Building Electric Vehicle-Ready Homes

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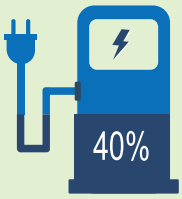
Over the next few decades, electric vehicles (EVs) are expected to replace traditional vehicles due to growing awareness of their environmental benefits, operational cost savings, and the availability of more EV options. The increasing number of EVs on the road will require additional charging infrastructure. In fact, approximately 28 million EV chargers (public and private) will be needed to support 30-42 million EVs in 2030.[1]

Because approximately 80 percent of EV charging happens at home, consumer demand for homes ready for or equipped with EV charging is also growing. An increasing number of localities, such as Atlanta, Denver, and much of California, have begun to require that infrastructure supporting EV charging be included in all newly-built single- and multi-family homes, as do above-code programs such as ENERGY STAR NextGen.

Did You Know?



ENERGY STAR certified Level 1 and Level 2 EV chargers use 40 percent less energy than a standard EV charger in standby modes.

What Does EV-Ready Mean for Homebuilders?

An EV-ready home provides consumers with safe access to a dedicated 240V power supply for Level 2 EV charging. Pre-wiring new homes for EV charging during construction adds value to the property and can save a homeowner hundreds of dollars in retrofits. By pre-wiring, builders can offer a future-proof product.

There are two paths to make a home EV-ready:

- **Pre-install conduit:** Designate enough space and capacity on the main electrical panel or garage subpanel for at least a 40 amp, 240V dedicated branch circuit. Install conduit linking the electrical panel to the future location of the EV charger, near where cars will be parked (garage, driveway, etc.)
- **Wire a Level 2-ready outlet:** In addition to the pre-wire steps, install a 240V grounded alternating current receptacle, allowing a homeowner to purchase a plug-in Level 2 EV charger without the extra wiring expense. EV chargers are available for a range of outlet types, including the popular NEMA 14-50.

Be sure the charging station is installed according to National Electric Code requirements (between 18 and 48 inches from the ground).

[1]National Renewable Energy Laboratory (NREL), *Building the 2030 National Charging Network,* June 2023.

Install ENERGY STAR® Certified EV Chargers

For builders interested in going beyond EV-ready to install EV chargers, consider using ENERGY STAR certified units. **ENERGY STAR certified Level 1 and Level 2 EV chargers use 40 percent less energy than a standard EV charger in standby modes.** Numerous manufacturers in this rapidly growing industry currently offer a selection of certified models.

Some ENERGY STAR-certified EV charger models also meet optional criteria for connected functionality, giving utility customers the opportunity to participate in demand-response programs, where available. Current ENERGY STAR specifications[2] improve demand-response capabilities by requiring that all certified models listed as 'connected functionality capable' on the ENERGY STAR Product Finder support **open standards for communication protocols.**

Learn More

- Find more information on the **ENERGY STAR certified EV Chargers** webpage, including a list of ENERGY STAR certified products and buying guidance when purchasing equipment.
- See the **Alternative Fuels Data Center (AFDC)** website for information about charging station types, installing residential charging equipment, and how to locate public charging stations.
- Search the **AFDC Laws and Incentives Database** for financial incentives and programs offered by utilities, governments, and other organizations. Also see example EV-ready policies from various jurisdictions.
- Refer to the **U.S. Green Building Council** website for information about the opportunity to earn Leadership for Energy & Environmental Design (LEED) credits for EV charging stations installed in new homes as part of the innovation category (green vehicles) under Building Design and Construction (BD+C).

[2]U.S. EPA, 2023, ENERGY STAR Version 1.2 EV Chargers Specification

ENERGY STAR® is the simple choice for energy efficiency. For more than 25 years, EPA's ENERGY STAR program has been America's resource for saving energy and protecting the environment. Learn more at energystar.gov/products/other/ev_chargers