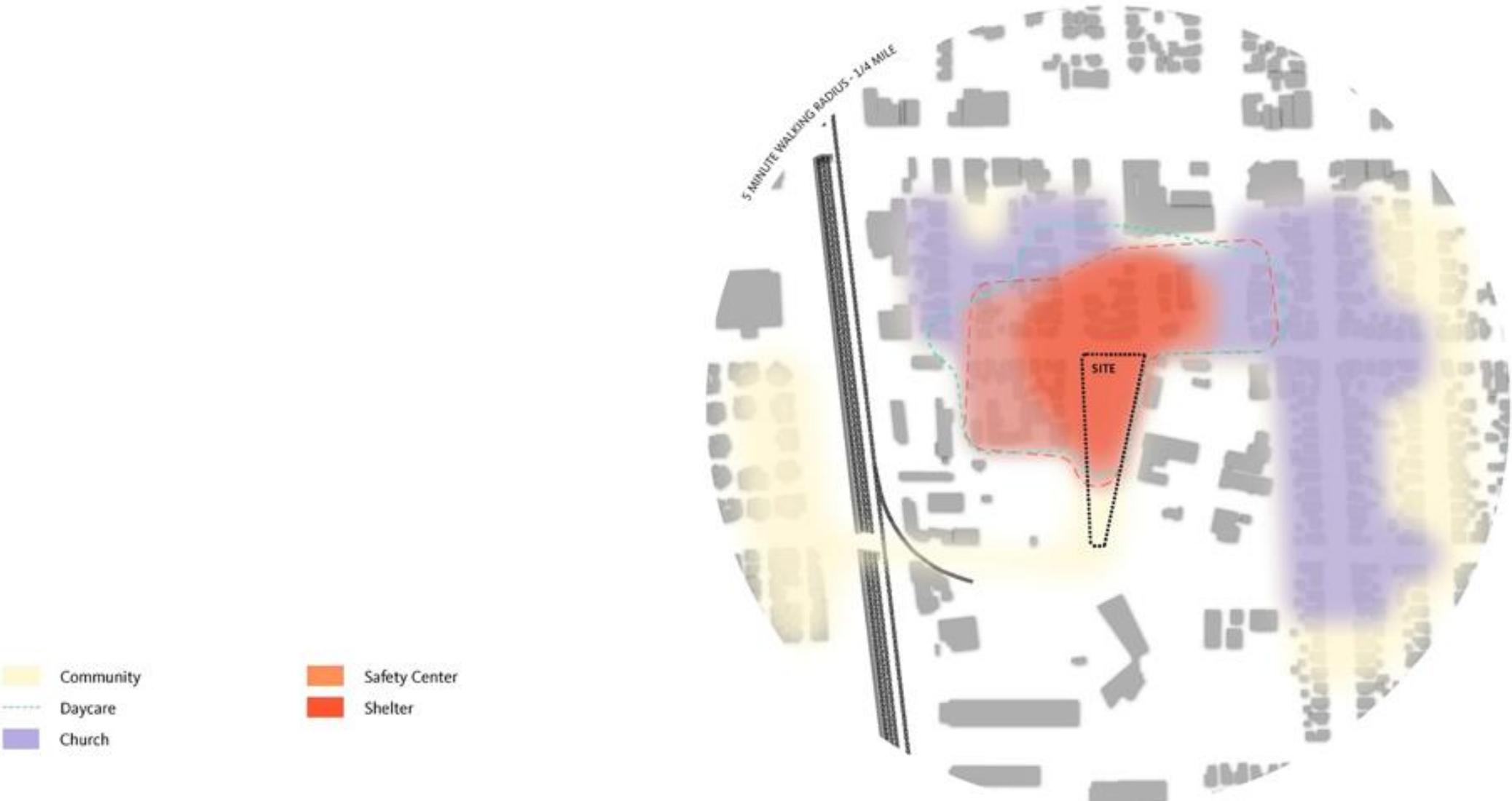


3. SHOCK DAYS

	STRESS DAYS	SHOCK DAYS
MULTI-PURPOSE SPACE	• Safety Center	Shelter
INDOOR & OUTDOOR SPACE FOR KIDS	• Daycare	Shelter
COMMUNITY KITCHEN	• Daycare • Community	Shelter
MEETING ROOM	• Daycare • Community	Shelter
OFFICE/STAFF ROOM	• Daycare • Church	Shelter
COMPUTER LAB/EQUIPMENT ROOM	• Safety Center	Shelter
OUTDOOR SPACE	• Safety Center	Shelter

