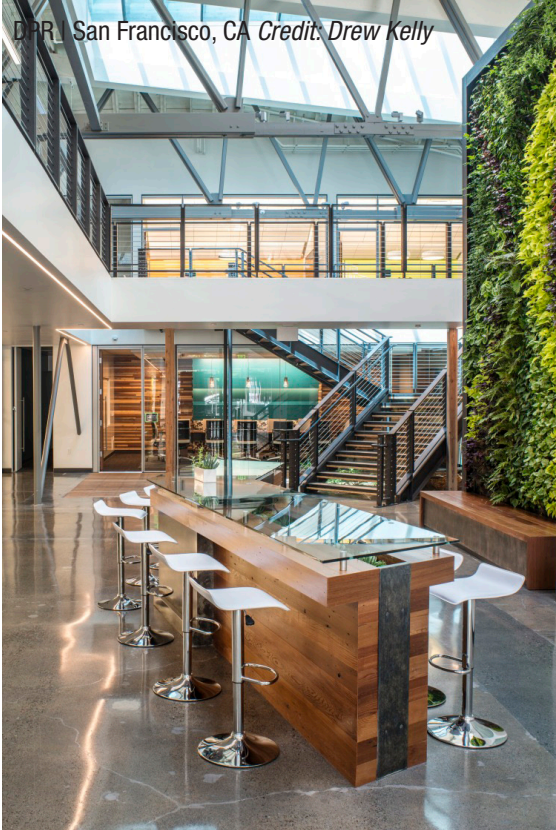


California ZNE Watchlist

Zero Energy & Ultra-Low Energy Buildings

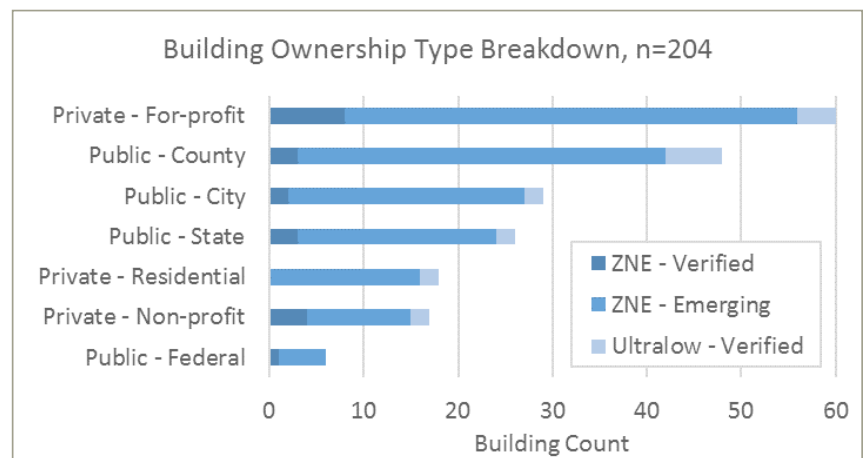
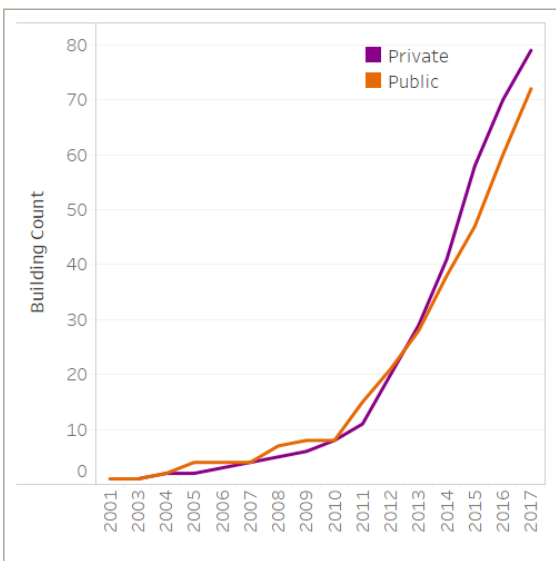


California leads the country in both policy and projects that are laying the path to a zero net energy (ZNE) future. Leading design firms and owners have already recognized the real estate and occupancy advantages of these high performance buildings and today California has 189 commercial buildings either verified (21) as ZNE or emerging (168) toward that target.

