Members, City Council
City of Alameda
2263 Santa Clara Avenue
Alameda, CA 94501

Regarding: Climate Action and Resiliency Plan (CARP) Annual Report for 2021
First reading and adoption of an all-electric reach ordinance for new buildings

Dear City Council:

The American Institute of Architects California (AIA CA) and AIA East Bay (AIAEB) share and support the climate action goals of the City of Alameda.

As outlined in the City's draft General Plan update and Climate Action and Resiliency Plan (CARP) 2021 Annual Report which will be reviewed by your City Council at its meeting on March 2, 2021, we strongly support all-electrification ordinance or "reach code" for new buildings.

Consistent with the City of Alameda's climate action plans and goals, we agree that now is the time to insist that future buildings are designed to be more energy efficient and to be ready for renewable energy sources.

We support the adoption of all-electric energy codes, regulations, and ordinances statewide for residential and commercial buildings. We support efforts by local governments to require new buildings in their jurisdictions to be all-electric before it becomes a state mandate. We believe the move to all-electric buildings must begin right away, that this is crucial to reducing carbon emissions and other pollutants, improving health outcomes, lowering energy costs, helping mitigate fire risk, and aiding California in meeting its legislated carbon reduction targets.

Indoor and outdoor air pollution disproportionately impact disadvantaged communities and communities of color, and, unfortunately, California continues to lead the nation in air pollution and its health impacts. Furthermore, fossil fuel combustion in buildings discharge seven times more NOX pollution than do all of California's power plants. These inequities must be addressed with urgency.

All-electric buildings of all types and sizes are already being designed today by architects across the state. They use efficient electric appliances that run on California's rapidly expanding clean renewable energy supply supplemented with rooftop or community solar. We encourage the City of Alameda to join the dozens of other communities in the State to show leadership in support of a truly equitable and sustainable future by requiring buildings to be all-electric and thank you for your consideration and work in this urgent shared goal.

Sincerely,

Brett Dougherty, AIA
President, AIA California

Ashley M. Rybarczyk, AIA
President, AIA East Bay

Nancy McPeak

From: Lara Weisiger
Sent: Monday, April 26, 2021 3:09 PM
To: Nancy McPeak; Erin Garcia
Subject: FW: Planning Commission: In Support of All-Electric Reach Code
Attachments: We sent you safe versions of your files; All electric buildings current examples 6up (2).pdf

From: Scott Shell [mailto:Scott.Shell@ehdd.com]
Sent: Monday, April 26, 2021 2:44 PM
To: City Clerk <CLERK@alamedaca.gov>
Subject: [EXTERNAL] Planning Commission: In Support of All-Electric Reach Code

Dear Planning Commission Members,

On behalf of the 80 architects and staff at EHDD Architecture we are writing in support of an all-electric reach code. We have been designing all-electric buildings around the Bay Area for almost twenty years now and have found them robust, reliable, healthy, and cost-effective solutions for our clients.

As electric reach codes emerged two years ago, we met with our colleagues at other firms and our mechanical engineering partners and asked if the State of California was broadly ready to shift from gas to electric. The responses we got back were yes, with few exceptions the design and construction industry is ready for this transition. We began collecting examples of all-electric projects of all building types from our firm and from around the state which you can see in the attached slide deck.

There are many robust studies showing the cost effectiveness of building electrification, and we have found that to be the case in our practice. A heat pump provides heating and cooling in one appliance which is lower cost than having two appliances--a gas furnace and electric air conditioner. This eliminates the gas service to the building, the meter, gas piping inside the building, and flues through the roof, all reducing cost. Going to a single utility does not reduce resilience since all modern gas appliances need electricity for electronic ignition and controls—they will not work in a power outage.