- Community
- Daycare
- Church
- Safety Center
- Shelter

Resilience Hub: Neighborhood Catchments





Buildings and the IRA: The New Incentives for Going Green



VB Parks + Recreation | LEED Certified | Photo: Yuzhu Zheng Photography



River Point | LEED Gold | Photo: Ray Cavacchio



Southwest Library | LEED Platinum | Photo: ©James Steinkamp Photography



\$370B Largest climate investment in history

Estimated to reduce U.S. greenhouse gas emissions (GHG) by 40% by 2030 vs. 2005 baseline.

*These estimates have been rising recently.

Sec. 45L New Energy Efficient Homes Credit (IRA Sec. 13304)

Expanded Sec. 45L homebuilder tax credit for new home construction, including multifamily, through 2032:

- Increased from \$2,000 per unit historically for meeting IECC reference to \$2,500 for meeting ENERGY STAR and \$5,000 for DOE Zero Energy Ready Homes.
- Previously limited to multifamily buildings three stories or less, updates make it accessible to all multifamily at \$2,500/\$5,000 per unit.
- IRS has released detailed guidance, including coordination with EPA and DOE on which versions of ENERGY STAR and DOE Zero Energy Ready Homes programs apply.
- Prevailing wage provisions apply to multifamily projects, which receive reduced credit of \$500/\$1,000 without meeting them.
- Credit taken by contractor in tax year home was acquired (i.e. sold or leased).
- Does not include direct pay or transfer provisions. But the IRA made the credit available for use with Low-Income Housing Tax Credit (LIHTC) projects without reducing LIHTC basis, increasing its value for affordable housing.



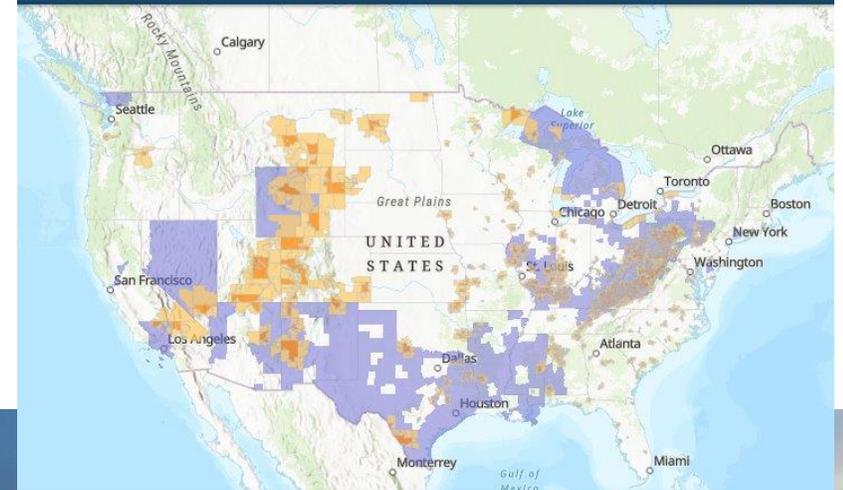
Brightview Senior Living | LEED Gold | © Hord Coplan Macht

Sec. 48 Clean Electricity Investment Tax Credit (IRA Secs. 13102 & 13702)

Expanded through at least 2032 for clean energy investments such as rooftop solar, ground-source heat pumps and storage.