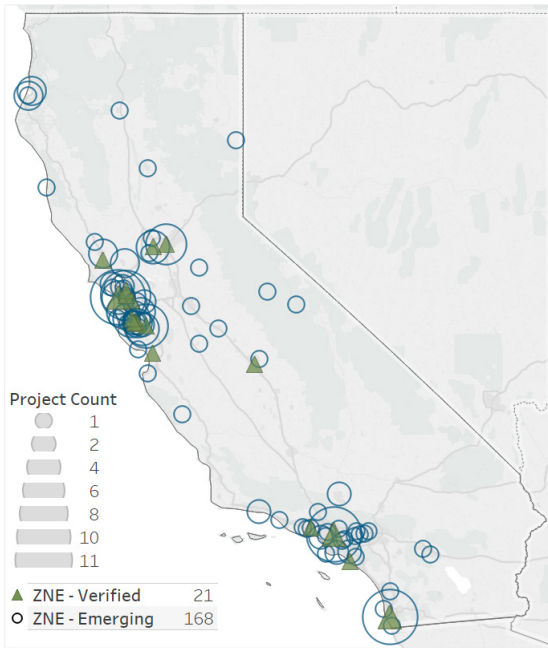
This California ZNE Watchlist tracks commercial buildings (including multi-family) based on information gathered by New Buildings Institute (NBI) from multiple sources including designers, owners, utility programs, private and public organizations, articles, e-news, research, and commercial real estate professionals. It serves, along with other available ZNE resources, to support the awareness, acceptance and adoption of ZNE goals and outcomes throughout California and the nation. Buildings with verified ultra-low energy performance comparable to ZNE are also included, though not as thoroughly tracked and documented due to the high volume of projects meeting ultra-low performance in California.

Trends in Zero Net Energy

The role of public buildings in displaying leadership and advancing the market is often discussed in the growing ZNE market. According to the NBI Buildings Database, the growth trends for both public and private sectors by number of ZNE Verified and Emerging buildings are very similar. Looking at completion for ZNE retrofit dates, public buildings were slightly ahead prior to 2010, at which point both public and private growth sharply increased in tandem. The continued growth of the ZNE movement in both sectors is a positive indicator of diverse growth. Whether private buildings will outpace the public sector in California remains to be seen!

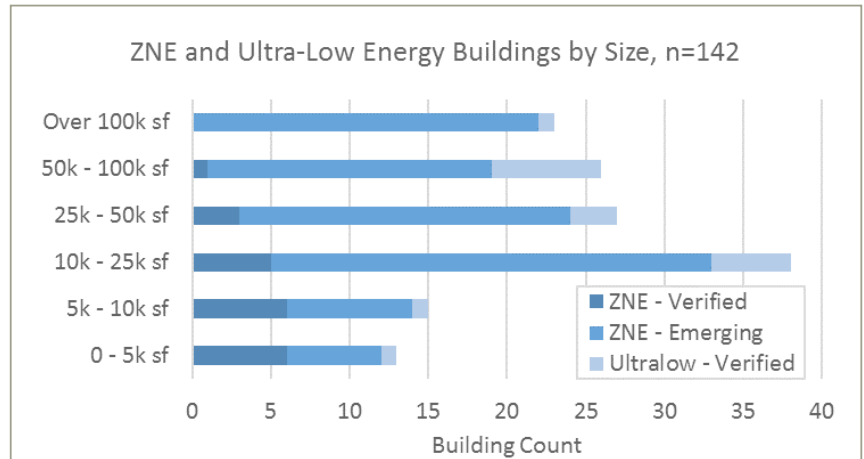


Growth of ZNE Verified and Emerging California buildings by completion or retrofit year and building count, separated by public and private sector



ZNE Emerging projects grow across California in 2017.

