



BUILD

Building Initiative for Low-Emissions Development Program

Heat Pump Overview



The Building Initiative for Low-Emissions Development (BUILD) Program is a residential building decarbonization program that provides incentives and technical assistance to support the adoption of advanced building design and all-electric technologies in new, low-income all-electric homes and multifamily buildings.

Heat pumps are a highly efficient way to heat or cool buildings, heat water, and dry clothing without relying on combustion. Due to their efficiency, they reduce greenhouse gas emissions and can lower utility bills. The BUILD program encourages the adoption of all-electric energy technologies—like heat pumps—in affordable housing developments.

How does a heat pump work?

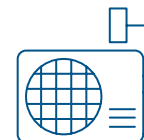
A heat pump works by moving heat from one place to another using refrigerant. For cooling, a heat pump absorbs heat from inside the home and transfers it outside, making the home cooler. For heating, a heat pump absorbs heat from outside air (even at sub-zero temperatures!) and transfers it inside, making the home warmer. By comparison, to generate heat, traditional electric resistance appliances use electricity, and gas systems burn fossil fuels.

Since heat pumps use electricity to move heat, rather than generate it, they are very efficient.

Most Common Heat Pump Appliances



Water Heaters



HVACs



Clothes Dryers

FOR QUESTIONS, EMAIL BUILD AT:

BUILD@energy.ca.gov

FOR MORE INFORMATION, VISIT:

[BUILD Program Webpage](#)

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

Heat Pump Technology Benefits

- Program to operate during lower cost Time of Use electricity rates
- Enable zero emissions buildings
- Numerous incentives for energy efficient heat pump installations
- Improve safety (no gas lines that can leak/explode)
- Lower building costs (no gas infrastructure needed)
- Able to operate in a wide range of climates, even in sub-zero temperatures
- Improved indoor air quality and health/well-being of occupants by providing consistent temperatures and reducing humidity, which in turn minimizes growth of pollutants

Appliance Benefits and Considerations

Benefits

Considerations



HEAT PUMP HVAC

- Provide heating and cooling in a single system
- 3x more energy efficient than electric resistance heaters

- May be higher upfront cost compared to traditional systems (not including BUILD incentives)



HEAT PUMP WATER HEATER

- 3–5x more efficient than gas burning water heaters

- Optimal tank sizing, settings, and configuration required to achieve ideal water heating needs and cost savings



HEAT PUMP CLOTHES DRYER

- Uses less energy than a conventional electric dryer
- Less abrasive on clothes, making them last longer
- No ducting or venting required, reducing construction costs

- Higher upfront cost than traditional electric, gas or condenser dryers (not including BUILD incentives)
- With a low drying temperature, increases clothes drying time (for example: a full load of laundry takes ~165 minutes to dry, 30 minutes longer than a condenser dryer)
- Will not operate properly if installed in a garage or exterior where temperatures dip below 40°F

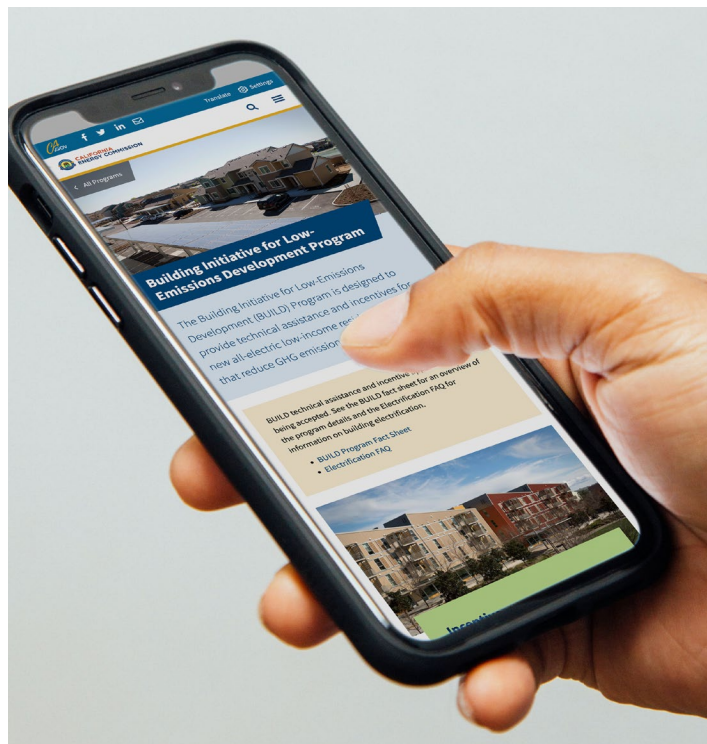
Get Started with BUILD

The BUILD program helps builders stay on top of shifting market demands and evolving California building codes. BUILD encourages builders to install clean, electric equipment instead of gas burning alternatives. Installing heat pumps is a major step towards reducing carbon emissions and increasing energy efficiency.

Participating in BUILD will help your bottom line. The BUILD program offers financial incentives to offset project costs and can help builders leverage and layer funds from other incentive programs. Plus, constructing an all-electric building with heat pump appliances eliminates the cost of installing gas infrastructure.

BUILD participants can access up to 300 hours of free expert technical assistance

- Overcome design and construction barriers
- Complete an incentive application
- Stay ahead of state and local building electrification policies
- Determine which specific heat pump appliances are best for your project



Calculating BUILD incentives relative to heat pumps

The BUILD program calculator factors in the energy efficiency ratings of heat pumps to determine incentives—the more efficient the heat pump, the greater the incentives.



[Visit the BUILD program website to get started](#)

BUILD TECHNICAL ASSISTANCE TEAM



BUILD is administered by the California Energy Commission in collaboration with the California Public Utilities Commission. It is authorized by Senate Bill 1477 (2018, Stern) and funded by the four California gas corporations apportioned according to each gas corporation's percentage share of allocated Cap-and-Trade Program allowances. Reservations are approved on a first come, first served basis, and regional funding availability is based on the utilities' contribution to the program.