- For most projects, credit of 30% of investment if wage and apprenticeship provisions met, dropped to 6% if not met. Projects smaller than 1MW not required to meet wage and apprenticeship provisions.
- Credit increased by additional 10% if domestic content requirements are met and another 10% if project is in a designated “energy community” such a census tract with shuttered coal operations. Additional bonus credits of 10% or 20% for qualified solar and wind projects serving low-income communities.
 - Max credit of 70% if all bonus criteria is met.
- New options for “direct pay” - also called “elective pay” - for government and nonprofit entities to use credit even without tax liability. Starting in 2024, direct pay is phased out for projects larger than 1MW that don’t meet domestic content.
 - Streamlined transferability for private entities to sell credits.
 - IRS recently opened a registration portal where filers can set up their accounts – the first step to claiming direct pay and credit transfer.
- Tax credit is taken the year equipment is placed in service.
- In 2025, ITC converts to tech-neutral structure (Sec. 48E) open to other technologies deemed zero emission. Work to define eligible technologies pending.

Energy Community Tax Credit Bonus



Market One | LEED Platinum | Photo: © Jared Heidemann

Sec. 179D Tax Deduction for Energy Efficient Commercial Buildings (IRA Sec. 13303)

Expanded tax deduction for commercial building efficiency improvements:

- Increases deduction from \$1.80/square foot to sliding scale of \$2.50-\$5.00.
- Projects must achieve 25%-50% better performance than applicable ASHRAE 90.1 standard (starting with ASHRAE 90.1-2007 for projects placed in service in 2023-2026, and 90.1-2019 for projects placed in service starting in 2027).
- Receiving full credit requires meeting prevailing wage and apprenticeship provisions. Deduction drops to \$0.50-\$1.00 if not met.
- Creates new pathway for existing building retrofits to more easily access the deduction by demonstrating 25-50% energy use intensity improvement over one year to receive sliding scale deduction of \$2.50-\$5.00.
- IRS released new Form 7205 for claiming 179D. Awaiting guidance on filing.
- Unlike other incentives, 179D is permanent, and adjusts annually for inflation.
- Creates new pathway for nonprofit entities to access deduction by allocating it to project designer (as government entities have been able to do).



Southwest Library | Washington, D.C. | LEED Platinum
Photo: ©James Steinkamp Photography

Sec. 30C Alternative Fuel Vehicle Refueling Property Credit (IRA Sec. 13404)

Expanded Sec. 30C tax credit for EV charging systems and other alternative fuel vehicle infrastructure through 2032:

- Credit of 30% of expenses up to \$100,000 per charging/fueling unit on commercial properties, including retail, office, etc. (Past cap was \$30,000 per property.)
- Starting in 2024, eligible properties must be in defined rural or low-income census tracts. See map here for eligible tracts.
- Must meet prevailing wage and apprenticeship program requirements or credit is reduced to 6%.
- Includes “direct pay” and transfer provisions.
- Credit taken in year property placed in service (i.e. made operational)
- Awaiting guidance on specific charging unit investments that qualify (i.e. electrical upgrades or wiring shared across units).



City of Coral Gables | LEED Gold | Photo: © City of Coral Gables

8911		Alternative Fuel Vehicle Refueling Property Credit		OMB No. 1545-0123
Form 8911 (Rev. January 2024) Department of the Treasury Internal Revenue Service		Attach to your tax return. Go to www.irs.gov/Form8911 for instructions and the latest information.		Attachment Sequence No. 151
Name(s) shown on return			Identifying number	
Part I Total Cost of Refueling Property				
1	Total cost of qualified alternative fuel vehicle refueling property placed in service during the tax year	1		
Part II Credit for Business/Investment Use Part of Refueling Property				
2	Business/investment use part (see instructions)	2		
3	Section 179 expense deduction (see instructions)	3		
4a	Subtract line 3 from line 2	4a		
b	Enter any amount included on line 4a attributable to property placed in service as part of a project subject to project requirements that were not met (see instructions)	4b		
c	Subtract line 4b from line 4a	4c		
5a	Multiply line 4b by 6% (0.06)	5a		
b	Multiply line 4c by 30% (0.30)	5b		
c	Add lines 5a and 5b	5c		
6	Maximum business/investment use part of credit (see instructions)	6		
7	Enter the smaller of line 5c or line 6	7		
8	Alternative fuel vehicle refueling property credit from partnerships and S corporations (see instructions)	8		
9	Business/investment use part of credit. Add lines 7 and 8. Partnerships and S corporations, stop here and report this amount on Schedule K. All others, report this amount on Form 3800, Part III, line 1s	9		

