



# GUIDELINES & STANDARDS

## GUIDELINE D.07 – Energy Storage Systems for Residential Application

### D.07.1 PURPOSE

The purpose of this guideline is to provide information, requirements, and a minimum standard for the installation of Energy Storage Systems in a residential application which present additional areas of concern for firefighter safety and operations.

### D.07.2 SCOPE

This guideline shall apply to all residential applications.

### D.07.3 TITLE PAGE REQUIREMENTS

1. List the applicable codes, code chapter(s), standards, and local ordinances used for the system design.
2. List the project location including the full legal address of the facility, and building number(s), if any.
3. Specify if the structure is protected by an automatic fire sprinkler system with or without a waterflow switch.
4. Specify if the ESS batteries are to be installed interior to the garage, or exterior on the structure.

### D.07.4 GENERAL REQUIREMENTS

1. Energy ratings for ESS shall comply with 2022 CFC 1207.11.4.
  - a. Individual ESS units shall have a max rating of 20KWh.
  - b. Total aggregate shall not exceed:
    - i. 40KWh within storage closet or utility spaces
    - ii. 80KWh within all other applicable locations
2. ESS for residential use shall be listed and labeled for use in accordance with UL 9540. 2022 CFC 1207.11.1.



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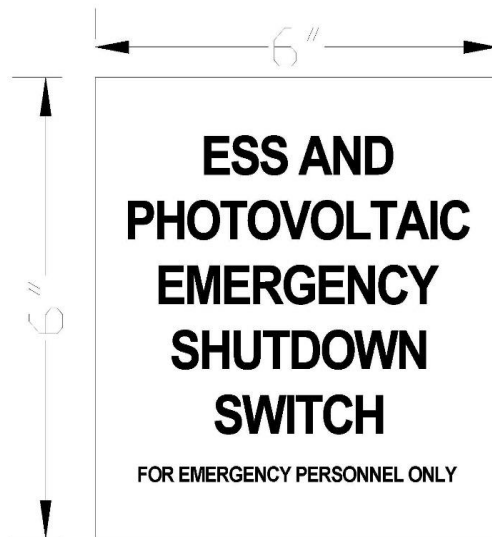
3. Electrical installation- ESS shall be installed in accordance with the California Electric Code. Inverters shall be listed and labeled per UL1741 provided as part of the UL9540 listing. 2022 CFC 1207.11.5
4. If ESS is not of the Self-contained or Pre-engineered type, provide documentation stamped by a licensed design engineer that states the Inverter, Storage batteries, and Charge controller working together meet the UL9540 listing.
5. Provide a lockable disconnect for the ESS. Disconnects shall be located on the exterior of the building. Provide remote disconnect located within three (3) feet of the meter (MSP). or as required by the Fire Code Official.
6. Individual units shall be separated from each other by at least 3 feet except where smaller separation distances are documented to be adequate based on large-scale fire testing complying with Section 1207.1.5 of the 2022 California Fire Code. Show distances on plans.
7. ESS shall be located not less than 3 feet from doors and windows directly entering the dwelling unit. Indicate distance from any doors or windows on plans per 2022 CFC 1207.11.3.
8. Fire detection shall be provided in rooms and areas within dwelling units, basements and attached garages in which ESS are installed shall be protected by smoke alarms in compliance with section 1207.11.6 of the 2022 CFC and R314 of the 2022 California Residential Code. A listed heat detector shall be installed in locations within dwelling units and attached garages where smoke alarms cannot be installed based on their listing. See attached Technical Bulletin 2021-01. Show devices on plans.



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9. ESS installed in a location subject to vehicle damage shall be protected by approved barriers per 2022 CFC 1207.11.7.
10. Provide labels on plans that identify AC disconnect for ESS. Use the sample placard below.

## Sample Placard for ESS Disconnect





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## CITY OF NEWPORT BEACH

### Fire Department

### Fire Prevention Division

## TECHNICAL BULLETIN – ENERGY STORAGE SYSTEMS

**Subject: Heat Detection for Energy Storage Systems (ESS) in R-3 and R-4 Occupancies and ESS not listed and labeled in accordance with UL 9540 and marked "For use in residential dwelling units."**

Heat detection or smoke alarms in accordance with Section R314 of the California Residential Code (CRC) and Section 1207.11.6 of the California Fire Code (CFC) as adopted by the City of Newport Beach, are required in areas within dwelling units, basements, and attached garages in which ESS are allowed per CFC 1207.11.3 and CRC R327.4. Heat detection can be used as an alternative in locations within dwelling units and attached garages where smoke alarms cannot be installed based on their listing. There are currently no listed heat devices for unconditioned spaces where temperatures exceed 100°F.

The Newport Beach Fire Department recognizes there are currently no listed heat devices to meet the requirements of the 2022 CFC and CRC. One of the following is required to ensure code compliance:

1. Rooms and areas within dwelling units, basements, and attached garages that are currently protected with an automatic fire sprinkler system **AND** have a water-flow device that initiates an audible notification for residential occupants will be considered as having met the intent of the code:
  - a. Section R314.4 of the 2022 CRC requires that the alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed. This can be accomplished by interconnecting the interior smoke alarms to the water-flow device on the fire sprinkler system riser.
2. Rooms and areas within dwelling units, basements, and attached garages that are **NOT** protected with an automatic fire sprinkler system shall provide an alternative means of detection and notification to the residential occupants. Alternative means shall meet the requirements of Section R314.4 of the 2022 CRC:
  - a. **Option 1:** Heat detection device that can be interconnected to interior smoke alarms and provide audible notification to occupants in accordance with R314.4 of the 2022 CRC. Kidde and FirstAlert manufacture devices that can accomplish this. They are not listed for unconditioned spaces where the temperature can exceed 100°F. **NOTE SHALL BE PROVIDED ON PLANS STATING THE FOLLOWING: Location of heat alarm device does not exceed the temperature or condition limitation of the manufacture's device listing.**
  - b. **Option 2:** Heat detection device installed by a licensed C-10 contractor and is connected to audible notification appliances on the interior of the structure in accordance with R314.4 of the 2022 CRC.

Technical Bulletin 2021-01  
03-20-2023