We have grown increasingly concerned about the very real health impacts of combusting fuel inside homes. The research shows that fossil fuel combustion inside living spaces is not safe and leads to NOx levels that exceed the outdoor legal limits. The warning labels clearly posted on camp stoves and portable generators to not use them indoors indicates the risks of combustion inside our homes. California tops the American Lung Association list of most polluted cities every year. Buildings emit seven times more NOx pollution in California than our powerplants, because unlike powerplants buildings have no pollution controls. All-electric buildings reduce indoor and outdoor air pollution. It is especially important that housing be all electric to reduce construction cost and provide healthy indoor air for everyone.

We are especially concerned that continuing to build new fossil fuel infrastructure will then require expensive retrofits of relatively new buildings to meet California's legislated 2045 climate goals. This will saddle building owners with disruptive renovations in occupied buildings--let's just build them right to start with. For the health, safety, climate benefits, and financial savings, we urge you to take approve a strong all-electric ordinance.

Sincerely,

Duncan Ballash, President
Jennifer Devlin, Principal
Scott Shell, Principal
Rebecca Sharkey, Principal
Brad Jacobson, Principal

Scott Shell FAIA, LEED® AP BD+C, CPHC®
Principal

Pier 1 The Embarcadero, Bay 2
San Francisco, CA 94111
+1 415-214-7277

1

Commercial

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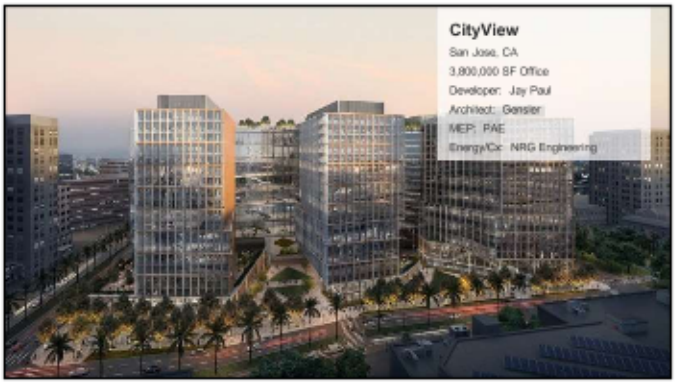

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6


Adobe HQ
650,000 sf
San Jose
Architect: Gensler
MEP: Taylor Engineering

7


Microsoft Silicon Valley Campus
640,000 SF
Architect: WRNS
Mechanical: Interface Engineering

8


3450 Park
Palo Alto, CA
31,354 SF Office
Developer: Jay Paul
Architect: DES
MEP: Critchfield
Energy/Cx: NRG Engineering

9


Broadreach Moffett Field
185,000 SF
Architect: WRNS
Mechanical: Interface Engineering
Electrical: Interface Engineering

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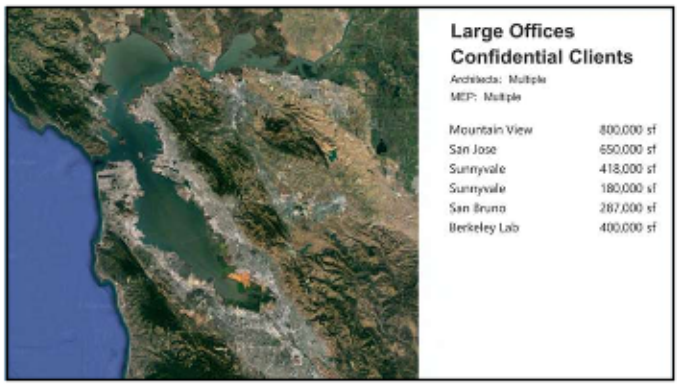
Large Offices
Confidential Clients
Architects: Multiple
MEP: Multiple
Mountain View 800,000 sf
San Jose 650,000 sf
Sunnyvale 418,000 sf
Sunnyvale 180,000 sf
San Bruno 287,000 sf
Berkeley Lab 400,000 sf

11


Maker's Quarter Block D
San Diego, CA
53,325 SF
Architect: BNIM
MEP: Eyska Hennessy