While only one new ZNE Verified project was added this year, many more are anticipated in the near future since the ZNE Emerging project list increased 23% in 9 months. Emerging ZNE building can be projects that have a ZNE goal, those that are in design, construction, or are occupied and in their performance period. The addition of new Emerging ZNE buildings proves that the market is requesting and designing ZNE buildings in preparation for the 2030 state requirement.



Data dependent on project submissions to NBI's ZNE Registry.



DPR Regional Offices | California and beyond

DPR is on their way to meet their mission to be one of the most admired companies with their four ZNE offices. Utilizing the Living Building Challenge they currently have four ZNE Verified and ZNE Emerging offices in San Diego, San Francisco, Phoenix, and Washington DC. Each office is between 16,000 – 25,000 SF and include repeatable energy reduction strategies such as rooftop solar tubes and rooftop light wells, high efficiency LEDs, integrated lighting and zoning design, enhanced air circulation with high volume, low velocity ceiling fans, rooftop photovoltaic (PV) and rooftop solar water heating, passive infra-red occupancy controls, time controls and shut-offs, integrated building management system, non-occupied energy circuit shut-off phantom load management switch, energy end-use measurement submeters, building energy use dashboard display, and indoor landscaping. With their value of “ever forward,” each new office experiments with a new technology in their “living lab.” Dynamic glass was installed in the skylights of their San Francisco office; Phoenix utilizes DOAS with evaporative cooling; Washington tested the bounds of extending daylight into the space with light colored surface. As DPR opens regional offices across the country, they aim to break ZNE myths and prove that ZNE is possible in all climate zones, can be built inexpensively, and are beautiful.

For more resources: CPUC (<http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/Zero+Net+Energy+Buildings.htm>) and NBI (www.newbuildings.org/zero-energy)

List of Zero Energy & Ultra-Low Energy Buildings in California

This ZNE Watchlist provides examples of commercial buildings that have verified zero net energy (ZNE) performance, are emerging toward a ZNE goal or reflect comparable ultra-low energy performance. The buildings on the list are categorized at ZNE Verified, ZNE Emerging, and Ultra-low Energy.

The ZNE Watchlist is produced by New Buildings Institute. For more information, visit www.newbuildings.org. There are, undoubtedly, other projects that belong on this list and/or corrections and updates to this directory. Provide information or add new projects through the NBI Registry located at: newbuildings.org/share or email us at info@newbuildings.org.

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ZNE Verified buildings (or districts) have been documented to have met, over the course of a year, all net energy use through onsite renewables. The energy use of all fuels (electric, natural gas, steam, etc.) is counted and offset by production from onsite renewables.

