

All Electric Multi-Family Buildings

Current examples

October 24, 2020

AIA | CA Committee on the Environment

Scott Shell, FAIA

ehdd.

Walnut Park Apartments, Los Angeles County

Affordable – 64 Units



Hollywood Community Housing Corp, Koning Eizenberg Architecture, Breen Engineering, VCA Green Energy
Central Heat Pump Water Heating

UC Irvine Verano 8

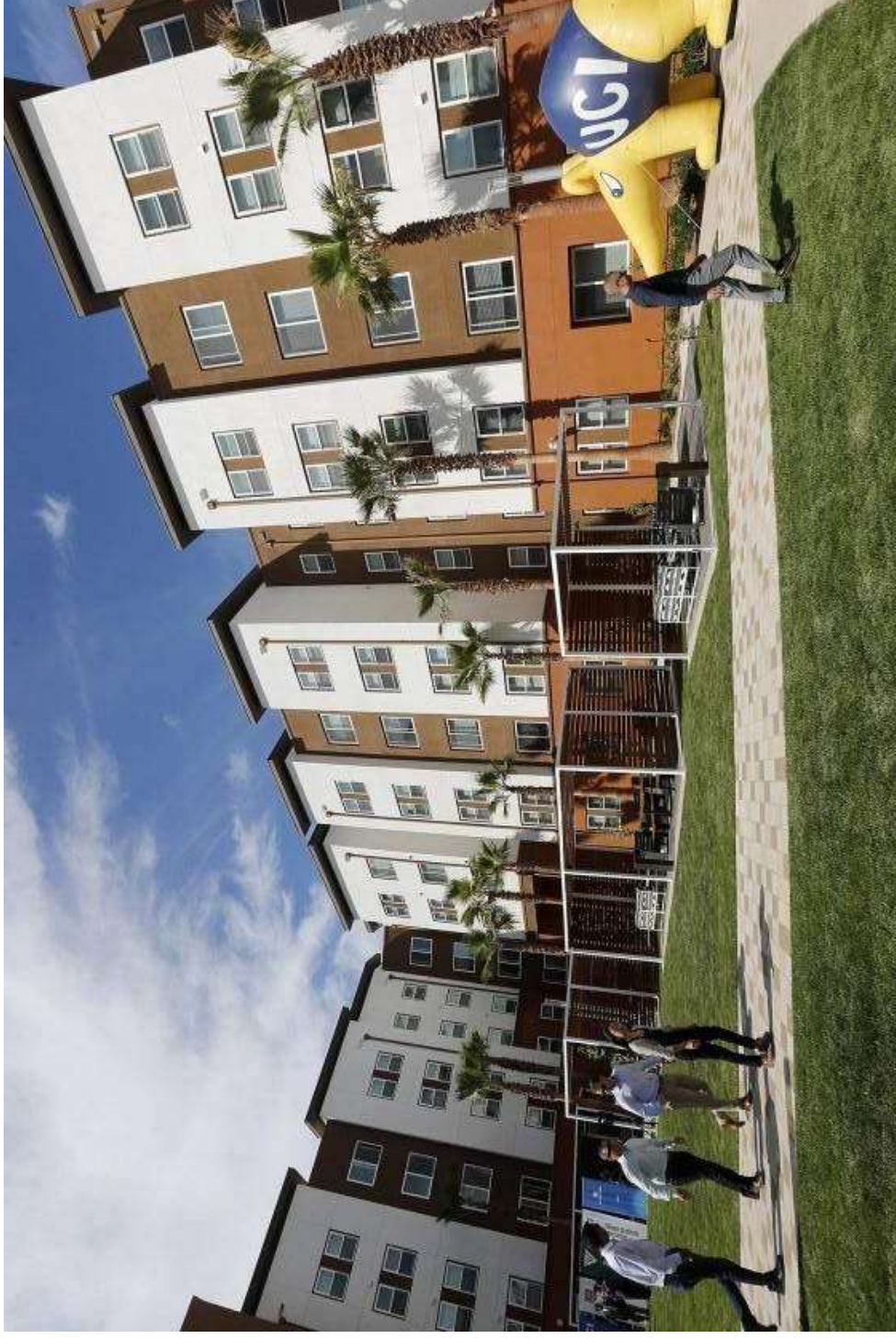
1,050 beds



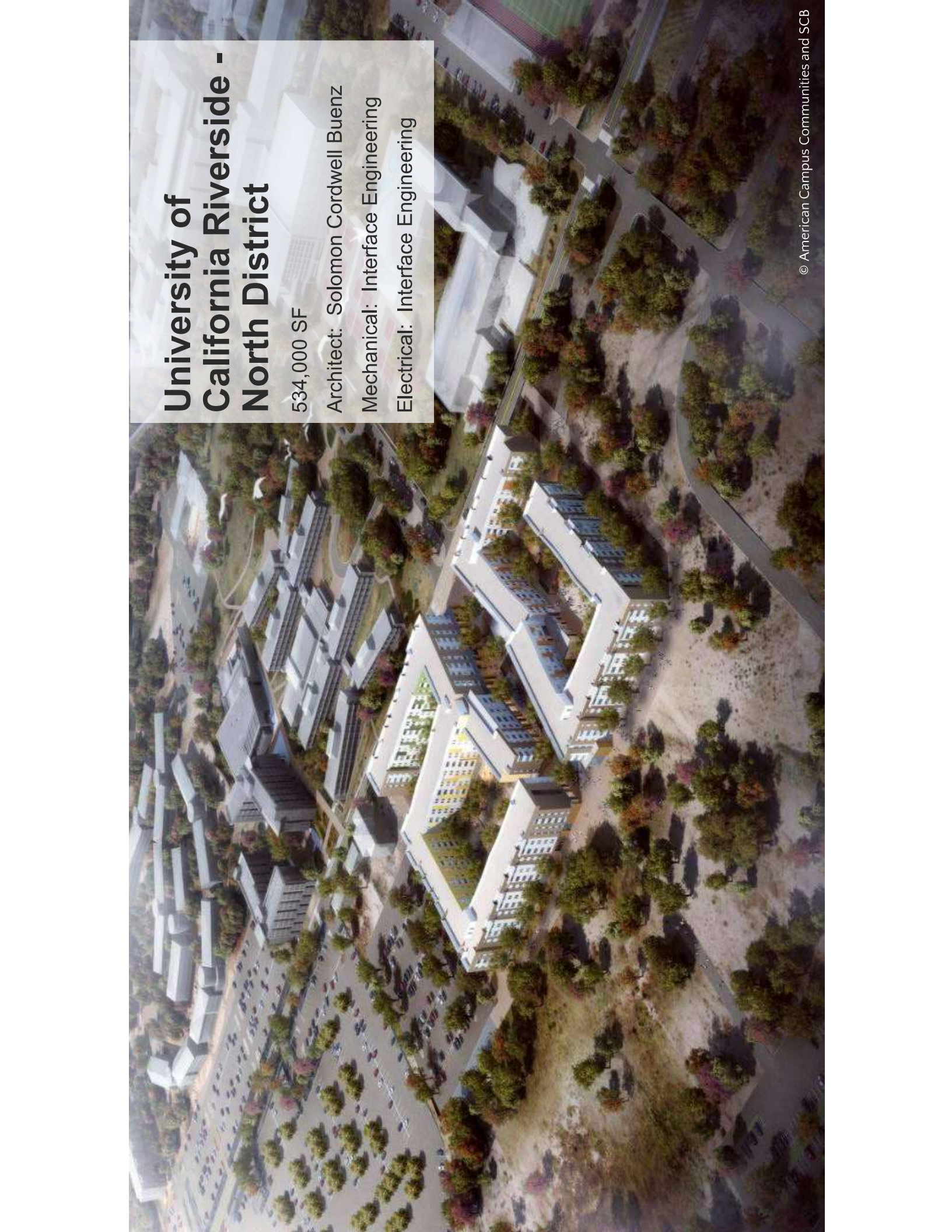
Architect: Mithun, MEP: Glumac. Central Heat Pump Hot Water

