

Energy Management System (EMS) and Load Shearing Devices Plan review and Inspection Guidelines for One-and Two-Family Dwellings with EV Charging

Effective January 1, 2026 – Referencing the 2025 California Electrical Code (CEC)

Purpose

This handout provides applicants with guidance on what the City of Daly City Building Division will review during plan check and field inspections for **Energy Management Systems (EMS)** or **manual load-sharing solutions** (e.g., selector switches) used in **one- and two-family residential dwellings** to avoid service upgrades when adding **Electric Vehicle (EV)** charging stations.

Note: This guidance applies strictly to **residential applications** in **one- and two-family homes**. It does **not apply** to commercial buildings, multifamily buildings, or other non-residential occupancies.

Plan Review Checklist

Plans must demonstrate compliance with the California Electrical Code (CEC), specifically NEC Articles 220, 240, 250, 310, and 750.

1. **Electrical Load Calculation**
 - o NEC 220.83 or 220.87 (existing dwelling load calc with new load)
 - o If using NEC 220.87, peak demand data must exclude solar/battery backup systems.
2. **EMS Load Limiting Strategy**
 - o NEC 750.30(C): EMS must monitor, and control connected load to prevent service overload.
 - o Provide documentation or manufacturer specs showing programmed limits.
3. **Panel and Breaker Rating**
 - o NEC 240.4 and 310.15(B): Panel rating and main breaker must match load assumptions.
4. **System Schematic / Line Diagram**
 - o NEC 110.3(B): Show all managed loads and associated wiring.
5. **Device Listing**
 - o NEC 110.3 and 90.7: All components (e.g., EMS controllers, transfer switches) must be UL-listed or recognized by an NRTL.
6. **Labeling Plan**
 - o NEC 110.22, 210.5(C): Label all EMS-managed circuits and control points.
7. **User Controls**
 - o If using a manual switch, explain logic and location (e.g., EV/Dryer switch). Identify it clearly in the diagram.

Inspection Requirements

The following will be verified in the field:

1. **Installed Devices Match Approved Plans**
 - o NEC 110.3(B): Ensure models, ratings, and EMS logic match submittal.
2. **Labeling Installed**
 - o NEC 110.22: All EMS-controlled circuits, switches, and panels must have permanent, legible labels.
3. **Accessibility**
 - o NEC 240.24: All EMS controls or switches must be readily accessible.
4. **Operational Check (If Applicable)**
 - o NEC 750.30(C): Inspector may request demonstration of EMS operation or switch logic to verify compliance.
5. **Load Coordination**
 - o If manual switch is used (non-coincident loads), confirm only one load is energized at a time and switch prevents concurrent operation.

Questions?

Contact the Building Division at (650) 991-8061 or visit www.dalycity.org/building for more information.

This handout does not replace the California Electrical Code. It is intended as a summary of applicable requirements.



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