Building Name	Location	Building Type	Year Completed	Size SF	Total EUI	Site RPI	Net EUI
Verified ZNE							
435 Indio Ave¹ (M)	Sunnyvale	Office	2013	31,800	13.5	28.7	-15.2
AP+I Design (M)	Mountain View	Office	2015	14,300	17.9	18.4	-0.5
Audubon Center at Debs Park (off grid) (M)	Los Angeles	Other	2003	5,020	17.1	17.1	0.0
Bacon St. Offices (M)	San Diego	Office	2009	4,500	12.7	22.2	-9.5
Bagatelos Architectural Glass Solutions (M)	Sacramento	Other	2008	63,000	17.1	17.5	-0.4
Bishop O'Dowd High School, Environmental Science Center (M)	Oakland	Education	2015	3,275	18.0	18.6	-0.7
Challengers Tennis Club (M)	Los Angeles	Other	2004	3,500	9.0	9.0	0.0
David and Lucile Packard Foundation ¹ (M)	Los Altos	Office	2012	49,161	24.4	29.0	-4.6
Diamond X Ranch Student Intern Center-Malibu (M)	Calabasas	Other	2011	3,500	31.5	35.1	-3.6
DMV Fresno Field Office (M)	Fresno	Office	2014	19,808	23.1	43.4	-20.4
DPR Construction San Diego Net Zero Office ¹ (M)	San Diego	Office	2010	24,000	14.8	17.1	-2.4
DPR San Francisco Office ¹ (M)	San Francisco	Office	2014	24,010	21.6	22.1	-0.5
EcoCenter at Heron's Head Park (off grid) (M)	San Francisco	Education	2011	2,400			
Environmental Nature Center (M)	Newport Beach	Education	2008	8,535	17.6	27.7	-10.1
Environmental Tech. Center Sonoma State (M)	Rohnert Park	Education	2001	2,200	2.3	3.8	-1.5
IBEW Local 595 Zero Net Energy Center (M)	San Leandro	Education	2013	45,001	15.0	21.0	-6.0
lDeAs Z2 Design Facility ¹ (M)	San Jose	Office	2007	6,557	22.6	23.2	-0.6
Jess Jackson Sustainable Winery Building (M)	Davis	Warehouse and Storage	2014	8,500	1.4	2.7	-1.3
Sacred Heart Schools Stevens Family Library ¹ (M)	Atherton	Education	2012	6,800	13.2	30.8	-17.6
Watsonville Water Resources Center Admin Building (M)	Watsonville	Office	2009	16,000	51.4	117.8	-66.4
West Berkeley Public Library ¹ (M)	Berkeley	Public Assembly	2013	9,399	21.7	25.5	-3.8

¹-Building is Net Zero Energy Building Certified by the International Living Future Institute. (M) after the name indicates measured energy use. All others are estimated / modeled.

Buildings listed in **Bold** are new to the California ZNE Watchlist.

Energy Use Intensity (EUI) is the (total or net) building use of site energy in kBtus/sf/yr. Buildings that have been verified as ZNE have either a zero net building EUI or a negative net building EUI meaning the renewable production exceeded the energy use.

Renewable Production Intensity (RPI) is the energy generation onsite per year in kBtus/sf/yr. This term was created by NBI for use in this context.

ZNE Emerging buildings (or districts) have a publically stated goal of ZNE but do not yet meet the definition of ZNE verified. These may be in the planning or design phase, under construction or have been in operation for less than a year. Others may have been operating for 12 months or longer, but their measured energy has either yet to achieve net zero or the measured data to document ZNE verified status was not available.

