

DOCKETED

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2019 Building Energy Efficiency Standards Lead Commissioner Hearing For 45-Day Language

California Energy Commission
Hearing Room A
(Arthur Rosenfeld Room)

February 5, 2018

Peter Strait,
Jeff Miller, P.E.
Maziar Shirakh, P.E.

Joint Appendix (JA)
JA-1 Through JA-12



JA – Joint Appendix

No changes are proposed for the following Appendices:

JA3 – Time Dependent Valuation (TDV)

JA6 – HVAC System Fault Detection and Diagnostic Technology

JA9 – Qualification Requirements for Low Leakage Air-Handling Units

JA10 – Test Method for Measuring Flicker of Lighting Systems and Reporting Requirements



JA 1 – Definitions

Removed definitions that were duplicative of Part 6

Added definitions for new terms in JA 11 and 12

JA 2 – Climate Zones

Enabled use of metes-and-bounds polygons in GIS software

Moved zip code tables out of the regulations, allowing them to be updated between cycles



JA 4 – U-factor, C-factor, and thermal Mass Data

JA4.3.8 – U-factors for Spandrel Panels and Glass Curtain Walls

- Inserted a new table to separate out curtain walls

JA4.3.11 – U-factors for Log Home Walls

- Updated the heat capacity values

JA4.3.12 – U-factors for Straw Bale Walls

- Updated the heat capacity value



JA5 – Occupant Controlled Smart Thermostats

Code Clean-Up

- Clean-Up Language
- Remove Unenforceable Language
 - ✓ “Other Information Display”, “Consider Security”, etc.
- Remove Expansion Port Requirement

Code Consolidation

- Move DR to §110.12
- Focus on Thermostat Design



JA7– Data Registry Requirements

JA7.5 – Document Registration Requirements

- Numbering convention information moved to Data Registry Requirements Manual

JA7.7 – Data Exchange Requirements

- Updated and clarified
- External Digital Data Source information added

JA7.8 – Data Registry approval procedures

- Updated and clarified
- Added approval procedures for data transmittal services between Data Registries and cloud-based data services such as those used by diagnostic tool manufacturers (External Digital Data Sources)

JA7.9 – Approval of Software Used for Data Input to Data Registries

- Deleted this section.



JA8—Qualification Requirement for High Efficacy Light Sources

Several changes are proposed to align JA8 with current Federal and industry standards, including:

- Lumen maintenance and rated life tests updated to current Energy Star tests; lumen maintenance and rated life requirements updated to minimum Energy Star requirements.
- Removed Du'v' as a requirement - luminaires must be within the ranges specified in ANSI C78.377 rather than a tighter ellipse.
- Aligned color rendering requirement with Title 20 - T20 LED devices must meet T20 CRI requirements, all others must have a CRI of 90+ and an R9 of 50+.
- Allowed testing start time from standby where the standby state consumes no more than 0.2 watts (i.e., from an “off-like” standby mode).



JA11–Qualification Requirement for Photovoltaic System

New Joint Appendix outlines the minimum requirements for Photovoltaic systems

System Orientation

Systems or strings must be within 90 to 300 degrees from true north (used to be 110 to 270)

Minimal Shading Criterion

System shall meet minimal shading criterion or specify shading characteristics in the performance method



JA11–Qualification Requirement for Photovoltaic System

Solar Access Verification

At the time of module installation, the installer measures the shading condition with a solar assessment tool approved by the Executive Director

System Monitoring Requirements

Require remote monitoring capability with a web based portal and a mobile device app

Provide system information such as current kW production and running total kWh



JA11–Qualification Requirement for Photovoltaic System

Interconnection Requirements

The installed inverter must meet UL1741 and CPUC Rule 21 for smart inverters

Enforcement Agency

Enforcement agency must verify that all Certificates of Installations for PV systems are submitted and valid

Enforcement agency must also verify minimal shading of the PV array physically or by using an online satellite mapping tool



JA12–Qualification Requirement for Battery Storage System

New Joint Appendix outlines the minimum qualification requirements for battery storage systems – All batteries must be certified to CEC

Minimum Performance Requirements

Minimum usable Capacity of 5 kWh

Round-trip efficiency of at least 80 percent; performance penalty or credit for worse or better performing systems

Energy capacity retention of 70 percent after 4,000 cycles or 70 percent under a 10-year warranty



JA12–Qualification Requirement for Battery Storage System

General Control Requirements

Applicable to all batteries in JA12

Remote program capability for charge/discharge periods

Programmed to first meet the load of the dwelling with capability to discharge to the grid with a DR signal

Four times a year, perform system check to ensure the battery is not left in backup mode.



JA12–Qualification Requirement for Battery Storage System

At time of inspection, the battery shall meet one of the following control strategies, and have the capability to switch to others:

Basic Control

Charge when generation is greater than load, discharge when PV production is less than the dwelling load

Time-of-Use Control

Allow grid charging only during non-peak TOU hours

Discharging to dwelling and/or grid only during peak TOU hours -
July 1 thru September 30; remainder of the year, Basic Control



JA12–Qualification Requirement for Battery Storage System

At time of inspection, the battery shall meet one of the following control strategies, and have the capability to switch to others:

Advanced Demand Response Control

Programmed as Basic Control or TOU control

Upon receipt of DR signal, the battery can change the charge/discharge periods to coincide with highest value critical peak hours.



How to submit written comments

- **We strongly encourage submitting written comments via e-file.** Comments on the proposed 2019 Energy Code can be submitted to: <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=17-BSTD-02>.
- Comments on the proposed 2019 CALGreen can be submitted to: <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=17-BSTD-03>.
- Comments can also be submitted physically or by e-mail, here:

California Energy Commission

Dockets Office, MS-4

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