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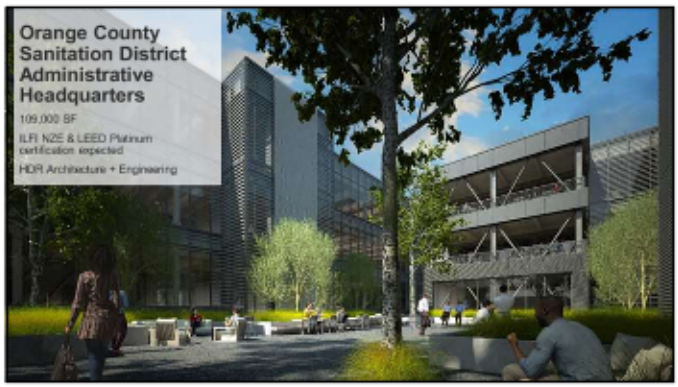

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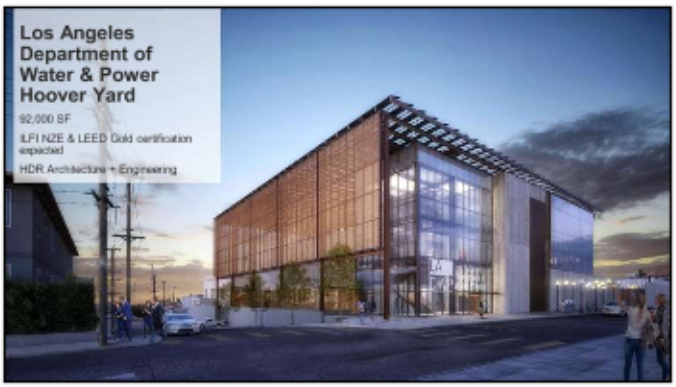

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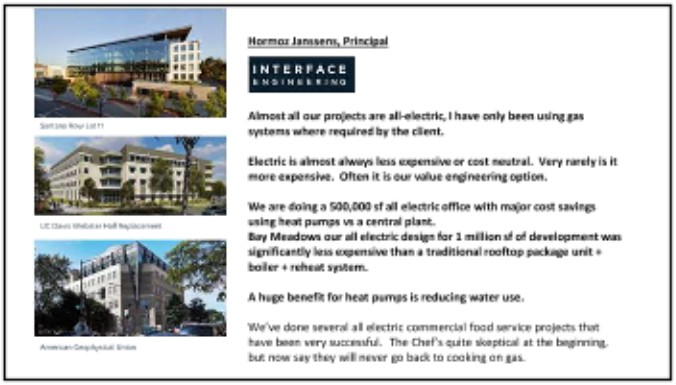

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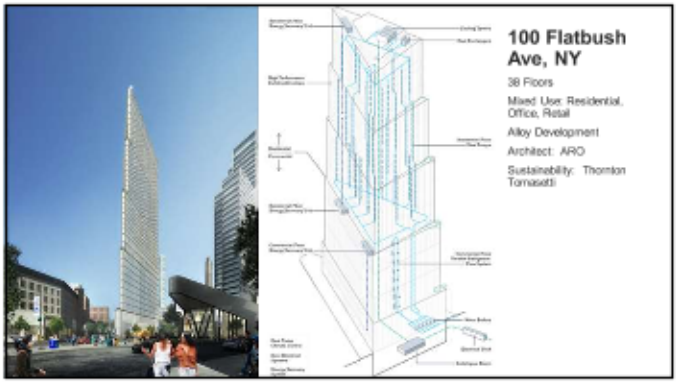

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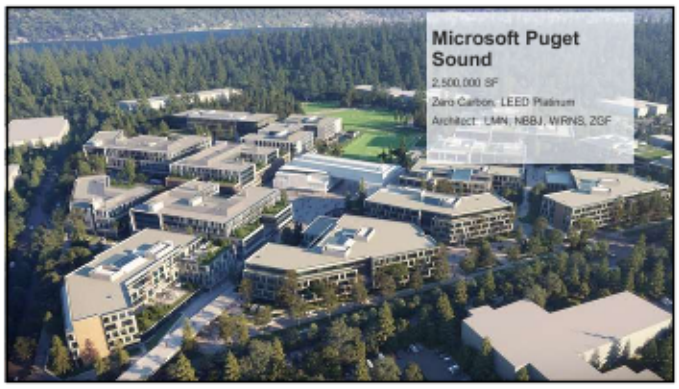

