



# CAL FIRE - OFFICE OF THE STATE FIRE MARSHAL

## Code Interpretation 24-03

**UPDATED**

Issued: October 1, 2024  
Updated: November 7, 2024

### Energy Storage System (ESS) Degradation vs. Maximum Aggregate

#### OVERVIEW

**Edition:** 2022 CCR Title 24, California Building Standards **(July 1 2024 Supplement)**  
**Code:** Part 9 - California Fire Code (CFC), Part 3 - California Electrical Code (CEC)  
**Section(s):** 1207.11.3-1207.11.5 ESS in Group R-3 and R-4 Occupancies,  
Article 706 Energy Storage Systems.  
**Requested By:** Jerry Thompson, Owner, Integrity Electric  
**Date Received:** February 01, 2024

#### QUESTION:

Can six battery storage units (13.5 x 6 = 81kWh) be installed on the exterior wall of a Group R-3 single-family dwelling?

#### ANSWER:

**(CFC first printing effective January 1, 2023)**

No, because the 81 kWh exceeds the maximum aggregate limits of 80 kWh for exterior walls.

**(July 1, 2024, Supplement)**

Yes. The maximum aggregate rating for exterior walls is 100 kWh [CFC Table 1207.11.4](#)

#### QUESTION:

Does the code provide provisions for degradation, such that new equipment may be installed/added to compensate for the projected degradation of an existing system? (For example, three new battery storage units and three existing (OLD) battery storage units' aggregated rating is less than 80kWh due to degradation.)

#### ANSWER:

**(CFC first printing effective January 1, 2023)**

No. CFC and CEC do not provide any provisions for degradation. Various factors influence the rate and extent of degradation, making it a complex problem. When insulation is added to an existing system, the full capacity of each battery unit is considered in evaluating the maximum aggregate allowed.

**(July 1, 2024, Supplement)**

No change from the first printing.