Building Name	Location	Building Type	Year Completed	Size SF	Total EUI	Site RPI	Net EUI
ZNE Emerging							
117 Easy St	Mountain View	Office	2015				
380 Pastoria Office	Sunnyvale	Office	2016	45,383	25.7	31.0	-5.4
415 Mathilda (M)	Sunnyvale	Office	2015	33,750	7.1	6.6	0.5
47951 Westinghouse	Fremont	Other	2017	82,408			
Amenities Building, Towers at Great America	Santa Clara	Food Service	2017	23,930	136.9	342.3	-205.5
Aquarium of the Pacific Watershed Addition	Long Beach	Education	2008	2,500			
Arch Nexus SAC Office	Sacramento	Office	2017	8,252	36.3	39.7	-3.4
Aster Place	Eureka	Residential	2012				
Atherton City Hall	Atherton	Office	2018				
Beneficial State Bank	Oakland	Mercantile (Retail Other than Mall)	2016				
BEST Center at Laney College	Oakland	Education	2016				
Blackford School Multi-Use Building	San Jose	Education	2013				
Borrego Springs Library and Park	San Diego	Public Assembly	2017	13,500			
Broadway High School	San Jose	Education	2011				
Butte Glenn Community College	Oroville	Education	2011	800,000	38.9	27.2	11.7
CA Air Resources Board ZNE Building	Sacramento	Other	2016	300,000	102.9	102.9	0.0
CA Lottery District Office	Santa Fe Springs	Office	2015	12,840	22.1	22.2	-0.1
CA State Poly Tech University	Pomona	Education	2018	138,000	17.0	23.6	-6.6
Cal State Northridge	Los Angeles	Education	2020				
California Department of Motor Vehicles	Sacramento	Office	2014	520,000			
California DOT SFOBB Phase 2 Warehouse	Oakland	Warehouse and Storage	2016	28,000			
Camp Parks	Dublin	Other	2014				
Carlos Ortega Villas	Palm Desert	Residential	2015				
Castlemont Elementary School Multipurpose Building	Campbell	Education	2013				
CDPH Richmond Labs, Building P	Richmond	Office	2005	205,153			
Church Hill Townhomes	Fortuna	Residential	2013				
City of Dublin Public Safety Complex	Dublin	Public Order and Safety	2018				
City of Hayward 21st Century Library	Hayward	Public Assembly	2015	57,000	35.6	43.2	-7.6
City of Hayward Water Pollution Control Facility	Hayward	Other	2008				
City of Santa Clara Swim Center	Santa Clara	Public Assembly	2018				
Claire Lillienthal School	San Francisco	Education	2018				
Clarum Homes Headquarters	Palo Alto	Office	2014				
Clif Bar Headquarters	Emeryville	Office	2010				
Clos du Bois Winery	Sonoma	Office	2012				
Coliseum Place	Oakland	Residential	2019				
College of Continuing & Professional Education (CCPE)	Long Beach	Education	2017	35,000			

Building Name	Location	Building Type	Year Completed	Size SF	Total EUI	Site RPI	Net EUI
Emerging ZNE							
College of the Desert West Valley Campus - Phase 1	Palm Springs	Education	2013	50,000	22.0	24.0	-2.0
Congregation Kol Emeth	Palo Alto			23,555			
Conrad N. Hilton Foundation	Agoura Hills	Office	2012	22,240	22.0	24.0	-2.0
Cottages at Cypress	Fort Bragg	Residential	2014				
Creamery Row	Arcata	Residential	2016				
Culver City Library	Los Angeles	Public Assembly	2016				
Delmar High School Science Education Facility	San Jose	Education	2005				
Delta Americas Headquarters (M)	Fremont	Office	2015	200,000	50.1	36.7	13.4
Dixon Valley Glen	Dixon	Residential	2014				
Egan Junior High School	Los Altos	Education	2016	17,000			
Environmental Innovation Center	San Jose	Education	2014	46,000	23.8		
Exploratorium Pier 15 (M)	San Francisco	Other	2013	330,000	42.0	36.0	6.0
Fair Oaks Zero Net Energy Office	Pasadena	Office	2016	12,000			
Family Pet Hospital	Clovis	Health Care (Outpatient)	2014	8,700			
Foothill College Sunnyvale Center	Los Altos	Education	2016	50,000			
Forest Service's Technology and Development Center	San Dimas	Office	2013	32,800			
Fort Hunter Liggett	Jolon	Other	2016		23.9		23.9
Fremont High School	Oakland	Education	2020	140,000			
Garfield Elementary School	San Francisco	Education	2019	33,800			
George V Leyva Middle School Admin Bldg - San Jose	San Jose	Office	2011	9,200	34.0	25.0	9.0
Glumac Office Aon Center Floor 23	Los Angeles	Office	2014	17,500			
Greenway Building	Arcata	Office	2015	40,000			
Half Moon Bay Library	Half Moon Bay	Public Assembly	2018	22,000			
Hanover Page Mill Building (M)	Palo Alto	Office	2015	86,253	30.1	25.8	4.3
Healdsburg City Hall	Healdsburg	Office	2019	13,282			
High Tech Middle North County	San Diego	Education	2012	27,058			
Housing and Community Development Office	San Diego	Office	2017	29,408	26.1	30.2	-4.1
Imperial Beach Branch Library	Imperial Beach	Public Assembly	2016	14,000			
Indigo Hammond & Playle Architects Office (M)	Davis	Office	2015	4,000	4.4		
Irvine High School Campus Center	Irvine	Education	2016				
Kaiser Permanente Antelope Valley Medical Office Building (M)	Lancaster	Office	2014	136,800	31.0	6.0	25.0
Kaiser Permanente Baldwin Hills Medical Office Building	Los Angeles	Office	2017	100,000			
Kaiser Permanente San Jose Medical Office Building	San Jose	Office	2016				
Kaiser Permanente Santa Rosa Medical Office Building	Santa Rosa	Office	2017	87,300	30.0	30.1	-0.1
Kaiser Permanente Ventura Medical Office Building	Ventura	Office	2018	57,000			
LA Convention Center	Los Angeles	Public Assembly	2020	1,000,000			
La Escuelita Education Center	Oakland	Education	2014	123,000			
La Valentina North (M)	Sacramento	Residential	2012	19,875	31.0	6.0	25.0
Lick Wilmerding New Classroom Building	San Francisco	Education	2018	55,140	21.1	24.9	-3.8
Lilienthal Elementary School	San Francisco	Education	2019	21,995			
LinkedIn Building	Mountain View	Office	2016	40,000			