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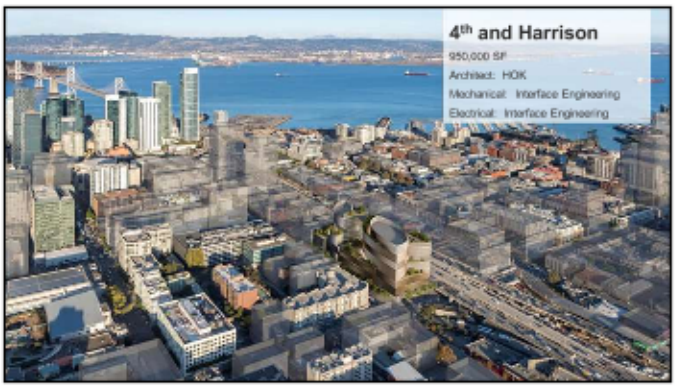

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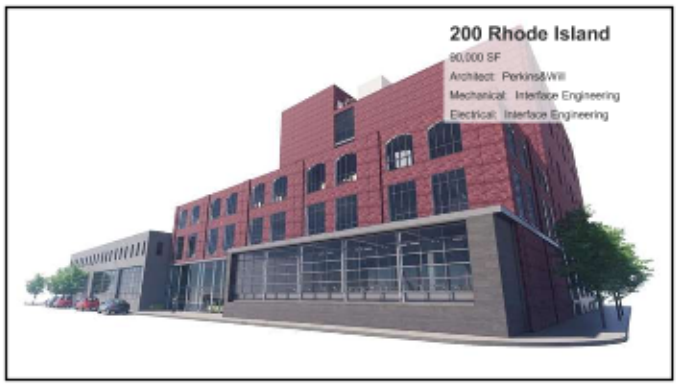

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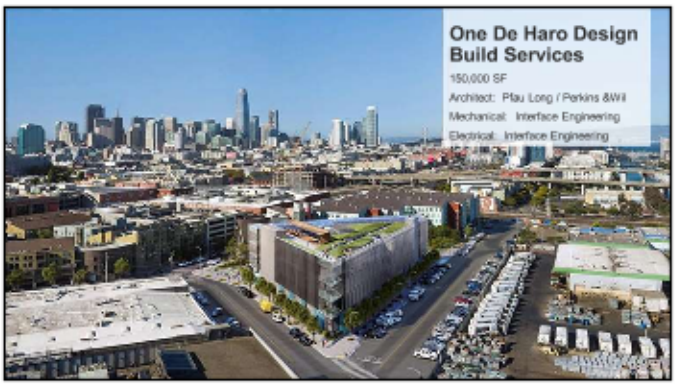

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Universities

55

California Universities Are Transitioning to All-Electric Buildings

The University of California system and Stanford University are making all-electric buildings the default in new construction.

"No new UC buildings or major renovations after June 2019, except in special circumstances, will use on-site fossil fuel combustion, such as natural gas, for space and water heating"

56

David Phillips, Associate Vice President for Energy & Sustainability
UC Office of the President

The University of California has committed to carbon neutrality by 2025. **We are prioritizing all-electric new buildings (required starting June 2019), and then electrifying existing buildings & systems over time.**

Our studies show that all electric mechanical equipment capital costs are comparable for academic & lab buildings, and the costs are lower for residential buildings. Twenty year life cycle costs are comparable for Academic and labs buildings, and lower for residential buildings.

UC has many all-electric housing projects, office buildings, and laboratories now in place and many more in design.

UC's carbon neutrality strategies are pragmatic: don't allow growth to increase carbon emissions; and then transition existing buildings and systems off fossil fuels over time.

