

FutureFit Fundamentals Contractor Training – Resources & Organizations

Course Author	Description	Links
Silicon Valley Clean Energy	Silicon Valley Clean Energy (SVCE) is a community-owned agency formed in 2016 by 13 local jurisdictions in Santa Clara County to reduce greenhouse gas emissions and fight climate change in our region. For these communities, Silicon Valley Clean Energy is your official electricity provider, supplying you with clean, carbon-free electricity at competitive rates.	SVCE Website: www.svcleanenergy.org

Programs & Resources	Description	Links
Electrification Technical Assistance Program	<p>The Electrification Technical Assistance Program, a joint project between Peninsula Clean Energy and Silicon Valley Clean Energy, provides extensive free technical assistance to architects, builders, developers, design engineers, contractors, and energy consultants to learn about all-electric building technologies and electric vehicle infrastructure.</p> <p>The program aims to reduce greenhouse gas emissions by supporting new construction or retrofits, affordable or market-rate housing, and small or large projects to learn the latest techniques to meet new and emerging requirements and deliver safer, healthier buildings.</p>	allelectricdesign.org

Silicon Valley Clean Energy Heat Pump Water Heater Rebate Program

Silicon Valley Clean Energy customers can receive up to \$3,500 for replacing an old water heater with a new heat pump water heater. The rebates include funding for upgrading a main service panel.

www.svcleanenergy.org/water-heating

Silicon Valley Clean Energy eHub

The Silicon Valley Clean Energy eHub helps residents take the guesswork out of switching to efficient, electric appliances, adding solar+battery storage and how to save with an electric vehicle. The online tools and resources provide customers with education about why switching to all-electric at home and on the road is beneficial.

www.svcleanenergy.org/ehub

Organizations	Description	Links
Bay Area Regional Energy Network (BayREN)	<p>The Bay Area Regional Energy Network (BayREN) is a collaboration of the nine counties that make up the San Francisco Bay Area. Led by the Association of Bay Area Governments (ABAG), BayREN provides regional-scale energy efficiency programs, services, and resources.</p> <p>Visit the website to become a participating contractor to get better leads and more projects. In addition, explore available rebates for home electrification projects, and upcoming events and trainings.</p>	<p>www.bayren.org</p>
Build It Green	<p>Build It Green is a building culture catalyzer. They convene stakeholders and offer credible, accessible resources with a goal of bringing residential green building into the mainstream.</p>	<p>www.builditgreen.org</p>

Building Decarbonization Coalition

The Building Decarbonization Coalition unites building industry stakeholders with energy providers, environmental organizations and local governments to power California's homes and workspaces with clean energy.

www.buildingdecarb.org

Building Performance Institute (BPI)

BPI is a nonprofit organization which offers a wide range of resources and credentialing for residential energy auditing and upgrade work.

www.bpi.org

BPI focuses on home performance professional practices and offers certifications for contractors to learn more about home energy efficiency, comfort, durability, health and safety needs, design and installation methodologies.

California Energy Commission (CEC)

The California Energy Commission (CEC) is a division of the California Natural Resources Agency and helps shape the state's energy policy and planning. Among many responsibilities, the CEC is in charge of maintaining the California Energy Code.

www.energy.ca.gov

BUILD Program webpage:
www.energy.ca.gov/programs-and-topics/programs/building-initiative-low-emissions-development-program

The CEC has the Building Initiative for Low-Emissions Development (BUILD) Program which will provide incentives for the development of near-zero emissions building technologies in low-income residential buildings.

Efficiency First California

Efficiency First California, formerly know as California Building Performance Contractors Association (CBPCA), is a nonprofit trade organization that supports California's transition to clean energy by promoting contractors who recognize the value of energy efficiency and carbon-free energy. The organization provides a voice for contractors in policy discussions related to energy efficiency and decarbonization as well as membership benefits.

www.energycfirstca.org

Rocky Mountain Institute (RMI)	RMI is an independent, non-partisan, nonprofit organization of experts across disciplines working to accelerate the clean energy transition and improve lives. The organization is aiming to end the reliance on fossil fuels to power and construct our built environment, bringing buildings to the forefront of a clean energy future.	www.rmi.org
San José Clean Energy	San José Clean Energy (SJCE) is the City of San José’s community choice electricity provider. Residents that live within the City of San José receive electricity from and are customers of SJCE. Operated by the City of San José’s Community Energy Department, we’re dedicated to creating a more sustainable future for our community and future generations.	www.sanjosecleanenergy.org
Peninsula Clean Energy	Peninsula Clean Energy (PCE) is the community choice electricity provider for the County of San Mateo. Residents that live in the San Mateo County receive electricity from and are customers of PCE. Customers of PCE can participate in programs available of PCE. This includes programs for building electrification and home resilience.	www.peninsulacleanenergy.com