Building Name	Location	Building Type	Year Completed	Size SF	Total EUI	Site RPI	Net EUI
Emerging ZNE							
Los Angeles Harbor College Sciences Complex	Los Angeles	Education	2015	71,800	5.2	5.8	-0.6
Los Guilicos Correctional Facility (M)	Santa Rosa	Public Order and Safety	2013	149,000	23.9	1.1	22.8
Los Osos Middle School	Los Osos	Education	2017				
LPL Financial Center at La Jolla Commons	San Diego	Office	2014	415,000			
Lynhaven Elementary School Multipurpose	Campbell	Education					
Makers Quarter Block D	San Diego	Office	2017	52,974	46.8	28.2	18.6
Marin Academy Science & Innovation Center	San Raphael	Education	2017	20,040	38.4	61.8	-23.3
Marin County Day Sciences	Corte Madera	Education	2019				
Mark Day School	San Raphael	Education	2017	11,917	27.6	55.6	-28.0
McClellan Ranch (M)	Cupertino	Other	2016	3,265	20.9	11.6	9.3
MetroWest High School		Education					
Mokelumne Watershed Headquarters (M)	Campo Seco	Office	2011	5,675	10.4	9.8	0.6
Monterey Bay CSU - Academic Building 2	Seaside	Education	2015	57,331			
Morphosis Architecture Studio (M)	Culver City	Office	2012	11,600	24.0	20.0	4.0
Mt. San Antonio College	Walnut	Education	2016	20,610			
Muse School	Calabasas	Education	2015				
Mutual Housing at Spring Lake	Woodland	Residential	2015	64,600			
Mutual Housing at the Highlands	Sacramento	Residential	2011				
Net Zero Plus Electrical Training Institute	Los Angeles	Education	2015	142,000			
Newcastle Elementary	Newcastle	Education	2017	31,536			
North County Health and Human Services Agency (NCHSA)	San Diego	Office	2018	40,000			
Nueva Middle School Expansion	Hillsborough	Education	2019	24,000			
Oak Park High School	Oak Park	Education	2014	960			
Ocean Discovery Institute	San Diego	Education	2017				
Ohlone Campus Core Replacement Project	Fremont	Education	2017				
Olympic & Olive Apartments	Los Angeles	Residential	2016				
OSD Downtown Educational Complex	Oakland	Education	2013				
OSD Glenview Elementary School Replacement	Oakland	Education	2018	53,700			
OSD Madison High School	Oakland	Education	2017	35,000	14.9	17.6	-2.7
Palomar Community College	San Marcos	Education	2017				
Parkview Place	Davis	Residential	2015	9,300			
Pastoria Office Building	Sunnyvale	Office	2017	41,000			
Perkins + Will Office	San Francisco	Office	2014	21,170			
Pierce College Maintenance & Operations Facility and Net-Zero Central Plant (M)	Los Angeles	Education	2011	42,000	16.0	8.0	8.0
Playa Vista Elementary (M)	Los Angeles	Education	2012		28.3	20.9	7.4
Plaza Point	Arcata	Residential	2012				
Porter Drive Office Building	Palo Alto	Office	2016	96,626	24.5	21.0	3.5
Prospect Sierra Founders Art Center	El Cerrito	Education	2006	5,000			
Ralston Intermediate Multipurpose Building	Garden Grove	Education	2018	6,200			
Redding School for the Arts (M)	Redding	Education	2011	77,091	16.0	8.0	8.0

