

# Proposal Summary



## 2022 California Energy Code (Title 24, Part 6)

### Single Family Residential Grid Integration – Home Energy Management

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#### Introduction

The document summarizes proposed revisions to the California Energy Code (Title 24, Part 6) that will be discussed during Round 2 of the utility-sponsored stakeholder meetings on March 5, 2020. The Statewide Utility Codes and Standards Enhancement (CASE) Team is seeking input and feedback. Please share comments by email to [info@title24stakeholders.com](mailto:info@title24stakeholders.com).

#### Measure Description

This measure clarifies the current exception to the solar zone credit defined in Section 110.10(b)1A when a Home Energy Management System (HEMS) is installed in combination with a smart thermostat, by defining specific qualifying criteria that must be met. The proposed change replaces “home automation”, which can apply to systems that primarily provide convenience or home security functions, with “home energy management”, which is the more common term of art used in the industry for systems that provide energy savings capabilities. It also requires ENERGY STAR HEMS certification and compatibility with other demand response technologies qualified under Title 24, Part 6.

In addition, specifications for three distinct thermostat capabilities are combined into the existing Joint Appendix 5:

- Demand Response Thermostats (DRTs)—formerly referred to as Occupant Controlled Smart Thermostats (OCSTs). No changes made to the requirements for Single Family or Multi-Family homes;
- Pre-Cooling Thermostats (PCTs). New requirements, described in separate Sub-Measure; and
- Advanced Energy Efficiency Thermostats (AEEs). New requirements for smart thermostats, based on ENERGY STAR Connected Thermostat specifications.

This measure extends the solar zone credit exception to homes where thermostats possess any or all of these capabilities. This measure applies only to new construction, and to both single-family and multifamily residential buildings.

#### Draft Code Language

The proposed changes under consideration for the Standards and Reference Appendices are provided below. Changes to the 2019 documents are marked with red underlining (new language) and ~~strikethroughs~~ (deletions).



## Standards

### SECTION 100.1 – DEFINITIONS AND RULES OF CONSTRUCTION

HOME ENERGY MANAGEMENT SYSTEM (HEMS) is a control system that provides homeowners with the ability to monitor and control energy consuming devices through programmed schedules, control logic based on occupancy sensors or other measurements, machine learning, demand response signals, and/or remote access through smartphones.

### SECTION 110.10 – MANDATORY REQUIREMENTS FOR SOLAR READY BUILDINGS

#### (b) Solar Zone.

1. **Minimum Solar Zone Area.** The solar zone shall have a minimum total area as described below. ...

A. **Single Family Residences.** The solar zone shall be located on the roof or overhang of the building and have a total area no less than 250 square feet.

**EXCEPTION 6 to Section 110.10(b)1A:** Single family residences meeting the following conditions in both A and B below:

A. Comply with one of the following measures:

i. All thermostats are demand responsive controls that comply with Section 110.12(a), and are capable of receiving and responding to Demand Response Signals prior to granting of an occupancy permit by the enforcing agency; or

ii. All thermostats are Advanced Energy Efficiency Thermostats, as defined in JA5.3.

B. Comply with one of the following measures:

...

ii. Install a home ~~automation energy management~~ system ~~capable of, at a minimum, controlling the appliances and lighting of the dwelling and responding to demand response signals that complies with Section 110.12(a); is certified under the current approved version of the ENERGY STAR “Program Requirements for Smart home Energy Management Systems”; and communicates with any qualified Demand Response Thermostat (DRT) as defined in Joint Appendix JA5.1, Battery Storage System as defined in Joint Appendix JA12, or Heat Pump Water Heater Load Shifting System as defined in Joint Appendix JA13 ; or~~

...

**EXCEPTION 4 to Section 110.10(b)1B:** Low-rise and high-rise multifamily buildings meeting conditions in A and in either B or C below:

A. In each dwelling unit, comply with one of the following measures:

i. ~~with a~~All thermostats ~~in each dwelling unit~~ are demand response controls that comply with Section 110.12(a), and are capable of receiving and responding to Demand Response Signals prior to granting of an occupancy permit by the enforcing agency. ~~In addition, either A or B below;~~ or

ii. All thermostats are Advanced Energy Efficiency Thermostats, as defined in JA5.3.

B. ~~A~~ In each dwelling unit, comply with one of the following measures:

...