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Schools

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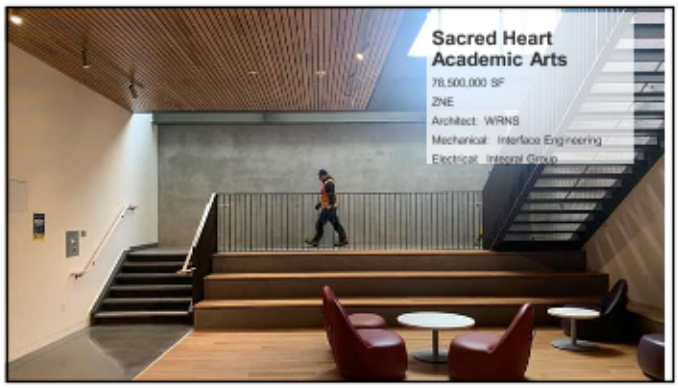

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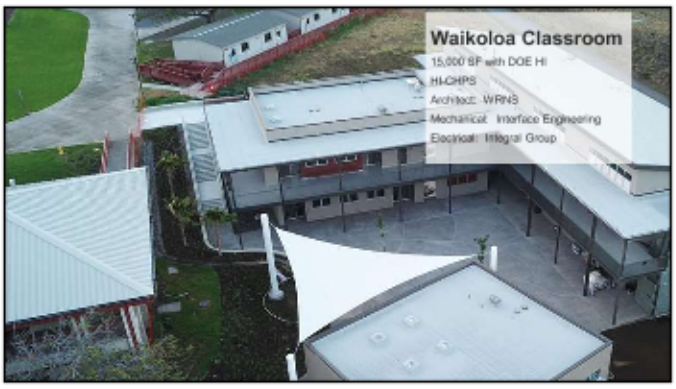

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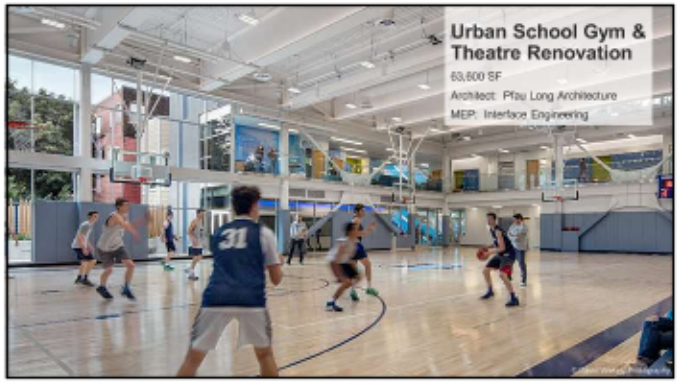

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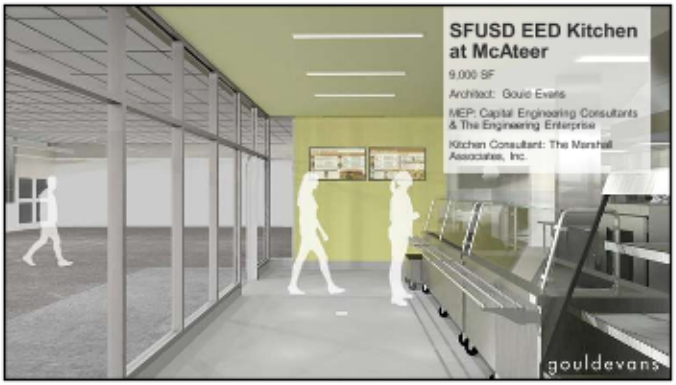

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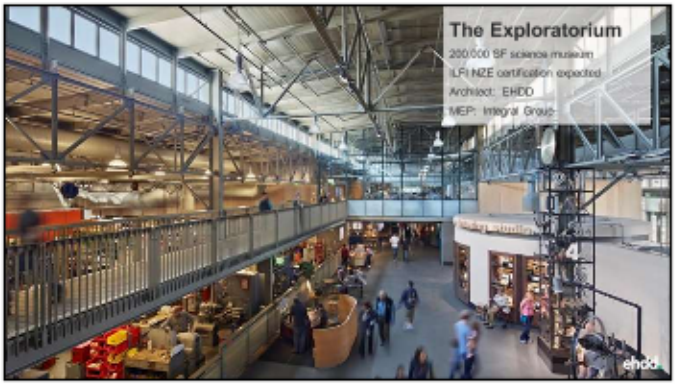
Renovations