Department of Energy (DOE) Home Energy Rebates (IRA Sec. 50121 & 50122)

Nearly \$9 billion in funding for Home Energy Rebates, comprised of two programs:

- \$4.3 billion in funding for Home Efficiency Rebates for energy-saving projects available to households of any income and owners of multifamily projects.
 - Higher cost share for households below 80% of Area Median Income (AMI).
 - Rebates typically range from \$2,000-\$8,000 for individual household or multifamily unit, or potentially higher.
- \$4.5 billion in funding for Home Electrification and Appliance Rebates, including point of sale rebates, for low- and moderate-income households below 150% of AMI, including for owners of qualifying multifamily projects.
 - Multifamily buildings must have at least 50% of residents below 150% of AMI to be eligible for 50% cost share, and at least 50% of residents below 80% of AMI to be eligible for 100% cost share.
 - Covers 50% of expenses for incomes 80%-150% of AMI and 100% for incomes below 80% of AMI.
- Rebate programs to be established by State Energy Offices. See rebate allocations by state [here](#).
- States have until August 2024 to accept or decline the funds, and until January 2025 to submit a full application.



River Point | LEED Gold | Photo credit: © Ray Cavacchio

Greenhouse Gas Reduction Fund (IRA Sec. 60103)

Creates a new **\$27B “green bank”** through EPA to stand up national climate financing initiative, with three funding buckets:

- **\$7B Solar for All** program providing up to 60 grants to states, tribes, municipalities, and nonprofits for residential and community solar in low-income and disadvantaged communities.
- **\$14B National Clean Investment Fund** competition funding 2-3 national nonprofits to partner with private capital providers to provide financing to businesses, communities, community lenders, and others, catalyzing tens of thousands of climate-related projects.**
- **\$6B Clean Communities Investment Accelerator** funding 2-7 hub nonprofits to rapidly scale the capacity of CDFIs, credit unions, local green banks, housing finance agencies, etc. to provide financing to households, schools, small businesses, community institutions, etc. in low-income and disadvantaged communities.**

**Zero-emissions new buildings and emissions-reducing retrofits of existing buildings designated as priority for financing in these buckets (see next slide). More information [here](#).



1222 22nd Street NW | LEED Gold | Photo credit: ©Eric Laignel Photography

Hypothetical Multifamily Building – New Construction – 150,000sf/100 units

<i>Sec. 45L Tax Credit for high-efficiency homes</i>	\$2,500 per unit for meeting ENERGY STAR X 100 units	\$250,000 tax credit
<i>Sec. 179D Tax Deduction for commercial building energy efficiency improvements</i>	\$3.50 per square foot for 35% reduction in energy use intensity across 150,000 square feet	\$525,000 tax deduction worth \$131,250 at 25% tax rate.
<i>Sec. 48 Investment Tax Credit for clean energy investment</i>	30% base tax credit on \$400,000 investment in rooftop solar plus 10% low-income bonus credit	\$160,000 tax credit
<i>Sec. 30C EV Tax Credit for EV charging infrastructure</i>	30% tax credit on \$100,000 investment in EV charging installations	\$30,000 tax credit
<i>Greenhouse Gas Reduction Fund (i.e. Green Bank)</i>	Low-interest project financing	\$600,000 in interest savings
Total Savings	Not including energy/operations cost savings or local/state incentives	\$1,171,250



Ben Evans

Federal Legislative Director

U.S. Green Building Council

bevans@usgbc.org

*Note: The information in this presentation is for informational purposes only and should not be considered tax or legal advice that is relied upon for determining eligibility for IRA programs.

Q&A

Ashley Basic

abasic@buildingdecarb.org

Ben Evans

bevans@usgbc.org

Anna Lake-Smith

Anna.Lake-Smith@Foundcom.org

Roger Sherman

Roger_Sherman@gensler.com