UC Irvine Student Housing West

1,441 beds



P3, Developer is American Campus Communities, KTCY Architects



University of California Riverside - North District

534,000 SF

Architect: Solomon Cordwell Buenz

Mechanical: Interface Engineering

Electrical: Interface Engineering

UC San Diego Nuevo Housing West

1,300 beds



Mithun Architects

San Pedro Lofts, San Pedro

Affordable – 91 Units, completion in 2022



Developer: National Core, Architects: RRM Design Group, MEP: Metrics Mechanical, Energy modeling: National Core
Central Heat Pump Hot Water (Sanden)

Iris at San Ysidro, San Diego

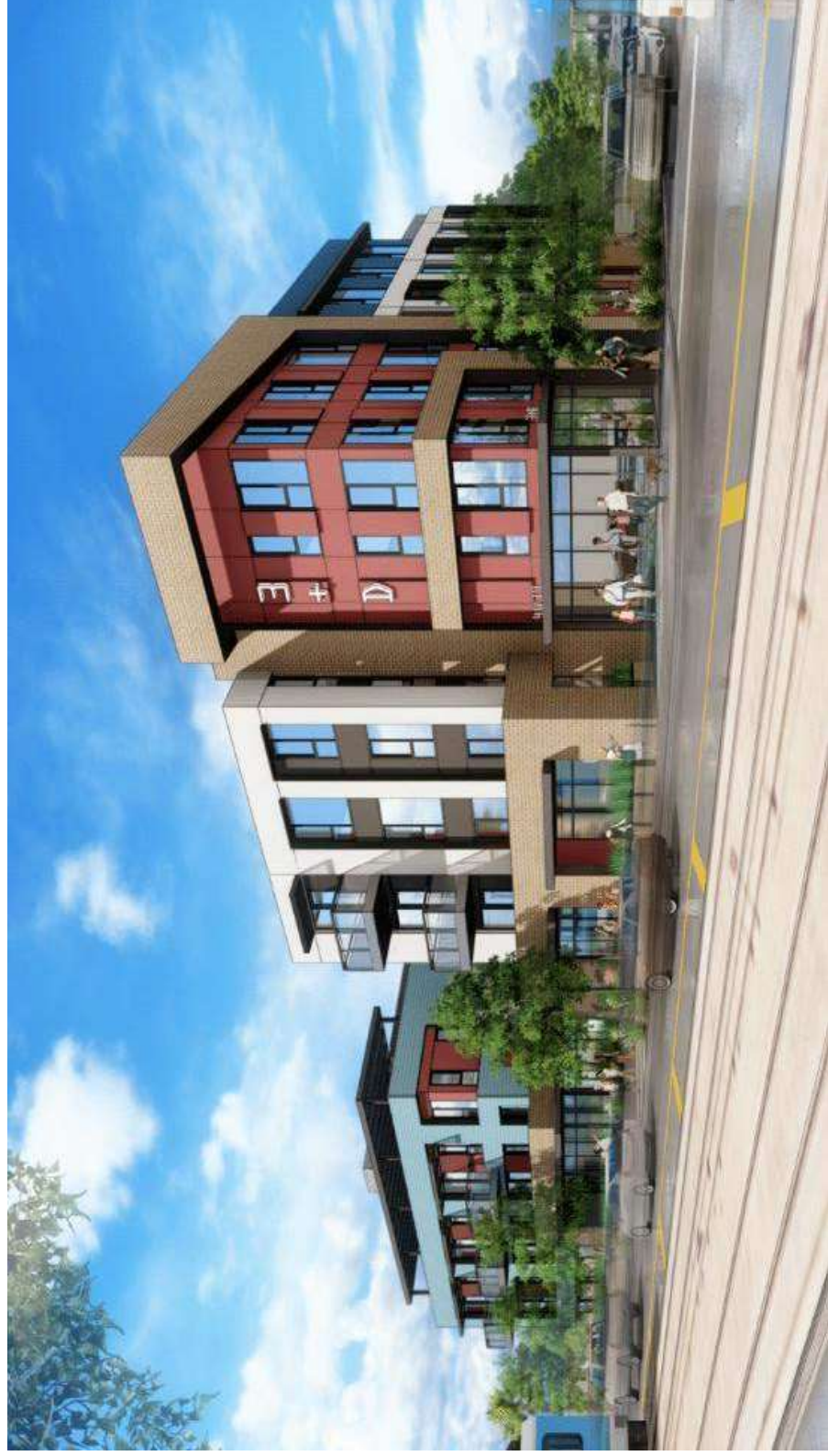
Affordable – 100 Units, completion in 2022



Developer: National Core, Architects: Studio E, MEP: Metrics Mechanical, Energy modeling: National Core, Central Heat Pump Hot Water (Sanden)