Reports	Description	Contact & Links
Roadmap to Decarbonize California’s Buildings	The Roadmap to Decarbonize California’s Buildings outlines a cohesive plan to reduce pollution from buildings urgently needed as building emissions spike nationwide. The plan determines recommendations for the state to cut building emissions 20% by 2025 and 40% by 2030.	www.buildingdecarb.org/archived/a-roadmap-to-decarbonize-californias-buildings

Redwood Energy Guides

Redwood Energy’s guides and resources help homeowners and building professionals go all-electric. The guides include:

- Guide to All-Electric Retrofits for Homes
- Zero Emissions All-Electric Single Family Construction Guide
- A Zero-Emissions All-Electric Multifamily Construction Guide
- Pocket Guide to Zero Carbon Commercial Construction

Valuable all-electric guides, other reports, articles and information can be found at this link.

www.redwoodenergy.net/research

Articles	Description	Contact & Links
Home Electrification & Market	<ul style="list-style-type: none">• <u>Southern California Edison’s Vision for How the State Achieves Carbon Neutrality</u>• <u>PG&E Gets on Board with All-Electric New Buildings in California</u>• <u>Following Berkeley's Natural Gas Ban, More California Cities Look to All-Electric Future</u>• <u>What Does It Take to Electrify Everything in Your Home?</u>• <u>Electrify Everything! A Practical Guide to Ditching Your Gas Meter</u>• <u>Heating Is Next Clean Energy Frontier in CA</u>• <u>All-Electric Homes Are Becoming the Default for New Residential Construction in Sacramento</u>• <u>Berkeley first city in California to ban natural gas in new buildings</u>	<p>Courtesy, Larry Waters 844.637.3733</p> <p>Electrify My Home www.electrifymyhome.com</p>

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- [CA's \\$1 Billion for Efficiency Now Open to Electrification](#)
 - [California Wants All New Homes to Be Net Zero in 2020](#)
 - [California Regulators Get Serious About Building Decarbonization](#)
 - ['Electrification of Everything' Would Spike US Electricity Use, but Lower Final Energy Consumption](#)
 - [How Might Electrification Affect Electric and Gas Systems? Recent Studies Shed Both Light and Heat](#)
 - [Sacramento Utility Pushes All-Electric Homes: 'California Is Wasting Money to Build Homes With Gas'](#)
 - [Beneficial Electrification: How to Make It Work](#)
 - [California's Building Decarbonization Coalition plans to green building operations](#)
 - [California's Road to Carbon Neutrality Runs Through the State's Buildings](#)
 - [Electric Heat Pumps Can Slash Heating Emissions by More Than Half in California Homes](#)

Heat Pump Technology

- [Heat Pump Market Growing as California Pushes Clean Energy](#)
- [Electric Heat Pumps Can Slash Heating Emissions by More Than Half in California Homes](#)

Courtesy, Larry Waters

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- [Electrification Myth-Busting: Heat Pumps Are Ready for Cold Climates Today](#)
 - [Getting the Right Minisplit: How to select an efficient air-source heat pump](#)
 - [Ducted Mini Splits Offer Hidden Benefits](#)

Solar and Storage

- [How many solar panels does it take to power an electric car?](#)
- [How many panels do you need for your EV?](#)
- [How Many Solar Panels does it take to Charge an Electric Car?](#)

Courtesy, Larry Waters

Attics and Ducting

- [Fans in the Attic: Do They Help or Do They Hurt?](#)
- [An Introduction to Static Pressure](#)
- [All About Attic Venting](#)
- [Busting a Myth About Low-Static Ducted Mini-Splits](#)
- [Buried Ducts Allowed in 2018 Building Code](#)

Courtesy, Larry Waters

Induction Stoves

- [Give Up Your Gas Stove to Save The Planet? Banning Gas Is the Next Climate Push](#)
- [Your Gas Stove Is Bad for You and the Planet](#)