- ii. Install a home ~~automation energy management~~ system that complies with Section 110.12(a); ~~is certified under the current approved version of the ENERGY STAR “Program Requirements for Smart Home Energy Management Systems”; and communicated with any qualified Demand Response Thermostat (DRT) as defined in Joint Appendix JA5.1, Battery Storage System as defined in Joint Appendix JA12, or Heat Pump Water Heater Load Shifting System as defined in Joint Appendix JA13 and is capable of, at a minimum, controlling the appliances and lighting of the dwelling and responding to demand response signals; or~~
- ...
- C. ~~B.~~ Meet the Title 24, Part 11, Section A4.106.8.2 requirements for electric vehicle charging spaces.

**Reference Appendices**

**JOINT APPENDIX JA5 – TECHNICAL SPECIFICATIONS FOR ~~OCCUPANT-CONTROLLED SMART THERMOSTATS~~**

**JA5.1 Technical Specifications For ~~Occupant Controlled Smart Thermostats for Demand Response~~**

**JA5.1.1 Introduction**

Joint Appendix 5.1 (JA5.1) provides the technical specifications for an ~~Occupant Controlled Smart Demand Response~~ Thermostat (~~OCSTFDRT~~). ~~An OCSTFA DRT~~ can be an independent device or part of a control system comprised of multiple devices.

The requirements in this appendix are intended to be compatible with National Electrical Manufacturers Association (NEMA) Standard DC 3-2013 Residential Controls – Electrical Wall Mounted Thermostats and NEMA DC 3 Annex A-2013 Energy-Efficiency Requirements for Programmable Thermostats.

**JA5.1.1.1 Manufacturer Self-Certification**

~~An OCSTFA DRT~~ is compliant with Title 24, Part 6, only if it has been certified to the Energy Commission as meeting all of the requirements in this Appendix. Certification to the Energy Commission shall be as specified in Section 110.0.

**JA5.1.2 Required Functional Specifications**

**JA5.1.2.1 Setback Capabilities**

~~An OCSTFA DRT~~ shall meet the requirements of Section 110.2(c). Thermostats for heat pumps shall also meet the requirements of Section 110.2(b).

**JA5.1.2.2 Restart Settings**

In the event of a disruption of power to the device that results in power off or restart, upon device restart, the device shall automatically restore the most recently programmed settings, including reconnection to a network, if the device was previously enabled and network connectivity is available.

**JA5.1.2.3 Automatic Rejoin**

An **OCSTADRT** shall connect, and remain connected in its communication path and control end point. The **OCSTADRT** shall incorporate an automatic rejoin function. When physical and/or logical communication is lost, the **OCSTADRT** shall trigger its automatic rejoin function to restore the physical and/or logical communication.

#### **JA5.1.2.4 Event Responses**

Event response, unless overridden by the occupant or modified by an energy management control system or service, may be triggered by price signals or Demand Response Signals. The **OCSTADRT** shall provide one set of event responses for price signals and one set of event responses for Demand Response Signals. The responses may be common for both types of events. The **OCSTADRT**'s default responses shall comply with the following:

- (a) A Demand Response Signal shall trigger the **OCSTADRT** to adjust the thermostat setpoint by either the default number of degrees or the number of degrees established by the occupant.
- (b) When a price signal indicates a price in excess of a price threshold established by the occupant, the **OCSTADRT** shall adjust the thermostat setpoint by either the default number of degrees or the number of degrees established by the occupant.
- (c) In response to price signals or Demand Response signals, the **OCSTADRT** shall default to an event response that initiates setpoint offsets of +4°F for cooling and -4°F for heating relative to the current setpoint.
- (d) The **OCSTADRT** shall have the capability to allow occupants or their representative to modify the default event response with occupant defined event responses for cooling and heating relative to the current setpoint in response to price signals or Demand Response Signals.
- (e) Override Function: Occupants shall be able to change the event responses and thermostat settings or setpoints at any time, including during price events or Demand Response Periods.
- (f) The Demand Response Signal shall start the Demand Response Period either immediately or at a specific start time as specified in the event signal and continue for the Demand Response Period specified in the Demand Response Signal or until the occupant overrides the event setpoint.
- (g) The thermostat's price response shall start either immediately or at a specific start time as specified in the pricing signal and continue for the duration specified in the pricing signal or until the occupant overrides the event setpoint.
- (h) The **OCSTADRT** shall have the capability to allow occupants to define setpoints for cooling and heating in response to price signals or Demand Response signals as an alternative to the default event response.
- (i) At the end of a price event or Demand Response Period, the thermostat setpoint shall be set to the
- (j) setpoint that is programmed for the point in time that the event ends or to the manually established setpoint that existed just prior to the Demand Response Period.