3rd and Dangler, East Los Angeles

Affordable – 78 Units, completion in 2022



Developer: National Core, Architects: TSMR, MEP: Metrics Mechanical, Energy modeling: National Core, Central Heat Pump Hot Water (Sanden)

Legacy Square, Sana Ana

Affordable – 93 Units, completion 2022



Developer: National Core, SVA Architects, MEP: Metrics Mechanical, Energy modeling: National Core,
Individual Heat pumps per unit

Vista Verde, Ontario

Affordable – 101 Units, completion in 2020



Developer: National Core, Onyx Architects, MEP: Southwest Engineering Group, Energy modeling: National Core, Individual Heat pumps per unit

Arrowhead Grove, San Bernardino

Affordable – 184 Units, completion February 2021



Developer: National Core, Architects: RRM Design Group, MEP: Metrics Mechanical, Energy modeling: National Core, Individual Heat pumps per unit

Edwina Benner Plaza, Sunnyvale

Affordable – 66 Units, Occupied



MidPen Housing, David Baker Architects, Emerald City Engineers, Association for Energy Affordability
Central Heat Pump Water Heating

4101 3rd Street, SF

36,000 SF

Architect: Steinberg Hart

Mechanical: Interface Engineering

Electrical: Interface Engineering

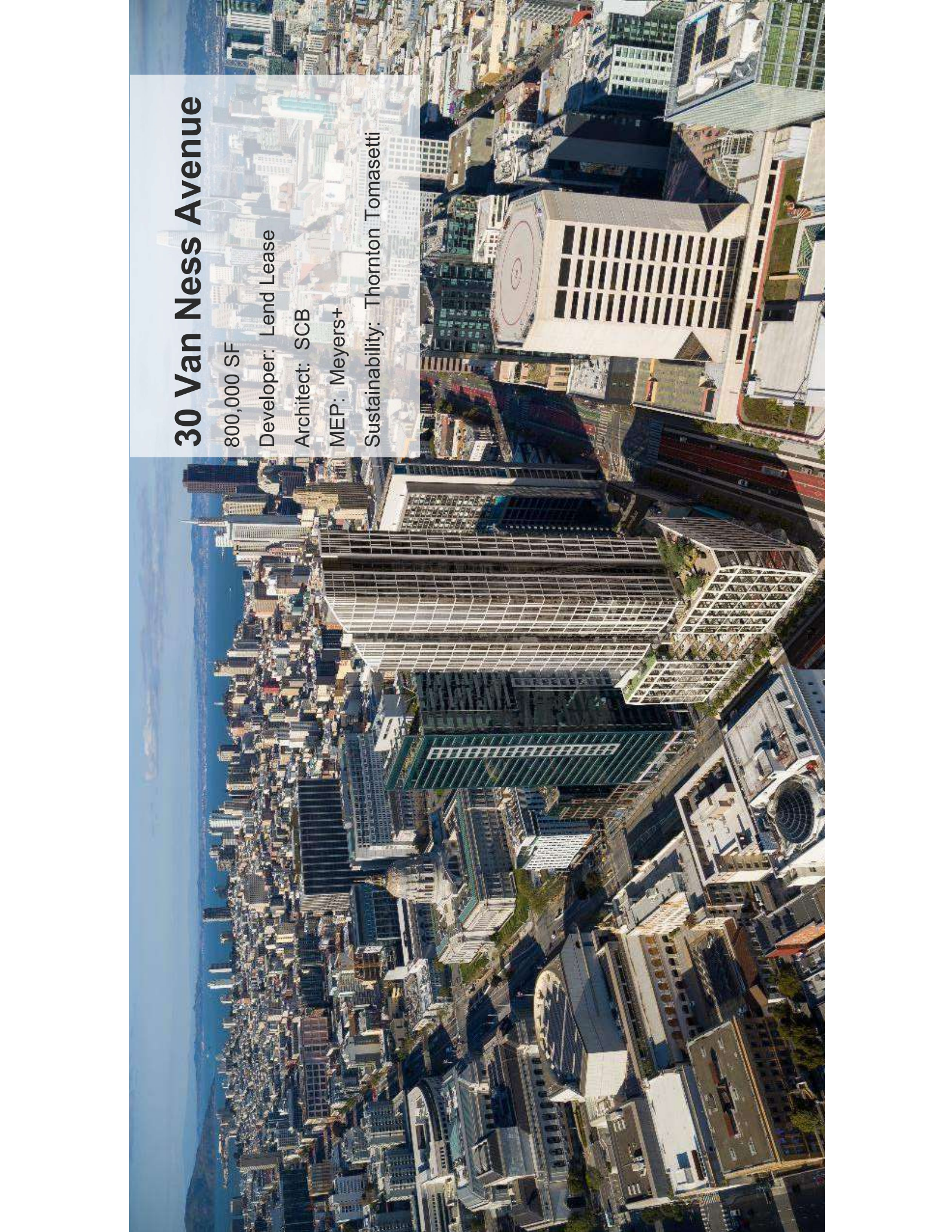


525 Harrison, San Francisco

200 Units

SCB Architecture, Interface Engineering



An aerial photograph of San Francisco, showing the city's dense urban landscape, the Golden Gate Bridge in the distance, and the bay. The image is used as a background for a project information overlay.

30 Van Ness Avenue

800,000 SF

Developer: Lend Lease

Architect: SCB

MEP: Meyers+

Sustainability: Thornton Tomasetti

UC Davis Student Housing, Webster Hall Replacement

371 beds,



Design/Build, DPR GC, HKS Architects, Interface Engineering
Central Heat Pump Water Heating