85



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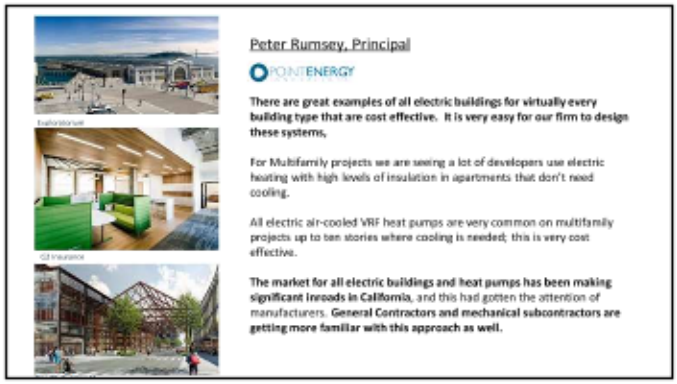

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Multi-Family Housing

95

96

UC Irvine Verano 8

1,050 beds

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

97

UC Irvine Student Housing West

1,441 beds

P3. Developer is American Campus Communities, KTGY Architects

98

99

UC San Diego Nuevo Housing West

1,300 beds

Mithun Architects

100

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)

101

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)

102

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)

103

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

104

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

105

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

106

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

107

108

525 Harrison, San Francisco
200 Units

SCB Architecture, Interface Engineering

109

110

UC Davis Student Housing, Webster Hall Replacement
371 beds.

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

111

Eureka Veterans Apartments, Eureka
51 Units

VHDC is Developer, Rowell Brokaw Architects, Redwood Energy

112

UC San Francisco Minnesota Street Housing
595 Units

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

113

Alameda Point Development
1,700+ Residential Units

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

114

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


Pixie Point in Arcata by Danco Communities

115

California projects

Redwood Energy, Sean Armstrong


Heritage Square in Pasadena by BRIDGE Housing


Clovendale, by Corporation for Better Housing


Atascadero, Corporation for Better Housing


Castroville, by Corporation for Better Housing


Quetzal Gardens in San Jose by RCD Housing

116


Quetzal Gardens, San Jose


Valley Glen, Dixon


Pixie Point, Arcata

Sean Armstrong, Redwood Energy

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 goi[illegible] now.

All Electric Construction Guides:

FREE DOWNLOAD

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

117

Depot Station Townhomes, Morgan Hill

29 Units

City Ventures, Hunt Hale Jones Architects

118

2437 Eagle Ave, Alameda

Affordable - 20 Units, Occupied

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

119

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, Architects: Mithun & YA Studio, Association for Energy Affordability
Central Heat Pump Water Heating

120

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 2-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.

121

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

122

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

123

Hunters Point Shipyard Block 52, San Francisco

136 units total, in Design Development

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

124

Hunters Point Shipyard Block 54, San Francisco

136 units total, in Design Development

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

125

681 Florida, San Francisco

136 units total, In Design Development

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

126

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

127

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

128

Quetzal Gardens, San Jose

71 Units

RCD Housing is Developer, SCPA Architects, Redwood Energy

129

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, Ford Engineers, Association for Energy Affordability
Central Heat Pump Water Heating

130

Altamira Family Apartments, Sonoma

Affordable, 48 units

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

131

Stoddard Housing, Napa

Affordable – 50 Units, Under construction

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

132

2437 Eagle Ave, Alameda

Affordable – 20 Units, Occupied

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

133

Station House, Oakland

171 Units, phase I completed

Developer City Venture, Baran Studio Architect

134

Ice House, Oakland

Units?

