

# Electric Vehicle-Ready Homes Guide for Builders

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## Value of EV-Ready Homes for Builders:

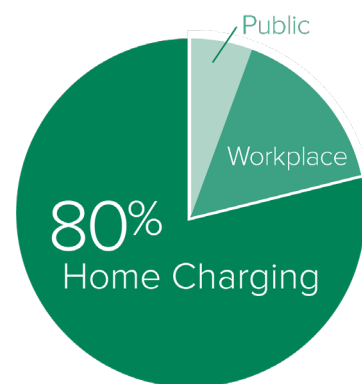
- An electric vehicle (EV)-ready home ensures that the conduit and service panel capacity are ready and available for an EV charging station. The estimated cost of pre-wiring a 240V outlet is inexpensive and around \$50-\$300
- EV-ready homes can differentiate you from other builders
- Having a 240V outlet already installed increases home value and attractiveness to buyers
- Supporting EVs demonstrates a commitment to the environment
- Providing an additional option to homebuyers shows your support for consumer choices

## Value of EV-Ready Homes for Homeowners:

- Having an EV-ready home makes purchasing an EV an easier decision for homeowners because they already have a place to safely install a charging station
- Installing a 240V outlet post-construction can be a large expense, as it may require trenching and new conduit to run wiring or upgrades to the electrical service panel

*An EV-ready home is one that offers safe access to a dedicated power supply for the purpose of charging an EV. Many EV owners will install a charging station at their home to charge their vehicle. A charging station:*

- Typically needs a 240V/40A dedicated circuit
- May require up to 80A maximum current (100A circuit)
- Uses a SAE J1772 connection to the vehicle
- Uses amount of power similar to large appliances, such as air conditioners or clothes dryers
- Provides 10-20 miles of range per hour of charging

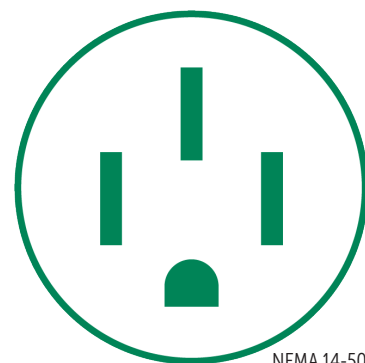


### EV-Ready 240v Outlet Specifications

Voltage and Current Reading	208-240 VAC at 30 Amps Continuous
AC Power Input	208-240 VAC requiring only Line 1, Line 2 and earth ground
Power Supply Connection	NEMA (6-50 or 14-50 Plug) (250 VAC, 50 Amps)
Recommended Service for Panel Breaker	2-Pole 40-Amp breaker on dedicated circuit

### Locating an EV Outlet:

- Consider the available space on the floor, walls and ceiling
- Ensure overhead doors and objects do not obstruct the vehicle's ability to plug in
- Avoid locations requiring the charging cord to be wrapped around or draped over the vehicle
- Consider an outdoor outlet when there is no garage



NEMA 14-50 Receptacle

Contact Carteret-Craven Electric Cooperative for more information.



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## Installation Steps

### Step 1

Consider available space on the floor, walls and ceiling

- Ensure overhead doors and other objects do not obstruct.
- Ensure installation does not obstruct the vehicle's ability to park in the garage.

### Step 2

Note the location of the charging port on the expected vehicle

- If no vehicle has been selected, most EVs have a charging port toward the front end of the vehicle.

### Step 3

Ensure remaining locations best meet guidelines for a residential garage as follows:

#### Garage Lighting

- Requirement: Garages are required by the NEC to provide a switch-controlled lighting outlet (NEC 210.70).
- Recommendation: Ensure functionality of lighting in garage.

#### Exterior Lighting

- Recommendation: Lighting should minimize the risk of tripping, vehicle impact and vandalism. Charging stations should be installed in a well-lit location. If no lighting exists, the installation of a separate lighting circuit should be discussed with the homeowner. A light level of a minimum of 2 foot-candles is recommended.



#### Connector Height

- Requirement: Mount the connector at a height between 18" and 48" from the ground (NEC 625.29).
- Recommendation: Mount the station such that the connector is at a height between 36" and 48" from the ground unless otherwise indicated by the manufacturer.

#### Tripping Hazard Mitigation

- Recommendation: Charging stations should be placed to minimize the intersection of cords with typical walking paths. Stations mounted at greater heights and equipped with cord management technologies may further reduce this risk. Charging stations should also be mounted in close proximity to the vehicle charge port.

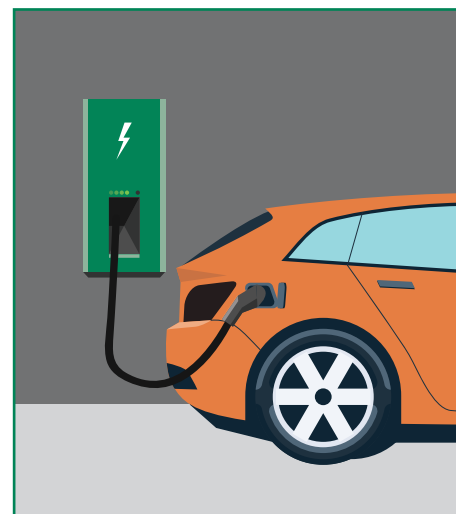
#### Physical Damage Prevention

- Requirement: Equipment operating above 50 volts will be protected against accidental physical damage (NEC 110.27).

- Recommendation: When possible, placing the enclosure above 36" may be sufficient in a residential garage. When possible, placing the charging station out of the line of vehicle travel is advised. If desired, a wheel stop or protective bollards may be installed as well.

### Step 4

If spaces are comparable, selection based on cost and/or ease of installation is advised



Contact Carteret-Craven Electric Cooperative for more information.