



City of Carmel-by-the-Sea Building  
Safety Division  
Guidance Document

## 24-06 Residential PV Integrated ESS Submittal Requirements

In an effort to expedite the plan review and permitting process, the building official has determined that all plans submitted for building permits from the Building Safety Division shall be generally complete prior to the application being accepted for review. This Guidance Document provides a checklist that will be used by staff to determine completeness at the time of submittal. While not all items are applicable to all projects, the staff will determine, based on the submittal documents and communication with the applicant, whether the plans are generally complete and acceptable for review. Please confirm plan content by checking the appropriate boxes and signing below. The permit may only be issued to a properly licensed C10 or C46 contractor. **Applications deemed incomplete will not be accepted for review.**

**The permit may only be issued to qualified B-General Contractor or C10 Electrical Contractor**

*This permitting and inspection guide is only applicable to the installation of the following applications:  
Lithium-ion energy storage systems, Energy storage systems with total maximum energy capacity on site of 600kWh,  
Energy storage systems installed with simple solar systems.*

### 1. General – Submittal Requirements

- Signature on all pages by design professional(s)
- Name, title, registration number, address, email and telephone number of applicable design professional(s)
- If you are derating the main panel, you must submit a load calculation for the entire house.

### 2. Energy Storage System Plan Requirements

- Cover sheet** shall include, name, address, assessor parcel # (APN), contact information of the property owner and the contractor including license type & license number. General information about the system being installed, including the brand, # of panels and kW size. Also list the 2022 California Building Code, 2022 California Electrical Code, 2022 California Residential Code, 2022 Fire Code & 2020 National Electric Code
- Site plan**, shall show all property lines, building footprint, building setbacks, all existing and proposed utility locations, street & driveway location, North arrow.
- Floor plan**, drawn to scale showing room locations, window & door locations including emergency escape locations per CRC-R324.6.3 (For one story houses please note: R324.6.3 N/A).
- Single line diagram** of all electrical equipment clearly showing: new or existing, size of main panel, sub panels, rapid shut down, PV system equipment including make, model and size of units, lockable disconnect locations, breaker retainer locations and wire size and type.
- Interconnected with a photovoltaic system**, provide the required photovoltaic plans consistent with City of Carmel by the Sea PV guidance document 24-05 in conjunction with this submittal.
- Permanent Plaque** or directory shall be installed at each service equipment location consistent with CEC 705.10

### 3. Energy Storage System Requirements (incorporate the following information into the plan set)

- ESS is listed to UL9540 or UL9540a by a Nationally Recognized Testing Laboratory (NRTL).
- ESS is listed to UL1973.
- Inverters are certified to UL1741.
- The individual ESS units are no larger than 20kWh.

- ESS units that are UL9540 certified are separated by 3 feet.
- Energy Storage Systems that are UL9540A certified are grouped and separated according to manufacturer instructions.
- Each ESS unit meets one of the size and location limitations shown below: (IRC R328.4, IRC R328.5)
  - a. 80 kWh in attached garages separated from the dwelling unit living space with ½” gypsum board between garages and residence or attics and 5/8” Type X gypsum between garage and habitable room above garage. If sheetrock rating of homes built under a code older than the 2009 IRC cannot be verified, sheetrock is installed to meet this requirement.
  - b. 80 kWh on exterior walls a minimum 3 feet (914mm) from doors and windows directly entering the dwelling unit. There is no restriction on how close an ESS unit can be to windows or doors entering a garage because the garage is not considered part of the dwelling unit.
  - c. 40 kWh within utility closets, basements, and storage or utility spaces with finished or noncombustible walls and ceilings. Walls and ceilings of unfinished wood-framed construction shall be provided with minimum 5/8” Type X gypsum.
  - d. 80 kWh in detached garages and detached accessory structures.
  - e. 80 kWh outdoors on the ground a minimum 3 feet from doors and windows directly entering the dwelling unit. There is no restriction on how close an ESS unit can be to windows or doors entering a garage because the garage is not considered part of the dwelling unit.
- ESS is protected from vehicular impact by one of the following:
  - a. Installed in a location not subject to vehicular impact such as on a side wall or 4’ above floor level, or
  - b. Protected by guard posts located 6 inches or more away from the ESS.
  - c. Protected by wheel barriers anchored in place located 4.5 feet or more away from the ESS.
  - d. Protected by other barriers where approved
- Smoke alarms are installed in dwelling units and basements in which ESS is installed for ESS installed in unconditioned indoor spaces such as dwelling units and attached garages that can exceed the temperature limits of smoke alarms (32°F-100°F), heat alarms are installed.
- Identify the lockable disconnect locations consistent with CEC Disconnecting Means 706.15
- Show the breaker locations that are required to be equipped with an additional fastener (“hold down kit”) per CEC 408.36(D)
- Clearly identify the backup loads per CA Energy Code 150.0 (S) (2), if the whole house is proposed to be backed up, identify the backup loads panel and indicate “whole house back up”

#### 4. Photovoltaic and Energy Storage Interconnection Requirements

- The inverter installation meets the requirements of one of the items below:
  - a. Supply-side connection complies with power source continuous output rating, conductor size, over current protection, connection, and ground fault requirements in NEC 705.11.
  - b. Load-side connection complies with 705.12 and can meet the 120% bus bar rating allowance in a residence.
  - c. Load-side Power Control Systems which use controls to prevent overcurrent of equipment are listed to UL1741 CRD and comply with monitoring, setting, overcurrent protection, single power source ratings, and access requirements in NEC 705.13.
  - d. Load-side distribution equipment listed to combine sources and supply loads.

\* Please be aware Smoke and Carbon Monoxide Alarm inspection or affidavit verification will be required at Final Inspection per CRC Section R315 and CBC 907.2.10.5.2

**I have read the above information and have submitted all the required information.**

Signature: \_\_\_\_\_ Print: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_  
*Staff Use Only*- Application # \_\_\_\_\_ Received By \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