The **OCSTADRT** shall include the capability to allow the occupant to restore the factory installed default settings.

#### **JA5.1.2.5 User Display and Interface**

The **OCSTADRT** shall have the capability to display information to the user. The following information shall be readily available whenever the **OCSTADRT** display is active:

- (a) communications system connection status,
- (b) an indication that a Demand Response Period or pricing event is in progress,
- (c) the currently sensed temperature,
- (d) the current setpoint.

JA5.1.2.6 Required Functional Behavior

- (a) *Normal Operation.* Normal operation of an OCSTA DRT is defined to be the OCSTDRT's prevailing mode of operation as determined by the occupant's prior settings and use of features provided by the OCSTDRT manufacturer's design. Aspects of normal operation of an OCSTA DRT may be modified or interrupted in response to occupant subscribed price signals or when Demand Response Periods are in progress, but only to the extent specified by occupants or their representatives.

Unless an occupant has elected to connect the OCSTDRT to an energy management control system or service that provides for alternate strategies, the OCSTDRT shall provide a mode of operation whereby it controls temperature by following the scheduled temperature setpoints.

Occupants shall always have the ability to change OCSTDRT settings or use other features of an OCSTA DRT during an event. Those changes may alter what is considered to be the prevailing mode of operation when a Demand Response Period is terminated and the OCSTDRT returns to normal operation.

- (b) *Demand Responsive Control.* Upon receiving a price signal or a Demand Response Signal, OCSTDRTs shall be capable of automatic event response by adjusting the currently applicable temperature setpoint by the number of degrees indicated in the temperature offset (heating or cooling, as appropriate).

Override: OCSTDRTs shall allow an occupant or their representative to alter or eliminate the default response to price signals or Demand Response Signals, and to override any individual price response or Demand Responsive Control and allow the occupant to choose any temperature setpoint at any time including during a price event or a Demand Response Period.

When the price signal changes to a non-response level or the Demand Response Period is concluded, OCSTDRTs shall return to normal operation. The thermostat setpoint shall be set to the setpoint that is programmed for the point in time that the event ends or to the manually established setpoint that existed just prior to the Demand Response Period.

The OCSTDRT shall also be equipped with the capability to allow occupants to define setpoints for cooling and heating in response to price signals or Demand Response Signals as an alternative to the default event response. The default setpoint definitions unless redefined by the occupant shall be as follows:

1. The default price response or Demand Response Period setpoint in the cooling mode for OCSTDRTs shall be 82°F. The OCSTDRT shall allow the occupant to change the default event setpoint to any other value.
2. The default price response or Demand Response Period setpoint in the heating mode for OCSTDRTs shall be 60°F. The OCSTDRT shall allow the occupant to change the default event setpoint to any other value.

3. The OCST/DRT shall ignore price response or Demand Response Period setpoints that are lower (in cooling mode) or higher (in heating mode) than the programmed or occupant selected prevailing setpoint temperature upon initiation of the price event or Demand Response Period.
4. By default, thermostats shall not be remotely set above 90°F or below 50°F. Occupants shall have the ability to redefine these limits. This measure protects occupant premises from extreme temperatures that might otherwise be imposed by event responses, should the occupant already have a very high or low temperature setpoint in effect.

The occupant may still override or change the setpoint during all price events and Demand Response Periods. Price signal response and Demand Responsive Control only modify the operating range of the thermostat. They do not otherwise affect the operation and use of features provided by the manufacturer's design.

### **JA5.1.3 HVAC System Interface**

HVAC wiring terminal designations shall be clearly labeled. OCST/DRTs shall use labels that comply with Table 5-1 in NEMA DC 3-2013.

### **JA5.2 Technical Specifications for Thermostats for Pre-Cooling**

[Described in HVAC Load Shifting sub-measure.]

### **JA5.3 Technical Specifications for Thermostats for Energy Efficiency**

#### **JA5.3.1 Introduction**

Joint Appendix 5.3 (JA5.3) provides the technical specifications for an Energy -Efficiency Thermostat (EET). An EET can be an independent device or part of a control system comprised of multiple devices.

The requirements in this appendix are intended to be compatible with National Electrical Manufacturers Association (NEMA) Standard DC 3-2013 Residential Controls – Electrical Wall Mounted Thermostats and NEMA DC 3 Annex A-2013 Energy-Efficiency Requirements for Programmable Thermostats.