Eureka Veterans Apartments, Eureka

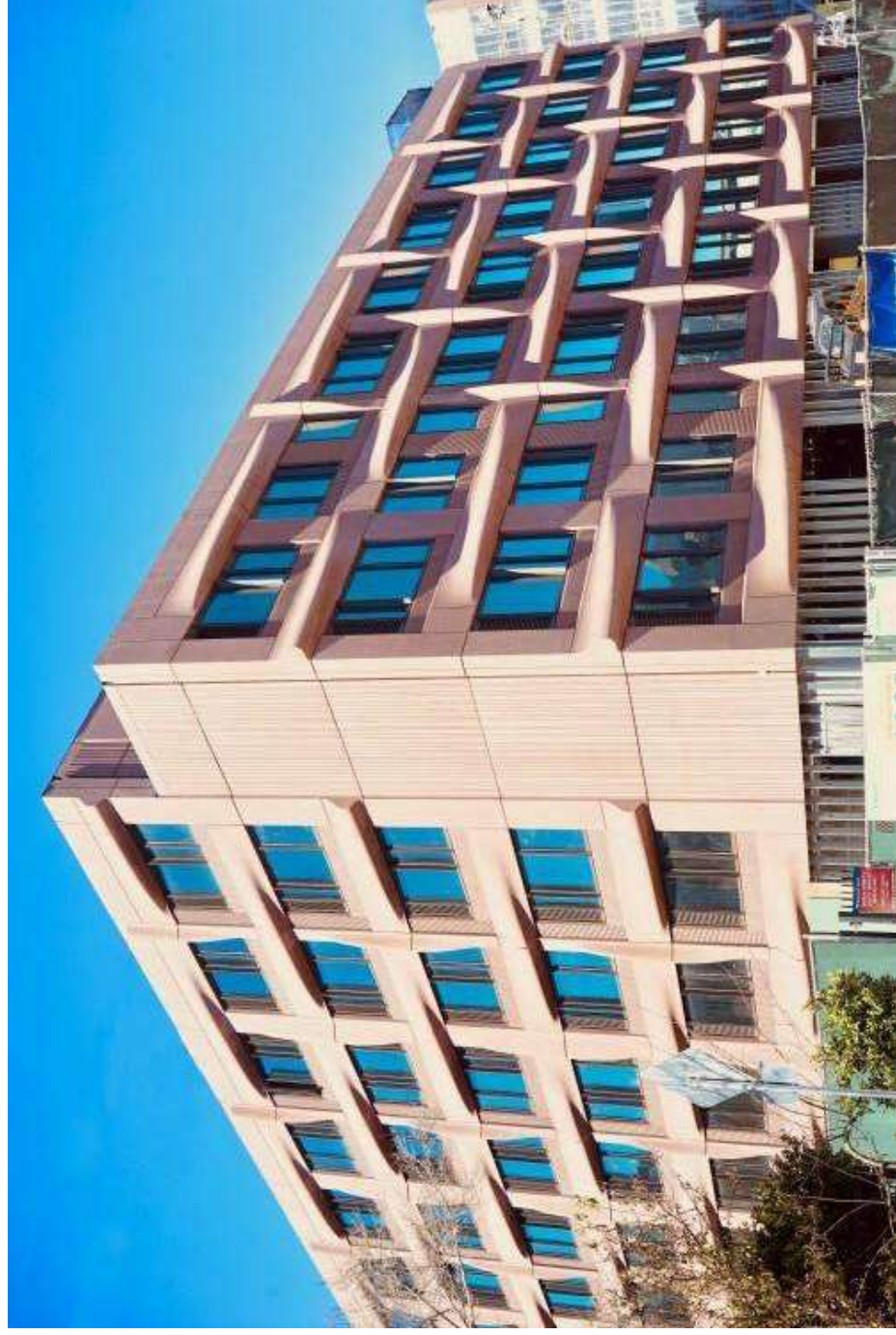
51 Units



VHDC is Developer, Rowell Brokaw Architects, Redwood Energy

UC San Francisco Minnesota Street Housing

595 Units



Skanska is GC, Kieran Timberlake Architects, Point Energy Innovations
Nyle Central Heat Pump Water Heating

Alameda Point Development

1,700+ Residential Units



Multiple projects including City Ventures Mulberry, Everett Commons, Alameda Landing Residential, etc

California projects

Redwood Energy, Sean Armstrong



Spring Lake in Woodland, by Mutual Housing



King's Station in King City, by King City Pacific



Valley Glen in Dixon, by Dixon Pacific



Lakeport Senior Apartments in Lakeport, by Lakeport Pacific



Colonial House Apartments, in Oxnard, by Oxnard Pacific



Plaza Point in Arcata by Danco Communities

California projects

Redwood Energy, Sean Armstrong



Heritage Square in Pasadena by BRIDGE Housing



Cloverdale, by Corporation for Better Housing



Atascadero, Corporation for Better Housing



Castroville, by Corporation for Better Housing



Quetzal Gardens in San Jose by RCD Housing



Quetzal Gardens, San Jose



Valley Glen, Dixon



Plaza Point, Arcata

Sean Armstrong, Redwood Energy



All-electric construction consistently reduces construction costs and ongoing utility bills.

It saves between \$2,500 and \$5,000 per residence for the developer to not plumb gas. When infrastructure and appliance costs are added up, a recent study done by Rocky Mountain Institute found a median increased cost of \$8,800 more per house for gas infrastructure, piping, purchasing appliances and venting

Developers have been choosing all electric construction because it cost less to build and that trend has been going on for 24 years now.



All Electric Construction Guides:

<https://www.redwoodenergy.tech/research/>

Depot Station Townhomes, Morgan Hill

29 Units



City Ventures, Hunt Hale Jones Architects

2437 Eagle Ave, Alameda

Affordable – 20 Units, Occupied



Housing Authority of the City of Alameda, Anne Philips Architecture, Fard Engineers, Association for Energy Affordability

Casa Adelante, 2060 Folsom, San Francisco

127 Units, under construction



Mithun: “We have found first costs to be neutral going all electric”

Developers: TNDC/CCDC, Architect: Mithun & YA Studio, Association for Energy Affordability
Central Heat Pump Water Heating



Casa Adelante, 2060 Folsom, San Francisco



Maceo May Veterans Apartments, Treasure Island



Balboa Upper Yard Family Apts, San Francisco

Malcolm Harris, Principal

MITHŪN

We have a number of all-electric multifamily projects and I'm a huge, huge fan of this change to all-electric multifamily housing.

It is better in every way, a great simplification of the system. Less expensive, higher performance, less maintenance, more sustainable.

At Maceo May we saw big savings from eliminating gas fired hydronic heating, the gas connection, and the solar thermal which paid for continuous exterior insulation, energy recovery ventilators (eliminating Z-ducts), electric resistance heat, and PVs. With these upgrades we are beating Title 24 by 20%, getting more Green Points, and lower GHGs on a grid that's getting cleaner.

The occupants get better indoor air quality benefits from the energy recovery ventilators.