Building Name	Location	Building Type	Year Completed	Size SF	Total EUI	Site RPI	Net EUI
Emerging ZNE							
Resort at Playa Vista	Santa Monica	Public Assembly	2015	25,000			
Rio Hondo Community College District	Whittier	Education	2018	78,201			
Rohner Village	Fortuna	Residential	2013				
San Bernardino Community College District	Garden Grove	Education	2014				
San Luis National Wildlife Refuge Complex HQ and Visitor Ctr.	Los Banos	Education	2012	16,500			
San Ysidro Land Port of Entry	San Diego	Other	2011	200,000			
Santa Monica City Hall	Santa Monica	Office	2019	92,000			
Santiago High School Science Building	Garden Grove	Education	2017	8,000	26.0	0.0	26.0
Schmidt Ocean Institute and Schmidt Family Foundation	Palo Alto	Office	2018	25,000	28.0	32.0	-4.0
Seasons At Ontario Senior Community		Ontario	Residential	2015			
SFO Airfield Operations Terminal - VIP Center	San Mateo	Other	2014	8,300			
SFO Airport Campus	San Mateo	Other	2020				
SFO Firehouse #3	San Mateo	Other	2016	20,000			
SFO Ground Transportation Unit Facility	San Mateo	Other	2017	14,000			
SFO Long-Term Parking Garage #2		San Francisco	Other	2018	1,300,000		
Sherman Oaks Elementary School Multiuse Facility	Campbell	Education	2015				
Sierra Army Depot	Herlong	Other	2020				
Sierra Nevada Aquatic Research Lab & Multiuse Classroom	Mammoth Lakes	Education	2015	2,696			
SMUD Net Zero Campus - East Campus-Operations Center	Sacramento	Office	2013	350,000			
Solana Ranch Elementary School	San Diego	Education	2014	68,000			
Sol-Lux Alpha (685 Florida Street)	San Francisco	Residential	2016	7,000			
Solterra EcoLuxury Apartments	San Diego	Residential	2013				
Sonoma Academy Grange Building	Santa Rosa	Education	2017	130,000			
Sonoma County Junior College District	Sonoma	Education	2018	26,954			
Southern Distribution Center	Rancho Cucamonga	Office	2015	60,600	12.0	0.0	12.0
Stanford Central Energy Facility Admin Building	Stanford	Office	2015				
Student Services Center at Mesa College	San Diego	Education	2012	85,000			
Student Success and Retention Center at East Los Angeles College	Los Angeles	Education	2014	136,000			
Sweetwater Spectrum Community (M)	Sonoma	Residential	2012	15,990	9.4	4.4	5.1
The Village at Beechwood	Lancaster	Residential	2014	22,960			
UC Berkeley Global Campus	Richmond	Education	2015				
UC Davis California Avenue Lecture Hall	Davis	Education	2017				
UC Davis West Village (eco district)	Davis	Education	2012		50.0	0.0	50.0
UC Merced Campus		Merced	Education	2020	6,250,000		
UC San Diego J Craig Venter Institute	La Jolla	Education	2013	40,079	53.2	63.8	-10.6
UC Santa Barbara Recreation Center	Santa Barbara	Education	2014	140,000			
UC Santa Barbara Student Services Buildings	Santa Barbara	Education	2017				