Developer City Ventures

135

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

136

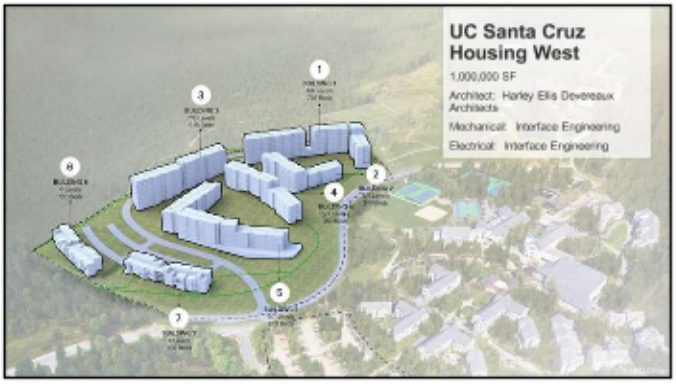
UC Riverside Dundee Residence Hall

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

137



138

Cascade Apartments, Seattle

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

Developer is Vulcan, Ankrom Moisan Architects,
Engineering by Ecotope

139

4700 Brooklyn, Seattle

227 Units, 24 floors. Under Construction

Developer is FH Brooklyn, NBBJ Architects,
Engineering by Ecotope

140

1200 NE 45th Seattle

230 Units, 44 floors. At 50% Design Development

Developer is barrientos RYAN
Runberg Architecture Group
Engineering by Ecotope

141

Shawn Oram, Principal

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

142

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.

143

Hawaii projects

Maile Tower

Scenic Tower

Waikiki Skytower

Academy Towers

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

144

Florida projects

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

145

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"

146

Amenities

Electric fireplaces

Electric grills

Electric outdoor

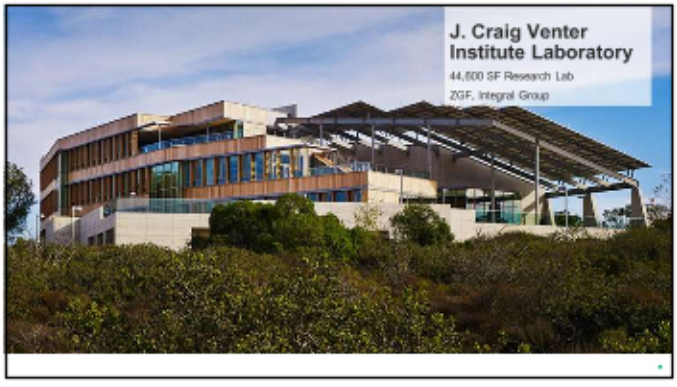
Ethanol fireplaces

Propane firepits

147

Labs & Medical

148



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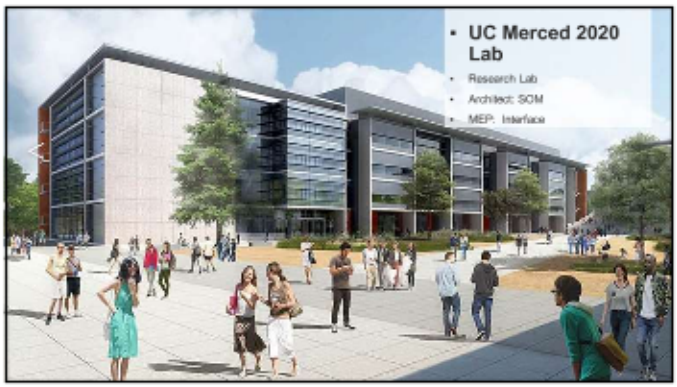