Balboa Upper Yard Family Apts, San Francisco

120 units, in design development



Developer Mission Housing Development & Related California, Architect: Mithun
Central Heat Pump Water Heating

Maceo May Veterans Apartments, Treasure Island

105 units, in permitting



Chinatown Community Development Center, Swords to Plowshares, Mithun, Association for Energy Affordability
Central Heat Pump Water Heating

Hunters Point Shipyard Block 52, San Francisco

136 units total, in Design Development



Developer McCormack, Baron, Salazar, Architect: Mithun
Central Heat Pump Water Heating

Hunters Point Shipyard Block 54, San Francisco

136 units total, in Design Development



Developer McCormack, Baron, Salazar, Architect: Mithun
Central Heat Pump Water Heating

681 Florida, San Francisco

136 units total, In Design Development



Developers: TNDC & MEDA, Architect: Mithun
Central Heat Pump Water Heating

Linda Vista, Mountain View

101 units, In bidding phase



Palo Alto Housing is Developer, architect is Van Meter Williams Pollack, Integral Group
Central Heat Pump Water Heating

Coliseum Place, 905 72nd Ave, Oakland

59 units, In Construction Documents



*DBA: “Construction
cost is not an issue
IF you can help
subcontractors
understand what
you are asking
them to price”*

Developer Resources for Community Development, David Baker Architects, Energy Modeling by Redwood Energy, MEP by EDesignC

Quetzal Gardens, San Jose

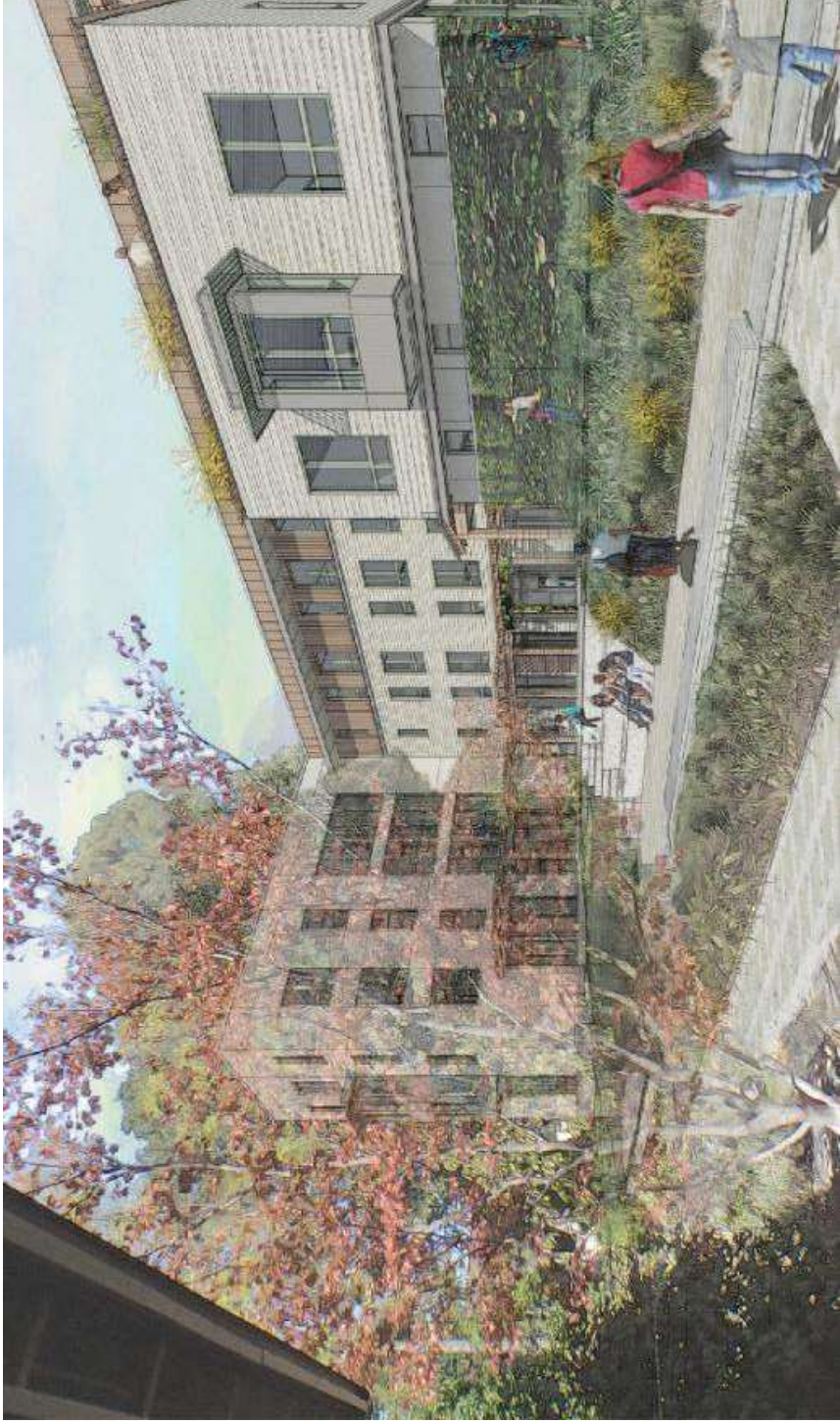
71 Units



RCD Housing is Developer, SGPA Architects, Redwood Energy

St. Paul's Commons, Walnut Creek

Affordable – 45 Units, Under construction



Pyatok:
“It is critical to share information about best practices and lessons learned”

RCD, Pyatok Architects, Fard Engineers, Association for Energy Affordability
Central Heat Pump Water Heating

Altamira Family Apartments, Sonoma

Affordable, 48 units



Developer is SAHA, Pyatok Architects, Fard Engineers,
Association for Energy Affordability

Stoddard Housing, Napa

Affordable – 50 Units, Under construction



Burbank Housing, Dahlin Group Architects, Emerald City Engineers, Association for Energy Affordability
Central Heat Pump Water Heating

2437 Eagle Ave, Alameda

Affordable – 20 Units, Occupied



Housing Authority of the City of Alameda, Anne Philips Architecture, Fard Engineers, Association for Energy Affordability

Station House, Oakland

171 Units, phase I completed



Developer City Venture, Baran Studio Architect

Ice House, Oakland

Units?



