

What I Learned From Installing Dozens of Home EV Chargers

Why a Simple EV Charger Install Can Turn Into a Headache

I have been an electrician for over a decade, and in the last three years I have wired more Level 2 EV chargers than I can count. Most homeowners assume the job is as straightforward as plugging in a dryer. They call me after they have bought a charger, cleared a spot in the garage, and maybe even watched a YouTube tutorial. Then reality hits. The panel is full. The run to the garage is ninety feet through finished walls. The local inspector requires a load management study before they will sign off. Suddenly a Saturday-morning project turns into a week-long ordeal. That is why I want to walk through the real-world decisions that come with any EV Charger Installation, starting with the things nobody tells you on the sales floor.

Know Your Electrical Service Before You Buy Anything

The single biggest mistake I see is people picking a charger before they understand what their home can deliver. A 48-amp, 11.5 kW unit sounds great until you realize your 100-amp service already runs an AC, an electric oven, and a pool pump. Even if your panel has an empty slot, you might trip the main breaker every time you charge during peak hours. I recommend pulling your panel cover and reading the main breaker rating. If you have a 100-amp service and a full house, you probably need a 30- or 40-amp charger, or a load management device that throttles the charger when other big loads are running. That kind of device adds three hundred to six hundred dollars to the project but can save you from a costly service upgrade. The point is that an EV Charger Installation is not just about the charger itself. It is about matching the charger to your home's electrical capacity.

Hardwired or Plug-In: It Matters More Than You Think

Most residential chargers come in two flavors: hardwired or with a NEMA 14-50 plug. The plug-in version looks convenient because you can unplug it and take it with you if you move. In practice, I see a lot of problems with plug-in units over time. The receptacle can overheat if it is a cheap residential grade, and the cord creates a tripping hazard in the garage. Hardwiring removes those failure points. It also allows the electrician to use a continuous conductor from the panel to the charger, which is safer in the long run. The trade-off is that hardwiring is a permanent installation. If you sell the house, the charger stays. For most homeowners who plan to stay put for five years or more, I recommend hardwiring. For renters or people who move often, the plug-in version with a commercial-grade receptacle makes sense. Every [EV](#)

[Charger Installation](#) I do starts with that conversation because it affects the cost, the permit requirements, and the long-term reliability.

The Hidden Costs Nobody Talks About

I have learned to give a rough estimate over the phone, but I always warn people that the final price can vary by a thousand dollars or more depending on what we find in the walls. Here are the most common surprises:

[View the location on Google Maps](#)

- Longer than expected conduit runs. Your panel may be in the basement, and the garage is on the opposite side of the house. Running conduit through finished ceilings adds labor and material.
- Panel upgrades. If your panel is full, we either add a subpanel or install tandem breakers. If you have a Zinsco or Federal Pacific panel, it may need to be replaced entirely for safety reasons.
- Permit and inspection fees vary by city. Some jurisdictions require a separate meter for the charger, which can cost thousands.
- Load management hardware. If your service is close to capacity, you need a device that communicates with the charger to avoid overloading the main breaker.
- Exterior trenching. If the charger goes on a detached garage or a driveway post, we have to dig a trench and run rigid conduit. That is labor-intensive.

I always tell homeowners to budget twenty to fifty percent over the base quote for these unknowns. A straightforward install in a new house with an open panel might cost six hundred dollars. A complicated retrofit in an old house can run two thousand or more. The key is to get a site visit before you buy anything.

Permits Are Not Optional, Even When Nobody Is Watching

I know plenty of people who skip the permit to save money and time. I have also been called in to fix installations that were done without a permit. The most common problem is undersized wire. Someone uses 10 AWG for a 50-amp circuit because that is what they had lying around, and the wire gets hot every time the charger runs at full power. Another frequent issue is improper grounding. A missing or loose ground bond can create a shock hazard that does not surface until the charger has been running for months. Permits and inspections catch these problems. In my experience, a failed inspection is cheap to fix compared to a house fire. Every reputable EV Charger Installation I have been part of includes pulling a permit and scheduling the inspection. It adds a day or two to the timeline, but it buys peace of mind.

Choosing the Right Charger for Your Use Case

The market is flooded with options, and the specs all look similar on paper. I tell people to focus on three things: the cable length, the power level, and the warranty. A 24-foot cable is great if your car is parked in different orientations, but 18 feet is enough for most single-car garages. For power level, 40 amps at 9.6 kW is plenty for overnight charging for most EV owners. Going up to 48 or 50 amps only saves you about an hour on a full charge, but it requires heavier wire and may push your service to its limit. As for warranty, look for at least three years on the unit itself. Some premium brands offer five years. Avoid no-name chargers from online marketplaces. I have seen units with loose internal connections that arc and melt the housing. Stick with brands that have a local service network and UL listing. If you ever have a problem, you want someone who can send a replacement without a fight.

My Advice on Timing and Future-Proofing

If you are building a new home or doing a major renovation, run conduit from the panel to the garage even if you do not plan to buy an EV for years. Conduit is cheap when the walls are open. Adding it later means cutting drywall, fishing wires, and patching paint. I also recommend installing a 60-amp breaker and running 6 AWG wire so you have headroom for future chargers that may draw more power. The incremental cost today is maybe a hundred dollars. The cost to upgrade later is easily five times that.

For homeowners who already have a charger and are considering a second one for a two-EV household, load sharing is the smart approach. Products like the Tesla Wall Connector with Power Sharing or the Grizzl-E with load balancing let two chargers share one circuit. They communicate with each other so they never exceed the circuit capacity. That is cheaper than running a second dedicated circuit and avoids the need for a service upgrade.

Wrapping Up

I have seen EV chargers installed in garages, carports, driveways, and even on poles at the end of a long driveway. Every situation is a little different, but the fundamentals stay the same: know your electrical service, plan for the unexpected, pull a permit, and choose a charger that matches your actual driving patterns, not the highest number on the spec sheet. A well-done EV Charger Installation should last the life of your home and the life of your car. If you are in South Florida and need a hand, Simply Wired Electrical, located at 1821 SW 23rd Terrace, Fort Lauderdale, FL 33312, can be reached at +19544660475 for a site visit and a straightforward quote.