



## WOODSIDE FIRE PROTECTION DISTRICT

### *Electrical Energy Storage Systems Design and Installation Standard*

808 Portola Rd. #C Portola Valley, CA 94028 Fire Prevention 650-851-1594 Fax 650-851-3960

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**SCOPE.** This standard and guideline provide the minimum requirement necessary for the installation of energy storage systems for residential occupancies. Installations shall be in accordance with the 2022 California Building or Residential Code, Electrical Code, Fire Code and Woodside Fire Protection District Ordinance No. 13.

#### **GENERAL INSTALLATION REQUIREMENTS**

- 1) Energy storage systems shall be listed and labeled in accordance with UL 9540. *CFC 1207.11.1.*
- 2) Energy storage systems shall be installed in accordance with the manufacturer's instructions and their listing. *CFC 1207.11.2*
- 3) Individual unit shall be separated from each other by at least 3-feet, *CFC 1207.11.2.1*, except where smaller separation distances are documented to be adequate based on large-scale fire testing complying with *Section 1207.1.5* and in accordance with UL 9540A (2022).
- 4) Exterior Energy storage systems shall be installed only in the following locations, *CFC 1207.11.3*:
  - a. Detached garages and detached accessory structures.
  - b. On the exterior side of the exterior walls located not less than 3 feet from doors or windows directly entering the dwelling unit.
  - c. Enclosed utility closets, basements, storage, or utility spaces within dwelling units with finished or noncombustible walls and ceiling. Walls and ceilings of unfinished wood-framed construction shall not be provided with not less than 5/8-inch type X gypsum wallboard.
  - d. ESS shall not be installed in sleeping rooms, closets, spaces opening directly unto sleeping rooms or in habitable spaces of dwelling units.
- 5) Individual energy storage systems shall have a maximum rating of 20 kWh. The aggregate rating structure shall not exceed:
  - a. 40 kWh within utility closets and storage or utility spaces.
  - b. 80kWh in attached or detached garages and detached accessory structures.

- c. 80kWh on exterior walls.
  - d. 80kWh outdoors on the ground
  - e. Systems that exceed the permitted individual or aggregate ratings shall be in accordance with *CFC 1207.11.4*.
- 6) Vehicle Impact Protection. Where an ESS is installed in a location and is subject to vehicle damage, impact protection shall be provided in accordance with *CFC 1207.11.7.3*.
- 7) Show the location of the emergency disconnect for the system. The battery disconnect must be adjacent to and within line of site of the batteries. Disconnect must be accompanied with a placard "BATTERY DISCONNECT" (red sign with white letters). Contractor must demonstrate at the time of inspection that the battery storage system can be disconnected from the premise wiring (at the battery), and that no power exists within any of the wiring exterior of the battery.
- 8) An emergency disconnect shall be installed on the exterior of the building. It shall disconnect the batteries from all of the premise wiring. The battery disconnect shall be adjacent to and within line of site of the main electrical meter. Disconnect shall be accompanied with a placard (Red sign with white letters): **BATTERY DISCONNECT**

NOTE: Contractor shall demonstrate **with a voltage meter**, at the time of inspection that the battery storage system can be disconnected from the premise wiring (at the battery), and that no power exists within any of the wiring exterior of the battery.

### **LABELING AND SIGNAGE**

All signage, labels and placards shall be: RED SIGN WITH WHITE LETTERS or as approved by the fire code official.

Per the Woodside Fire Protection District, (WFPD) Ordinance No. 13, a standard of specific installation conditions is in place to ensure firefighter and public safety.

- 9) Energy storage systems shall be installed in accordance with the Electrical Code. 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. *CFC 1207.11.5*.
- 10) All battery associated conduit shall be labeled every 10-feet, every turn and change of direction, "CAUTION: Alternate Power Source" (red label with white letters).
- 11) 7"x7" Directory plaque to be installed at the main electrical service panel indicating all power sources and means of disconnect. Will read "EXTERIOR" under batteries on placard.

12) Main electrical panel to have placard stating: CAUTION: Battery power source installed as part of electrical system. **CAUTION: Battery power source installed as part of electrical system**  
**FOR INTERIOR INSTALLATIONS**

13) Energy storage systems shall be installed in non-habitable spaces, *CFC 1207.11.3*.

14) Energy storage system located in an attached garage separated from dwelling unit living space and sleeping units shall be in accordance with *CRC Section R302.6., CFC 1207.11.3(2)*.

15) Rooms and areas within dwelling units, sleeping units, basements and attached garages in which an energy storage system is installed shall be protected by smoke alarms in accordance with *Section 907.2.11*. A listed heat alarm interconnected to the smoke alarms shall be installed in locations within dwelling units, sleeping units and attached garages where smoke alarms cannot be installed based on their listing. *CFC 1207.11.6*

a. ***Approved Heat Detector First Alert Model HD6135FB, listed to UL 539 Standard***

16) Energy storage systems that have potential to release toxic or highly toxic gas during charging, discharging or normal use conditions shall not be installed in R-3/R-4 occupancies. *CFC 1207.11.9*

17) Indoor installations of energy storage systems that include batteries that produce hydrogen and flammable gasses during charging shall be provided with exhaust ventilation in accordance with Section 1207.6.1 and the California Mechanical Code. *CFC 1207.11.8*.

18) Energy storage systems that have potential to release toxic or highly toxic gas during charging, discharging or normal use conditions shall not be installed in R-3/R-4 occupancies. *CFC 1207.11.9*

19) Approved signs shall be provided on or adjacent to all entry doors for ESS rooms or area and on enclosures of ESS cabinets *CFC 1207.4.8*: **CAUTION: ENERGY STORAGE SYSTEM.**

20) 7" x 7" Directory plaque to be installed at the main electrical service panel, indicating all power sources and means of disconnect. Sign to include: **"INTERIOR"** under ESS and include all PV and battery equipment as power sources.