Courtesy, Larry Waters

Course Experts	Description	Contact & Links
<p>Sean Armstrong <i>(he/him for business, but occasionally she/her)</i></p> <p>Managing Principal Redwood Energy</p>	<p>Sean Armstrong has worked for 25 years in building electrification, designed the retrofit and new construction of more than 10,000 all-electric residences for Disadvantaged Populations, co-authored five practical guides to building electrification, provided legal and technical support to dozens of gas bans nation-wide, informed the 2016, 2019, 2022 and 2025 Title 24 Code developments, and received these sustainable design awards:</p> <ul style="list-style-type: none"> • Grand Prize Winner of the United Nations World Habitat Awards-2017 • Grand Prize Winner of the International PCBC Gold Nugget Awards-2016 • Winner of the Sustainability Award of the Building Industry Association of Southern California-2017 • Winner of the Department of Energy Innovation Award-2015 and 2020 • Awards of Merit from the International PCBC Gold Nugget Awards-2016, 2017, 2018 and 2019 	<p>Website: www.redwoodenergy.net</p> <p>Phone: (707) 826-1450 Email: sean@redwoodenergy.net</p> <p>Schedule a meeting with Sean at: calendly.com/seanarmstrong</p>
<p>Barry Cinnamon CEO Cinnamon Energy Systems</p>	<p>Barry Cinnamon is CEO of Cinnamon Energy Systems (CES), a Silicon Valley solar and energy storage contractor. Previously he was the founder and CEO of Akeena/Westinghouse Solar. Since 2001 he's completed over 10,000 residential and commercial solar installations, many with batteries.</p> <p>He is a licensed California C-46 Solar and C-10 Electrical Contractor, NABCEP Emeritus solar installer, host of the weekly Energy Show, and former CALSSA President and SEIA Board Member.</p>	<p>Website: www.cinnamon.energy/about</p> <p>Address: Cinnamon Energy Systems, Inc. 809 University Avenue Los Gatos, CA 95032</p> <p>Email: info@cinnamon.energy Phone: (408) 883-7000</p>

Imani Hamilton
Sustainable Designer +
Consultant
Imani Hamilton Design

Since 2015, Imani's clients have included Google R+D for New Campus Development while at VITAL Environments, Full Circle Home Goods, Indosole shoes, Memo Furniture, and several West Coast residential interior projects, including the first ILFI Zero Carbon Certified home candidate. Applying technical vetting and design research, Imani builds sustainability strategies for her clients to design and specify products, materials, manufacturing, and supply chains.

Website:
www.imanihamiltontdesign.com

Email:
imani@imanihamiltontdesign.com

Tom Kabat
Independent Energy
Consultant

Tom Kabat is a Cal Poly SLO trained energy engineer for environmental and mechanical engineering. He has more than 30 years of gas and electric utility program and planning experience including building energy modeling, solar design, program design and planning such as integrated utility resource planning, renewables procurement and negotiation and power contract management.

Email: tomgkabat@gmail.com

Recently retired, Tom now works on a variety of projects for preserving the climate. His recent projects include:

- Assisting cities with adoption of impactful electrification Reach Codes and Climate Action Plans,
- Developing an ambitious 13-page Climate Action Plan for Menlo Park,
- Completing DIY electrification of his own home, while assisting with others,
- Co-Authoring 4 guides to electrification with Redwood Energy Partners,
- Developing an "Amp Diet" for electrifying without upsizing electric panel,
- Presenting papers and talks at conferences on electrification,
- Performing electrification design studies of 15 homes in San Mateo County

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- Assisting a solar provider in branching out into heat pump water heaters,
 - Assisting with electrification training classes.

Tom serves on the Menlo Park Environmental Quality Commission and the boards of Carbon Free Silicon Valley and SunWork.org.

Nancy Madynski
General Contractor

Busting through blueprints. Cutting through red tape. Green-ifying the San Francisco Bay area, one project at a time. Nancy Gonzalez Madynski believes that the best way to lead a happy and colorful life is to spend time in places you love—so much so that she founded an environmentally-responsible construction company, aptly named Nancy Built, based on this belief.

Website: www.nancybuilt.com

Phone: (415) 828-5772

With 25+ years in the construction industry, she has the experience, connections, and passion to bring your dream into full living color. She also knows that communication and collaboration are key to construction, striving to keep every client in the loop, every timeline on track, and every budget in the black.

Nancy is a passionate San Francisco native who's driven to maximize cultural impact and minimize environmental impact within her community. A pioneering woman within San Francisco's construction community and the Bay Area's first female Certified Green Builder, Nancy holds numerous mentorships for women in construction and other male dominated industries.

Having been active on over 500 San Francisco construction sites over the last 25 years, Nancy has built strong relationships with thousands of the area's top contractors, most talented architects, and city, state, and federal officials across a wealth of government offices. This experience—and these connections—allow her to tackle projects with ease: no hurdles, no rush

decisions, and no surprises.