#### **JA5.3.1.1 Manufacturer Self-Certification**

An EET is compliant with Title 24, Part 6, only if it has been certified to the Energy Commission as meeting all of the requirements in this Appendix. Certification to the Energy Commission shall be as specified in Section 110.0.

#### **JA5.3.2 Required Functional Specifications**

##### **JA5.3.2.1 Requirements for Programmable Thermostats**

For all systems that are required to have a thermostat per Section 110.2(c), the EET thermostat shall have a clock mechanism that allows the building occupant to program the temperature setpoints for at least four periods within 24 hours. Thermostats for heat pumps shall meet the requirements of Section 110.2(b).

##### **JA5.3.2.2 Requirements for Advanced Energy Efficiency Thermostats**

For systems that qualify for a credit for installing an Advanced Energy Efficiency Thermostat (AEET), the AEET shall meet the following requirements:

- (1) The AEET shall allow the building occupant to program the temperature setpoints for at least four periods within 24 hours. Thermostats for heat pumps shall meet the requirements of Section 110.2(b).
- (2) The AEET shall be a Certified ENERGY STAR Connected Thermostat;
- (3) The AEET manufacturer shall submit to the Energy Commission all data reported in the EPA ENERGY STAR qualified product list. In addition, the manufacturer shall submit:
  - i. The CT Field Savings Software Output File (per “Method to Demonstrate Field Savings Version 1.0”) to the Energy Commission;
  - ii. The Annual Percent Run Time Reduction (Lower 95 percent confidence limit, per “Method to Demonstrate Field Savings Version 1.0”) for heating and/or cooling, for the Relevant ENERGY STAR Climate Region below:
    - a. If the system is located in Climate Zones 1-5, the “Marine” ENERGY STAR Climate Region shall be used.
    - b. If the system is located in Climate Zones 6-15, the “Mixed-Dry/Hot-Dry” ENERGY STAR Climate Region shall be used.
    - c. If the system is located in Climate Zones 16 and is in one of the following counties, the “Mixed-Dry/Hot-Dry” ENERGY STAR Climate Region shall be used: Amador, Butte, El Dorado, Fresno, Inyo, Kern, Los Angeles, Madera, Mariposa, Riverside, San Bernardino, Shasta, Tehama, Trinity, Tulare, Tuolumne.
    - d. If the system is located in Climate Zones 16 and is in one of the following counties, the “Cold/Very-Cold” ENERGY STAR Climate Region shall be used: Alpine, Lassen, Modoc, Mono, Nevada, Plumas, Sierra, Siskiyou, Yuba.
  - iii. Both the proposed methodology that was approved by the EPA, and the results of the study—if an alternative “A/B” study was used to establish savings.
- (4) Annual Percent Run Time Reduction (Lower 95 percent confidence limit, per “Method to Demonstrate Field Savings Version 1.0”) for heating and/or cooling, for the Relevant ENERGY STAR Climate Region shall be at least 8 percent for heating and 10 percent for cooling.
- (5) The AEET shall have Standby Losses, as reported to EPA ENERGY STAR, of less than or equal to 1.0 W.

## **Residential Compliance Manual**

### **4.8.1.10 Using Weigh-In Charging Procedure at Low Outdoor Temperatures**

When a new HVAC system is installed, the HVAC installer must check the refrigerant charge, and a HERS Rater must verify the correct charge; however, an exception to §150.1(c)7A provides for an alternative third-party HERS verification if the weigh-in method is used when the outdoor temperature is less than 55°F.

Typically, when the weigh-in method is used by the installing contractor, a HERS Rater must perform a charge verification in accordance with the RA3.2. standard charge procedure. However, because the RA3.2.2 procedures cannot be used when the outdoor temperatures are less than 55 degrees, the Energy Standards provide the installer with two choices:

1. Use the RA3.2.3.2 HERS Rater Observation of Weigh-In Charging Procedure to demonstrate compliance, and install ~~an occupant-controlled smart thermostat (OCST)~~ a demand response thermostat (DRT) or Advanced Energy Efficiency Thermostat (AEET).

### **7.6.2.2 Solar Zone Area for Single-Family Residential Buildings**

The solar zone must be located on the roof or overhang of the building. The “designated” solar zone’s total area must be no less than 250 square feet (§110.10(b)1A).

There are six allowable exceptions to the required solar zone area. Exceptions 1 and 6 allow alternate efficiency measures instead of an actual solar zone, so the requirements for zone shading, azimuth and design load; interconnection pathway, owner documentation, and electric service panel do not apply either.