Building Name	Location	Building Type	Year Completed	Size SF	Total EUI	Site RPI	Net EUI
Emerging ZNE							
UC Santa Cruz Big Creek Research Station	Santa Cruz	Education					
VF Outdoor HQ	Alameda	Office	2013	160,000			
Vista Grande Elementary School	Rancho Palos Verdes	Education	2016				
West Hollywood City Hall Automated Parking Garage	West Hollywood	Other	2015				
Westmont High School Science Education Facility (M)	Campbell	Education	2004	12,362	44.4	0.0	44.4
Whole Foods	San Francisco	Food Sales	2019	25,187			
William Penn Hotel	San Francisco	Lodging	2016	41,836			
William S Hart High School District	Santa Clarita	Education	2012				
Woodside Priory School	Portola Valley	Education	2016	13,000			
Xilinx HQ Renovation	San Jose	Office	2016	100,000	37.0	30.7	6.3
Yarrow Village	Fortuna	Residential	2015				
Yosemite Community College District	Modesto	Education	2017				
Yosemite Institute	Yosemite National Park	Education	2018				
Yosemite Slough Ed Center	San Francisco	Education	2019				

Ultra-low Energy Verified buildings have 12 or more months of metered data that documents energy performance comparable to ZNE buildings (typically 60-80% better than the national industry average). They expand the set of building examples with design strategies and technologies that have resulted in ultra-low energy use. They may have limited renewable resources onsite but do not have a known stated goal of ZNE.

Building Name	Location	Building Type	Year Completed	Size SF	Total EUI	Site RPI	Net EUI
Ultra-low Energy Verified							
Alameda County Library (M)	Castro Valley	Public Assembly	2011	34,537	64.0	47.0	17.0
Aventine (M)	La Jolla	Office	2010	253,000	23.0	0.0	23.0
Carlton Hills Modernization (M)	Santee	Education	2008	56,159	26.0	0.0	26.0
Carlton Oaks Modernization (M)	Santee	Education	2008	61,675	24.0	0.0	24.0
Center for Children & Families-CSU San Marcos (M)	San Marcos	Education	2007	20,200	28.0	0.0	28.0
Claiborne & Churchill Winery (M)	San Luis Obispo	Office	1996	2,585	20.0	0.0	20.0
Colorado Court Affordable Housing (M)	Santa Monica	Residential	2002	29,900	39.0	2.0	37.0
Georgina Blach Intermediate School (M)	Los Altos	Education	2002	71,741	33.0	0.0	33.0
High Tech High - Chula Vista (M)	Chula Vista	Education	2009	44,370	23.8	0.0	23.8
Jacobs Institute for Design Innovation (M)	Berkeley	Education	2015	24,000	12.4	7.2	5.2
Jane D'Aza House of Formation (M)	San Raphael	Other	2005	6,200	7.0	0.0	7.0
Jeffrey Trail Middle School (M)	Irvine	Education	2013	74,600	29.0	12.0	17.0
Kirsch Center For Environmental Studies at De Anza College (M)	San Jose	Education	2005	21,600	33.0	10.0	23.0
Leslie Shao-Ming Sun Field Station (M)	Redwood City	Education	2002	10,036	20.2	8.6	11.6
Los Vecinos - Multifamily (M)	Chula Vista	Residential	2009	51,000	19.0	9.0	10.0
Navy Building 850 (M)	Port Hueneme	Office	2001	17,000	25.0	11.0	14.0
Ridgehaven Office Building (M)	San Diego	Office	1995	78,000	24.0	0.0	24.0
Sycamore Canyon Modernization (M)	Santee	Education	2008	52,000	23.0	0.0	23.0



Administered by California utilities, Savings By Design encourages high-performance, non-residential building design and construction, and a variety of solutions to building owners and design teams. More information at: savingsbydesign.com.



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