



Palomar Community College | San Marcos, CA
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FACT SHEET

Building Electrification

Building energy efficiency and performance has come a long way over the last century. Policies including energy codes have cut building energy consumption per square foot in half since the 1970s. Voluntary programs like the California Energy Design Assistance Program provide technical assistance and incentives to help design teams improve building performance beyond code.

Today, reducing the greenhouse gas (GHG) emissions from buildings is a major focus of policymakers, companies, and people. Building electrification eliminates onsite combustion of fossil fuels by replacing traditional fossil gas applications in buildings with electrically powered technology. This is one of the most important tools available to decarbonize our buildings and our economy.

Onsite combustion of fossil fuels contributes to local pollution, GHG emissions, and indoor air quality issues. As the electricity grid decarbonizes, electricity will get cleaner while onsite combustion will remain as dirty as ever: and building system electrification will deliver increasing environmental benefits.

Heat pumps are the most important building electrification technology today for space and water heating. Heat pumps offer dramatically higher energy efficiency than gas heat or electric resistance heat: heat pumps are often 300%-400% efficient! Energy efficiencies of greater

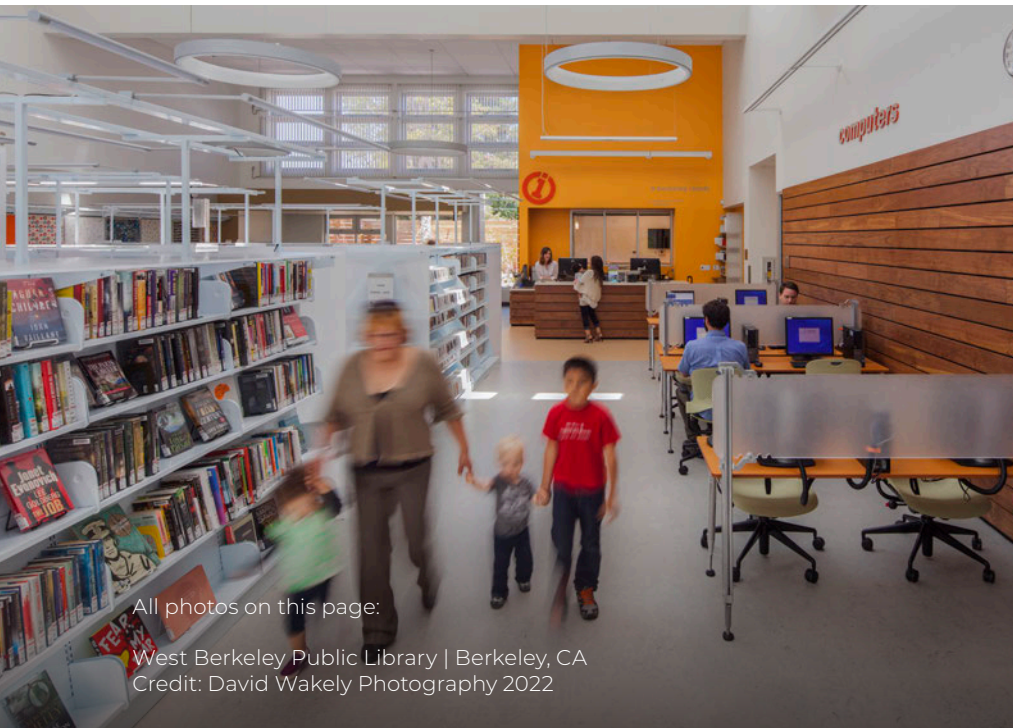
than 100% are possible because heat pumps do not generate heat directly. Heat pumps use the refrigeration cycle to move heat from place to place – much like how a refrigerator pulls heat from the food and rejects that heat to the room.



California Energy Design Assistance Program

The California Energy Design Assistance (CEDA) program provides complimentary custom energy modeling to analyze energy efficiency options and potential energy savings for new construction and major alteration projects. Based on the energy savings, projects can qualify for financial incentives to offset the costs of energy-saving measures. Publicly owned, commercial, high-rise multifamily, industrial, and agricultural projects in Pacific Gas and Electric Company (PG&E), SCE, SoCalGas, or SDG&E territory are eligible to apply for the program.

Contact ceda@willdan.com for more information.



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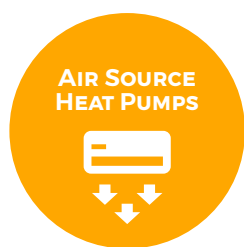


Leading by Example in Public Buildings

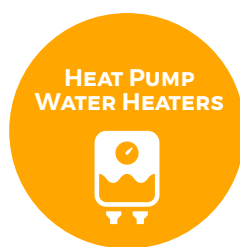
Hundreds of local governments across California have realized that change starts at home and are focusing on delivering ultra-efficient, high-performance public building projects. Dozens of California cities, counties, and agencies have enacted climate action plans, many of which include goals for carbon-neutral or zero energy municipal building performance. More than 50 California jurisdictions have enacted all-electric reach codes or other electrification policies. Cities, counties, school districts, state agencies, colleges, and universities have invested in high-performance buildings as a key strategy to achieve their climate goals. CEDA's technical guidance and financial incentives help public building professionals deliver clean, healthy, and resilient buildings that will be community assets for years to come.

All-Electric Buildings: Cleaner, Greener, and Leaner

Electrifying building end uses is usually relatively straightforward. Air source heat pumps are the go-to solution for most small or simple buildings, but built-up options like heat recovery chillers are common in all-electric campuses and central plants. Electrification dramatically reduces carbon emissions from building operations, and as the grid gets cleaner, these savings will only increase. New construction projects often find that building all-electric is cheaper up front, due to the avoided cost of extending gas service. To top it off, CEDA all-electric projects incentives are much higher: potentially over twice as much as mixed-fuel projects!



Air source heat pumps, the most common type today, work like an air conditioner in reverse: they harvest heat from outside air and use it to heat the building. Today's air source heat pumps can deliver plenty of heat at high efficiency even in very cold outside air conditions.



Heat pump water heaters (HPWH) pull heat from air and transfer it to the water in the tank, enabling efficiency 2-3 times better than conventional electric resistance water heaters and 3-4 times greater than gas tank water heaters. Most HPWH sold today are unitary tank systems, but split systems and large built-up central systems are also available.



Induction ranges let cooks have their cake and eat it too. Induction ranges use electromagnetic technology to directly heat the cookware, dramatically improving energy efficiency while delivering better responsiveness and faster cook times — not to mention cleaner indoor air and lower emissions.



Strategies like heat recovery, energy storage, and targeted time-oriented energy efficiency can substantially reduce HVAC equipment capacity requirements. This reduces overall project upfront capital costs while improving long-term energy efficiency and opening the door to building-grid integration opportunities.



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Financial Incentives Now Available

CEDA offers financial incentives that vary based on implemented energy efficiency measures, energy savings compared to the CEDA baseline, and fuel sources. Higher incentives may be available for all-electric buildings and specific project types.

Contact ceda@wildan.com for more information



**Pacific Gas and
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The CEDA program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E) under the auspices of the California Public Utilities Commission, through a contract awarded to Willdan Energy Solutions. Program funds, including any funds utilized for rebates or incentives, will be allocated on a first-come, first-served basis until such funds are no longer available. This program may be modified or terminated without prior notice. Customers who choose to participate in this program are not obligated to purchase any additional goods or services offered by Willdan Energy Solutions or any third party.