Submit a CF1R-SRA-01-E to the building department with the building permit application for all projects covered by solar ready, even when using a Solar Zone Exception. In addition, submit a CF1R-SRA-02-E solar zone worksheet for all projects with a solar zone, including Exceptions that allow a reduced solar zone area.

#### **Solar Zone Exceptions for Single-family Buildings:**

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**Exception 6** allows no solar zone when the following energy efficiency features are installed:

All thermostats have demand responsive controls that comply with Section 110.12(a) and Joint Appendix JA5. (please see Exception 5, above, for more details). AND one of the following four measures (i – iv):

- i. Install a dishwasher that meets or exceeds the ENERGY STAR® program requirements with a refrigerator that meets or exceeds the ENERGY STAR program requirements, OR one of the following:
  - a whole-house fan driven by an electronically commutated motor, OR
  - an SAE J1772 Level 2 Electric Vehicle Supply Equipment (EVSE or EV Charger) with a minimum of 40 amperes. SAE J1772 is the SAE International document titled “SAE Electric Vehicle and Plug in Hybrid Electric Vehicle Conductive Charge Coupler” (SAE J1772\_201710).
- ii. Install a home ~~automation energy management~~ system ~~capable of, at a minimum, controlling the appliances and lighting of the dwelling and responding to demand response signals that complies with Section 110.12(a); is certified under the current approved version of the ENERGY STAR “Program Requirements for Smart Home Energy Management Systems”; and communicates with any qualified Demand Response Thermostat (DRT) as defined in Joint Appendix JA5.1, Battery Storage System as defined in Joint Appendix JA12, or Heat Pump Water Heater Load Shifting System as defined in Joint Appendix JA13;~~ OR



- iii. Install alternative plumbing piping to permit the discharge from the clothes washer and all showers and bathtubs to be used for an irrigation system in compliance with the *California Plumbing Code*; OR
- iv. Install a rainwater catchment system designed to comply with the *California Plumbing Code* and uses rainwater flowing from at least 65 percent of the available roof area.

...

### **Solar Zone Area for Low-Rise Multifamily Residential Buildings**

The solar zone requirement for low-rise multifamily buildings is located in the 2019 Energy Standards with the requirements for high-rise multifamily, hotel/motel and nonresidential buildings in §110.10(b)1B. The solar zone requirement for low-rise multifamily buildings applies to mixed occupancy buildings as well.

...

**Exception 4** says multifamily residential buildings do not need a solar zone if all thermostats have demand responsive controls that comply with Section 110.12(a) and Joint Appendix JA5. See Exception 5 for single-family homes (above) for more thermostat details. In addition to the compliant thermostats, choose A or B below:

- A. One of the following four measures installed in each dwelling unit (i. – iv.):
  - i. Install a dishwasher that meets or exceeds the ENERGY STAR® program requirements with a refrigerator that meets or exceeds the ENERGY STAR program requirements, or a whole-house fan driven by an electronically commutated motor.
  - ii. Install a home ~~automation energy management~~ system that complies with Section 110.12(a); is certified under the current approved version of the ENERGY STAR “Program Requirements for Smart Home Energy Management Systems”; and communicated with any qualified Demand Response Thermostat (DRT) as defined in Joint Appendix JA5.1. Battery Storage System as defined in Joint Appendix JA12, or Heat Pump Water Heater Load Shifting System as defined in Joint Appendix JA13 and is capable of, at a minimum, controlling the appliances and lighting of the dwelling and responding to demand response signals; or
  - iii. Install alternative plumbing piping to permit the discharge from the clothes washer and all showers and bathtubs to be used for an irrigation system in compliance with the *California Plumbing Code*; or
  - iv. Install a rainwater catchment system designed to comply with the *California Plumbing Code* and that uses rainwater flowing from at least 65 percent of the available roof area.

## **7.8 Compliance and Enforcement**

There are four forms associated with the low-rise residential solar-ready requirements. Each form is briefly described below.

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- 2. CF2R-SRA-02-E: Certificate of Compliance: Minimum Solar Zone Area Worksheet

This form is required when buildings comply with the solar-ready requirement by including a solar zone. That is, an appropriately sized solar PV system is not installed, an appropriately sized solar water

heating system is not installed, the building does not comply with all the OCST DRT/AEET and high-efficacy lighting requirements or the roof is not designed for vehicle traffic or a heliport.