She will do more than assemble and lead the perfect team for your project. She will get the job done, and keep things fun, to boot.

Brady Seals
Manager
Carbon-Free Buildings
RMI

Brady Seals is a Manager in RMI's Carbon-Free Buildings program where she works at the junction of air quality, buildings, and human health. She engages stakeholders in rapidly transitioning to clean energy solutions that deliver environmental, health, and economic benefits.

Website: www.rmi.org

Email: bseals@rmi.org

Brady comes to RMI with over a decade of renewable energy experience within the global household energy sector. Her interest in energy access began at a nonprofit promoting biofuels-based cookstoves. She has commercialized clean technologies and fuels by directing programs within the nonprofit and corporate sectors in more than 16 countries. Brady most recently worked as a consultant advising nonprofits, corporations, and multinationals on energy impact strategies and investments. Throughout her career, she has contributed to several research efforts to study, quantify, and communicate the climate and health benefits of air pollution-mitigating technologies and strategies.

Recent report:

<https://rmi.org/insight/gas-stoves-pollution-health/>

Dan Thomsen
President
Building Doctors, Inc

Dan Thomsen, president and founder of Building Doctors, Inc., is a lifelong environmentalist. Building Doctors is a licensed Heating, Ventilation and Air Conditioning (HVAC) contractor company that has crews trained to install equipment in the most efficient manner possible.

Website: www.buildingdoctors.com

Email: dan@buildingdoctors.com

Using a whole home approach, they consider how all components work together more efficiently in a home to provide an optimal in-home environment. Their detailed audit report addresses client concerns and prioritizes recommended retrofits.

His industry associations include:

- Member, verified contractor and instructor with the California Building Performance Contractors Association (CBPCA) (now called Efficiency First California)
- Current Chairman of the Board of Directors for Efficiency First CA (formerly known as CBPCA)
- Certified Building Analyst and Envelope Professional (ID# 5008113) with the Building Performance Institute (BPI)
- Certified Green Building Professional with Build It Green,
- EPA Certified Lead Renovator and a founding member of Efficiency First, a National, trade association for the home performance workforce dedicated to increasing the efficiency of homes
- Member of the California leadership group for Home Performance Contractors and the Contractor Leadership Council

Larry Waters
Owner and Founder
Electrify My Home

BPI building analyst

Larry Waters is a pioneer of “good” electrification and helps homeowners create energy efficient homes. Larry has worked in the HVAC business since 1982. The origins of Electrify My Home go back over 35 years.

As technology moved forward with highly efficient and cost competitive heat pumps, Larry embraced California’s carbon reduction efforts. Recognizing the electrification movement was here to stay and growing fast, Electrify My Home was born.

Larry counts over 250 electrification projects since 2015. To transition a home properly and seamlessly from fossil fuel based or less efficient electric appliances requires a comprehensive and integrated design plan. The whole home philosophy is a guiding tenet of Larry’s design. The more efficient a home is the more efficient the new appliances and equipment will be. And increasing the efficiency of a home is addressed in the electrification process.

Website:
www.electrifymyhome.com
Phone:
(844) 637-3733

Special Thanks to Additional Course Contributors

This Old House

A grateful thank you to This Old House for the opportunity to utilize their Ask This Old House videos in this course. Their video content helps homeowners with their home improvement questions and problems. Their videos provided succinct and valuable information for the course participants.

Product Manufacturers highlighted in the course

We also wish to thank these manufacturers that provided product images and content, as a courtesy, to graphically support our course content. And thank you to the other organizations listed here that provided additional content for the course.

Aermac, AFIREWATER, Amana, Apace Pal, Avantco, Beko, Blomberg, Blue Planet Energy, Bradford White, BSA Electronics, Café, Chilltrix, ClassicFlame, Daikin, Dandelion Energy, Empava, Enphase, Equator (Deco), EV PowerShare, Friedrich, Frigidaire, Fujitsu, Eurodib, GE, Gree, Haier, Harvia, Innova USA, Islandaire, Kenmore, KitchenAid, LAX Airport, Leopoldo Costa, LG Squared, Inc., Maytag, Mitsubishi Electric, Modern Flames, NeoCharge, Nordic, Northern Lights Energy, Ossiaco, PHNIX, Panasonic, Polar, Rheem, Sanden, SimpliPhi, Sonnen Batterie, Span, Stiebel Ultron, Summit Appliance, Thermolec, Wallbox, Water Furnace, Whirlpool, York Geothermal