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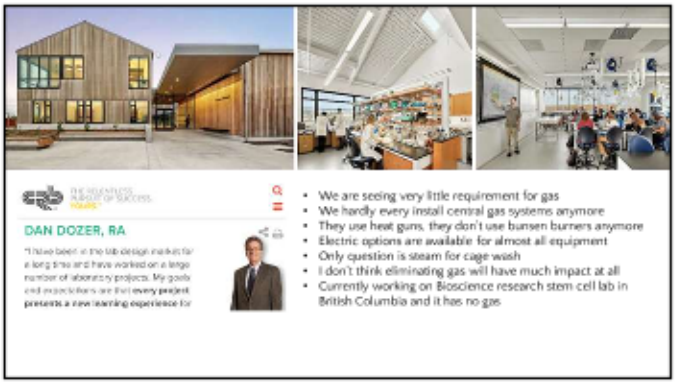

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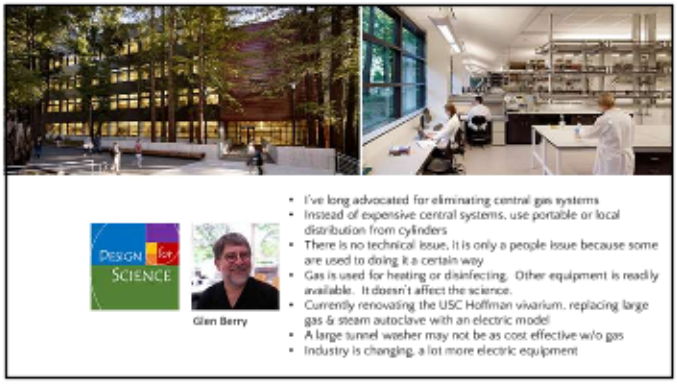

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All Electric Kitchen

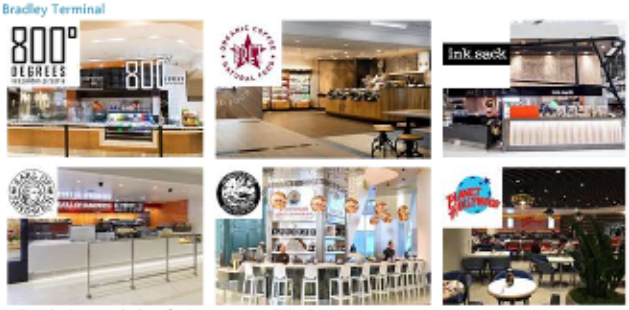
Troisgros Grande Maison
Roane, France

Michelin 3 stars

157

All Electric Restaurants at LAX

Bradley Terminal



Andre Salvadar. So Cal Edison food service expert helped these senants adapt to all electric, he's a great resource!

158

SUSTAINABILITY OFFICE SFUSD

NIK KAESTNER

DIRECTOR OF SUSTAINABILITY

- Has one electric kitchen under construction, Claire Lilienthal Elementary
- **Currently designing all electric kitchens at Clarendon, Hillscrest, and West Portal schools as all electric**
- **Worked with chef and staff to understand induction cooking**
- Visiting Food Service Technology Center in San Ramon to give staff a hands-on look at the equipment
- Doing some training with staff to get them accustomed to induction
- **Bids for electric equipment are coming in cheaper than gas**
- Biggest energy hogs are the fryers and also make the least healthy food, so promoting other equipment is healthy!

159

Chatam University Dining Commons

All electric kitchen, 250 meals 3 times a day

- **The chef was initially reluctant, and had never cooked on induction before**
- **It took some time to adjust to new kitchen**
- **But now he loves it and says he will never go back to gas**

Interface Engineering

160

161

David Shell · 2nd

Energy Sales Supervisor at Gulf Power Company

- **60% of full service restaurants in our territory are all electric**
- We've had success selling Wendy's and McDonald's on electric cooking
- The new combi ovens, steam cabinets, holding cabinets and induction cooktops work great!
- **All Fast Food Chains have both gas and electric kitchen options**

162

163

Resources

All Electric Construction Guides: https://www.redwoodenergy.tech/research/

California Cities Lead the Way: https://www.sierraclub.org/articles/2020/03/californias-cities-lead-way-gas-free-future

The economics of electrifying buildings: https://rmi.org/insight/the-economics-of-electrifying-buildings/

Are we ready for all electric buildings?: https://tinyurl.com/y3uxn3r4

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