## Appendix H – Demand Responsive Controls—2. Other Requirements for DR Controls

### 2.2 Certification requirements for DR Thermostats

Residential DR thermostats, also called Occupant Controlled Smart Thermostats (OCSTs/DRTs), must comply with the technical specifications described in Joint Appendix 5 (JA5.1). According to the requirement in JA5.1, manufacturers of DR thermostats must submit documentation to the Energy Commission to certify that the thermostat meets the code requirements. See the Energy Commission’s website for a list of certified products and for instructions to manufacturers that wish to certify products: [http://www.energy.ca.gov/title24/equipment\\_cert/](http://www.energy.ca.gov/title24/equipment_cert/).

...

### 4. Energy Management Control Systems / Home Automation Energy Management Systems

Required thermostatic and lighting control functions (including DR control functions) can be incorporated into and performed by an energy management control system (EMCS). Using an EMCS to perform these control functions complies with Title 24, Part 6 provided that all of the criteria that would apply to the control are met by the EMCS.

A Home Automation Energy Management Systems that manages energy loads (such as HVAC and lighting systems) is considered a type of energy management control system more suitable for residential applications and, as such, can similarly incorporate the ability to provide required control functions.

## Compliance Documents

### CF2R-SRA-01-E: Solar Ready Buildings– New Construction

E. Smart Thermostats and Alternative Efficiency Measure (Single Family)	
01	All thermostats comply with Reference Joint Appendix JA5 and are capable of receiving and responding to Demand Response Signals

02	Alternative Efficiency Measure:	<p>*Install a dishwasher that meets or exceeds ENERGY STAR Program requirements with either a refrigerator that meets or exceeds the ENERGY STAR Program requirements or a whole house fan driven by an electronically commutated motor or a Level 2 EVSE/EV Charger; or</p> <p>* Install a home <del>automation energy management</del> system <del>capable of, at a minimum, controlling the appliances and lighting of the dwelling and responding to demand response signals that complies with Section 110.12(a); is certified under the current approved version of the ENERGY STAR “Program Requirements for Smart home Energy Management Systems”; and communicates with any qualified Demand Response Thermostat (DRT) as defined in Joint Appendix JA5.1, Battery Storage System as defined in Joint Appendix JA12, or Heat Pump Water Heater Load Shifting System as defined in Joint Appendix JA13;</del> or</p> <p>*Install alternative plumbing piping to permit the discharge from the clothes washer and all showers and bathtubs to be used for an irrigation system in compliance with the California Plumbing Code and any applicable local ordinances; or</p> <p>*Install a rainwater catchment system designed to comply with the California Plumbing Code and any applicable local ordinances, and that uses rainwater flowing from at least 65% of the available roof area</p>
<p><b>The responsible person’s signature on this compliance document affirms that all applicable requirements in this table have been met.</b></p>		

<p><b>F. Smart Thermostats and Alternative Efficiency Measure (Multifamily)</b></p>	
01	<p>All thermostats comply with Reference Joint Appendix JA5 and are capable of receiving and responding to Demand Response Signals prior to granting of an occupancy permit by the enforcing agency.</p>

02	Alternative Efficiency Measure:	<p>*Install a dishwasher that meets or exceeds ENERGY STAR Program requirements with either a refrigerator that meets or exceeds the ENERGY STAR Program requirements or a whole house fan driven by an electronically commutated motor; or</p> <p>* Install a home <del>automation</del> <u>energy management</u> system <del>capable of, at a minimum, controlling the appliances and lighting of the dwelling and responding to demand response signals that complies with Section 110.12(a); is certified under the current approved version of the ENERGY STAR “Program Requirements for Smart home Energy Management Systems”; and communicates with any qualified Demand Response Thermostat (DRT) as defined in Joint Appendix JA5.1, Battery Storage System as defined in Joint Appendix JA12, or Heat Pump Water Heater Load Shifting System as defined in Joint Appendix JA13;</del> or</p> <p>*Install alternative plumbing piping to permit the discharge from the clothes washer and all showers and bathtubs to be used for an irrigation system in compliance with the California Plumbing Code and any applicable local ordinances; or</p> <p>*Install a rainwater catchment system designed to comply with the California Plumbing Code and any applicable local ordinances, and that uses rainwater flowing from at least 65% of the available roof area</p> <p>*The building meets the T24, Part 11, Section A4.106.8.2 requirement of 15% of total parking as EV charging spaces</p>
<p><b>The responsible person’s signature on this compliance document affirms that all applicable requirements in this table have been met.</b></p>		