Developer City Ventures

UC Santa Cruz Student Housing West

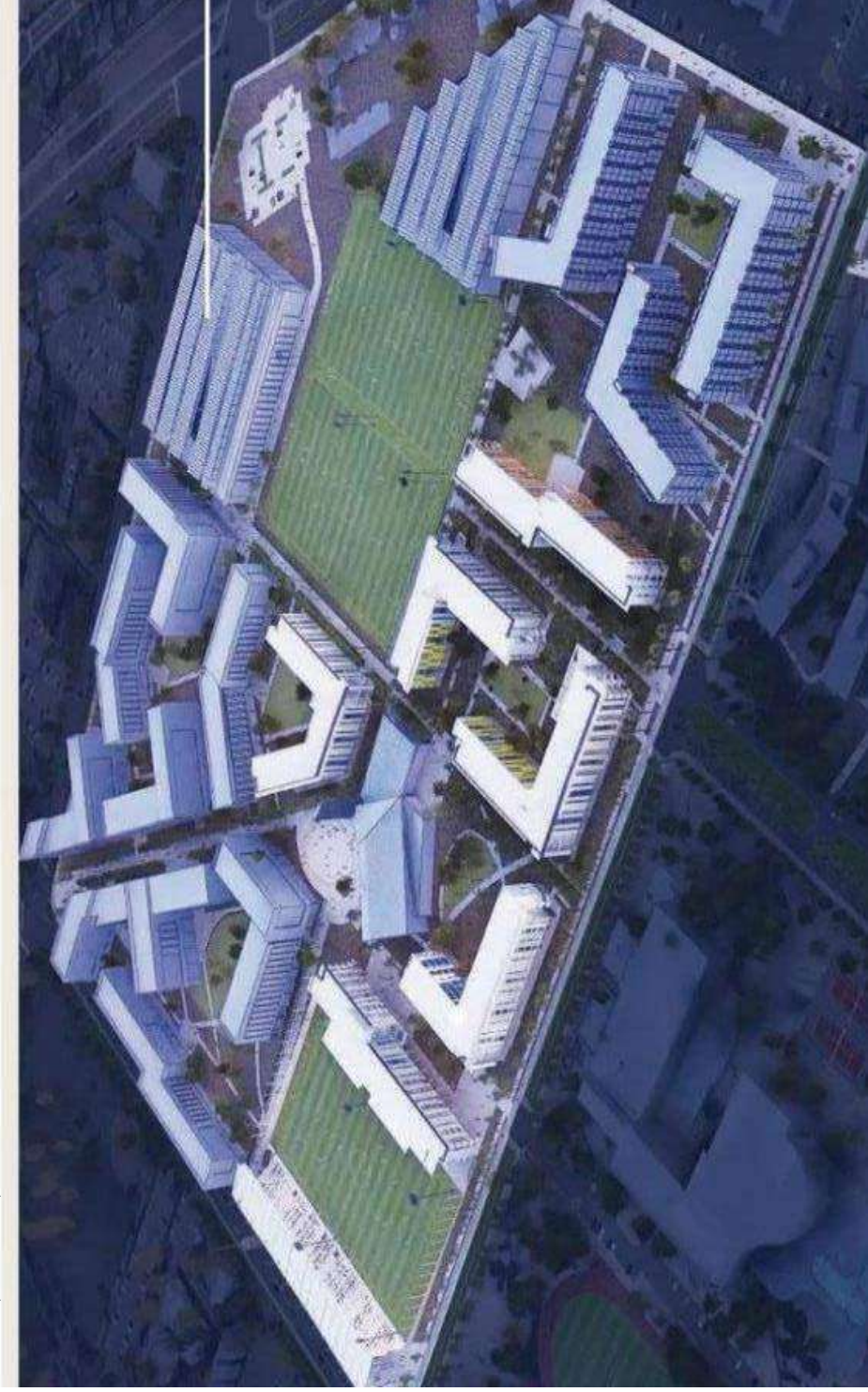
750,000 sf, 3,000 beds, under construction



P3, Capstone is Developer, Sundt is GC, HED Architects, Interface Engineering
Central Heat Pump Water Heating

UC Riverside Dundee Residence Hall

600,000 sf, under construction



*Interface:
“We design almost
all of our projects as
electric only unless a
client requires
otherwise”*

