



# Firestone Single Family EV Car Charger and/or Energy Storage System

New residential EV Charging Systems and/or Energy Storage Systems will consist of an “RES inspection type” for all inspections. Firestone reviewed and approved stamped plans (printed from the online portal), and all construction documents and permit card MUST be on-site for every required inspection. No inspection will be made without the above items. All inspections will be performed by Firestone Inspectors unless previously approved for third-party inspections by the Chief Building Official. The owner or contractor shall provide access for inspectors to all areas for inspection. (Ladder, Boom Truck, Scissor Lift, Locked Building, Etc.)

## IRC 109.3 Inspection requests

It shall be the duty of the permit holder or their agent to notify the building official that such work is ready for inspection. It shall be the duty of the person requesting any inspections required by this code to provide access to and means for inspection of such work.

\*Energy storage is the capture of energy produced at one time for use at a later time. Both EV And ESS are Energy storage.

## What will be needed to submit for plan review:

1. An electrical load calculation for the existing electrical panel.
2. Specification Documentation for the equipment that will be installed.
3. A floor plan with the location of the proposed equipment and the interconnected heat detector.
4. A wiring diagram indicating the point of connection, overcurrent protection, wiring sizes and methods, etc.

## Firestone 2023 Code Amendment

### IRC Section R314.2

#### R314.2 General

Heat Detectors/alarms shall comply with NFPA 72 and Section R314.

#### R314.2.3 Where required

Heat Detectors /alarms shall be provided in accordance with this section. When an attached garage has an Electric Vehicle Power Transfer/ System car charger installed in compliance with NFPA 70 Article 625 Electric Vehicle Power Transfer System a heat detector shall be wired to the home's smoke detector system.

## SECTION R327 ENERGY STORAGE SYSTEMS

### R327.1 General

Energy Storage Systems (ESS) shall comply with the provisions of this section. Exceptions:

1. ESS listed and labeled in accordance with UL 9540 and marked "For use in residential dwelling units" where installed in accordance with the manufacturer's instructions and NFPA 70.
2. ESS less than 1 kWh (3.6 megajoules).

### R327.2 Equipment listings

Energy Storage Systems (ESS) shall be listed and labeled in accordance with UL 9540.

### R327.3 Installation

ESS shall be installed in accordance with the manufacturer's instructions and their listing.

#### R327.3.1 Spacing

Individual units shall be separated from each other by not less than 3 feet (914 mm) except where smaller separation distances are documented to be adequate based on large-scale fire testing complying with Section 1207.1.5 of the International Fire Code.

### R327.4 Locations

ESS shall be installed only in the following locations:

1. Detached garages and detached accessory structures.
2. Attached garages separated from the dwelling unit living space in accordance with Section R302.6. on exterior garage walls only.
3. Outdoors or on the exterior side of exterior walls located not less than 3 feet (914 mm) from doors and windows directly entering the dwelling unit.

ESS shall not be installed in sleeping rooms, or closets or spaces opening directly into sleeping rooms.

### R327.5 Energy Ratings

Individual ESS units shall have a maximum rating of 20 kWh. The aggregate rating of the ESS shall not exceed:

1. 40 kWh within utility closets, basements and storage or utility spaces.
2. 80 kWh in attached or detached garages and detached accessory structures.
3. 80 kWh on exterior walls.
4. 80 kWh outdoors on the ground.

ESS installations exceeding the permitted individual or aggregate ratings shall be installed in accordance with Section 1207 of the International Fire Code.

### R327.6 Electrical Installation

ESS shall be installed in accordance with NFPA 70. Inverters shall be listed and labeled in accordance with UL 1741 or provided as part of the UL 9540 listing. Systems connected to the utility grid shall use inverters listed for utility interaction.

### R327.7 Fire Detection

Rooms and areas within dwelling units, basements and attached garages in which ESS are installed shall be protected by smoke alarms in accordance with Section R314. A listed heat detector shall be interconnected to the smoke alarms, shall be installed in locations within dwelling units and attached garages where smoke alarms cannot be installed based on their listing.

### R327.8 Protection from impact

ESS installed in a location subject to vehicle damage shall be protected by approved barriers.

### R327.9 Ventilation

Indoor installations of ESS that produce hydrogen or other flammable gases during charging shall be provided with mechanical ventilation in accordance with Section M1307.4.

### R327.10 Electric Vehicle Use

The temporary use of an owner or occupant's electric-powered vehicle to power a dwelling unit while parked in an attached or detached garage or outdoors shall comply with the vehicle manufacturer's instructions and NFPA 70.

### R327.11 Documentation and Labeling

The following information shall be provided:

1. A copy of the manufacturer's installation, operation, maintenance and decommissioning instructions shall be provided to the owner or placed in a conspicuous location near the ESS equipment.
2. A label on the installed system containing the contact information for the qualified maintenance and service providers.

IRC Table R302.6 as amended is adopted to read as follows:

**TABLE R302.6 DWELLING-GARAGE SEPARATION**

SEPARATION	MATERIAL
From the residence and attics	Not less than 5/8-inch gypsum board or equivalent applied to the garage side
From habitable rooms above the garage	Not less than 5/8-inch Type X gypsum board or equivalent
Structure(s) supporting floor/ceiling assemblies used for separation required by this section	Not less than 5/8 -inch gypsum board or equivalent
Garages located less than 3 feet from a dwelling unit on the same lot	Not less than 5/8-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

REFERENCE 2018 IRC TABLE R702.3.5 "MINIMUM THICKNESS AND APPLICATION OF GYPSUM BOARD AND GYPSUM PANEL PRODUCTS" FOR GYPSUM BOARD APPLICATION AND FASTENER REQUIREMENTS.

### Inspection Checklist:

- Confirm the type of EV charger, amperage, wire and conduit size and location per the Firestone approved construction documentation.
- Confirm that there is a minimum of 5/8 type X drywall throughout the garage walls and ceilings. Per Firestone amended Table R302.6 of the 2018 IRC.
- Confirm that there is a heat detector interconnected with the smoke detectors throughout the home.
- Confirm the added load does not overload the existing electrical panel.
- Confirm that there is a document on company letterhead signed by the master electrician that states that all lugs and terminals were torqued to manufactures specifications.

These inspections may be subject to change or revisions and may not be all of the required inspections to comply with the Town of Firestone adopted building codes. You may obtain the latest building code [Ordinance 1029](https://www.firestoneco.gov/DocumentCenter/View/9387/1029-AN-ORDINANCE-OF-THE-BOARD-OF-TRUSTEES-OF-THE-TOWN-OF-FIRESTONE-COLORADO) <https://www.firestoneco.gov/DocumentCenter/View/9387/1029-AN-ORDINANCE-OF-THE-BOARD-OF-TRUSTEES-OF-THE-TOWN-OF-FIRESTONE-COLORADO>