American Campus Communities is Developer, SCB Architects, Interface Engineering

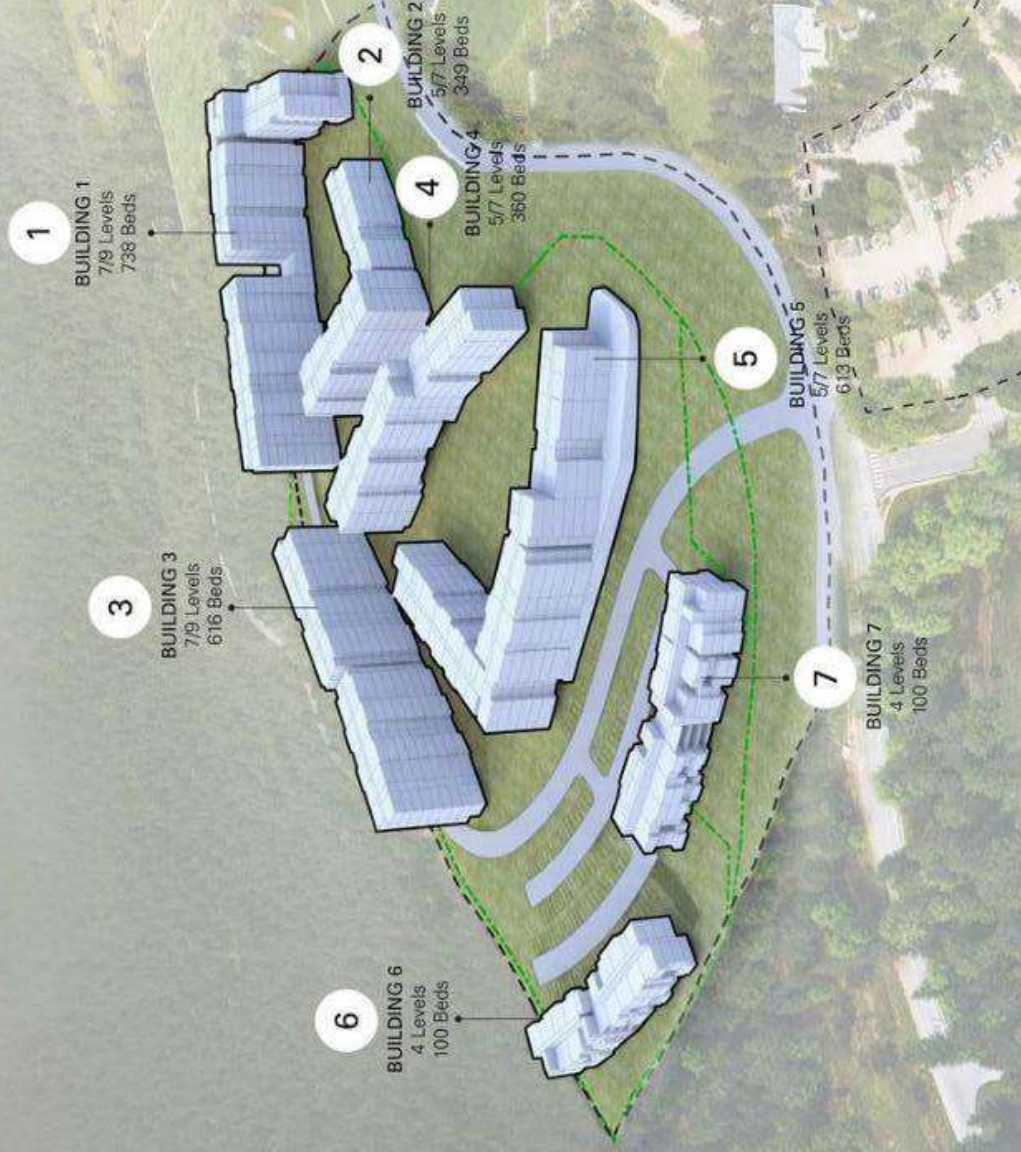
UC Santa Cruz Housing West

1,000,000 SF

Architect: Harley Ellis Devereaux
Architects

Mechanical: Interface Engineering

Electrical: Interface Engineering

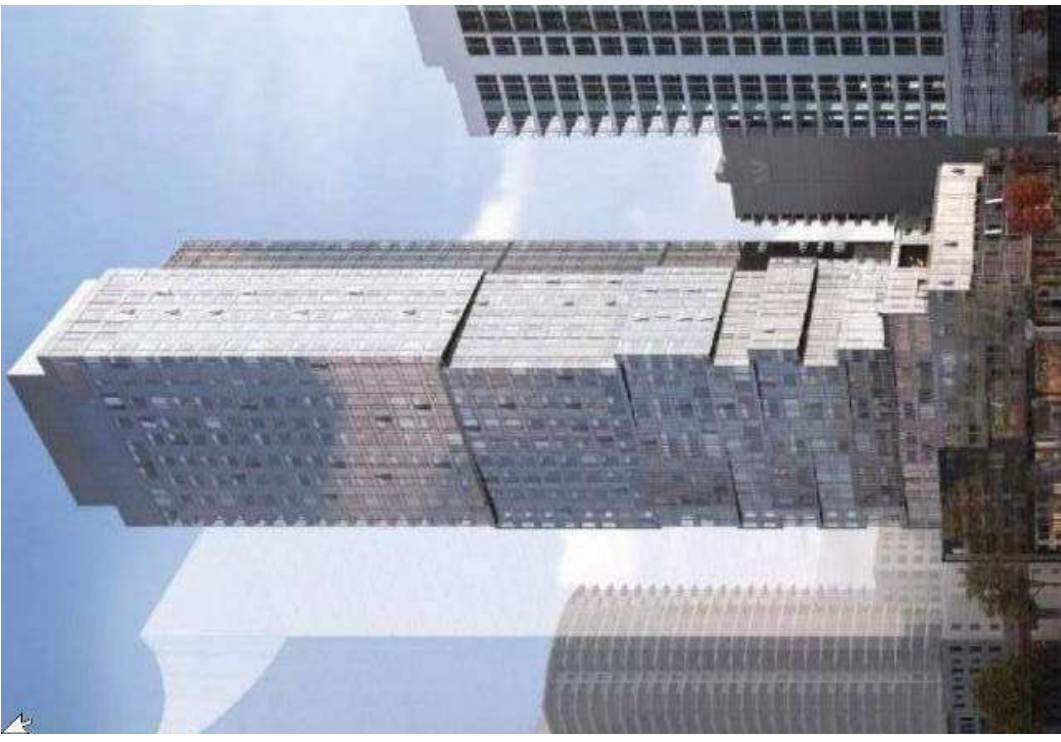


Cascade Apartments, Seattle

230 Units, 44 floors. At 95% Construction Docs.



Developer is Vulcan, Ankrom Mosian Architects,
Engineering by Ecotope



4700 Brooklyn, Seattle

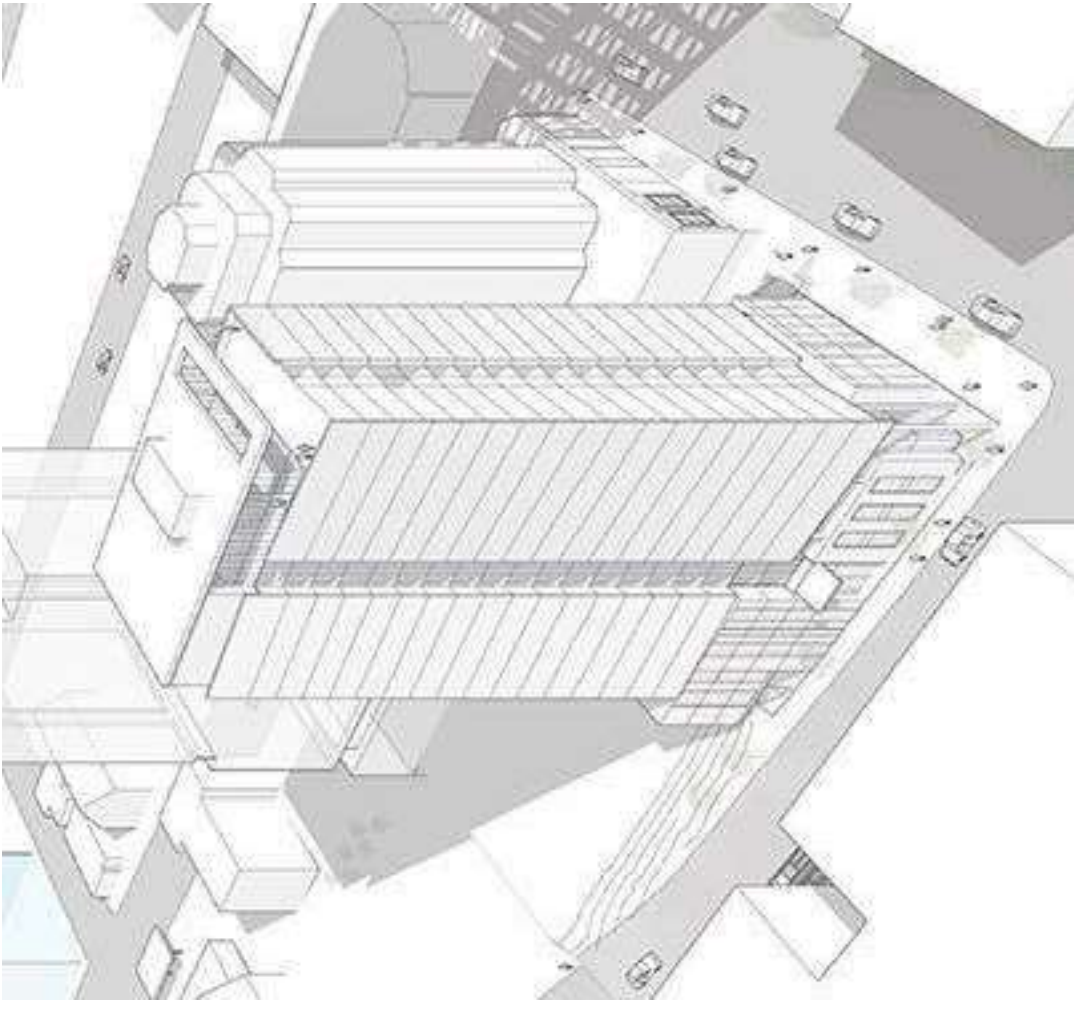
227 Units, 24 floors. Under Construction



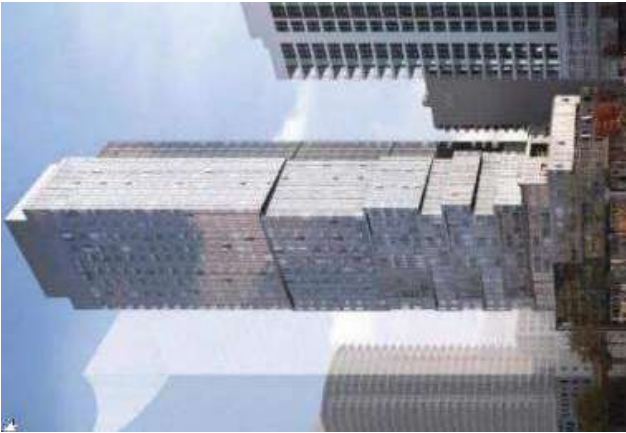
Developer is FH Brooklyn, NBBJ Architects,
Engineering by Ecotope

1200 NE 45th Seattle

230 Units, 44 floors. At 50% Design Development



Developer is barrientos RYAN
Runberg Architecture Group
Engineering by Ecotope



Cascade Apartments, Seattle



4700 Brooklyn Ave NE, Seattle

Shawn Oram, Principal



Ecotope has completed 26 central heat pump water heating projects since 2008, mostly 100-500 unit projects. Partial list:

Mid Rise | 50-400 dwelling units

- Stream - 134 units - (2) 10T Colmac Air-Source HP in below-grade parking
- Sunset Electric - 92 units - Colmac in below-grade parking
- Stackhouse - 120 units - Colmac in underground parking deck
- Augusta Apartments - 224 units - Colmac in below-grade parking
- Batik Apartments - 195 units - Colmac in underground parking deck
- Yesler 3 - 227 - Colmac in underground parking deck
- Jackson Apartments - 526 units - Colmac in underground parking deck
- Colina Apartments - 131 units, Sanden - Decentralized
- The Vale Apartments - 134 units - Versati 2, Multi-Pass
- Waterfront Place - 137/135 units - Versati 2, Multi-Pass
- Hopeworks - 67 units, Sanden CO2 Stacks

High Rise | 200-450 dwelling units

- 4700 Brooklyn - 284 units - Colmac with VRF Temp Maintenance
- Cascade - 430 units - Colmac with VRF Temp Maintenance
- 1200 45th - 245 units - In Design



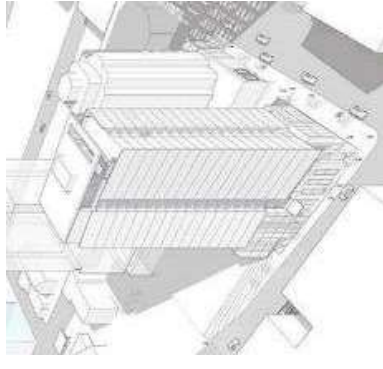
Batik Apartments, Seattle



Jackson Apartments, Seattle



August Apartments, Seattle



1200 NE 45th, Seattle

1075 Nelson, Vancouver

435 Units, 60 Stories, Design Development



Henson Development, Architect WKK and IBI Group, MEP Integral Group?? RDH
All electric with possible exception of gas for cooking in penthouse units.

Hawaii projects



Maile Tower



Scenic Tower



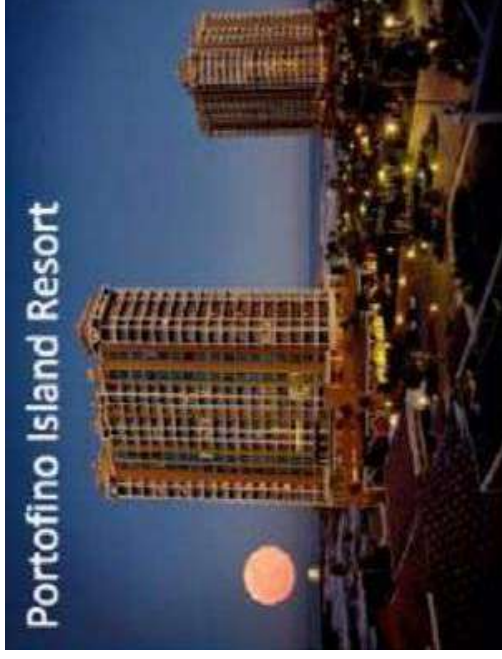
Waikiki Skytower



Academy Towers

From Redwood Energy, Sean Armstrong's powerpoint "All Electric Tall and Big Buildings"

Florida projects



From Redwood Energy, “A Zero Emission All-Electric Multifamily Guide

International projects

From Redwood Energy, Sean Armstrong



Rama Gardens Hotel
Bangkok



AIA Kowloon Towers
Hong Kong



Carlton Tower Hotel
Dubai



Asiana Plaza Hotel,
Vietnam

From Redwood Energy, Sean Armstrong's powerpoint "All Electric Tall and Big Buildings"

Amenities



Electric fireplaces



Ethanol fireplaces



Electric grills



Electric outdoor



Propane firepits