

**FINAL STATEMENT OF REASONS
FOR PROPOSED BUILDING STANDARDS
OF THE OFFICE OF THE STATE FIRE MARSHAL
REGARDING THE 2022 CALIFORNIA RESIDENTIAL CODE,
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2.5**

(05/21)

The Administrative Procedure Act requires that every agency shall maintain a file of each rulemaking that shall be deemed to be the record for that rulemaking proceeding. The rulemaking file shall include a Final Statement of Reasons. The Final Statement of Reasons shall be available to the public upon request when rulemaking action is being undertaken. The following are the reasons for proposing this particular rulemaking action:

UPDATES TO THE INITIAL STATEMENT OF REASONS:

Government Code Section 11346.9(a)(1) requires an update of the information contained in the Initial Statement of Reasons. If the update identifies any data or any technical, theoretical, or empirical study, report, or similar document on which the state agency is relying that was not identified in the Initial Statement of Reasons, the state agency shall comply with Government Code Section 11347.1.

Item 1-4

Chapter 1, Scope and Administration, Division I, California Administration, Section 1.11.1 SFM-Office of the State Fire Marshal

The SFM had additional internal discussions with other state agencies and stakeholders. The new proposed language is a result of the discussions and an SFM staff workgroup.

There were questions about what a “build-to-suit lease” is, so SFM is providing an explanation here.

The term is used in the amended Health and Safety Code section 13108 (e) (1) from 2019-2020 Senate Bill 85. Build-to-suit lease describes buildings that are built for a state agency to their design specification, and use. It is a long-term lease, commonly with an option to buy. This is done for fiscal reasons and very similar in use to a state-owned building.

The SFM made editorial changes to the 45-Day Expressed Terms and had an additional 15-Day public comment period. No comments were received during the 15-Day public comment period.

To clarify that the SFM had jurisdiction of the state areas, and the local jurisdiction maintains authority over the non-state areas, the SFM added the term “State occupied areas” in number 5 to provide this clarification.

To provide a clear line to determine the jurisdiction in number 5, the SFM modified the threshold to high-rises, which the State Fire Marshal’s authority is clearly defined in Health and Safety Code statute 13211 and regulation. The 75% state occupied was maintained. This is to address a common business practice that the first floor of a high-rise is leased to

food retail and mercantile services with business operations occupying the remaining floors.

The SFM added number 9 to maintain continuity of existing functions and to eliminate duplicative workload between the state and the city/county in which leased facilities are obtained through contract.

The SFM added number 10 for clarification. The areas where there is only an all-volunteer fire department the SFM has historically been the authority having jurisdiction. SB 85 (2019-2020) modified the Health and Safety section 13146.6 statute to address these areas by stating that the governing body can contract to a neighboring jurisdiction or to the SFM for enforcement. SFM added this section to clarify that the SFM will maintain authority for state leased occupancies in areas where there is not a paid full time fire department.

Item 3-8

Chapter 3, Building Planning, Section R328 Energy Storage Systems (ESS), Section R328.8 through R328.8.3

This proposed change was heard and approved for the model codes during the 2021 ICC Group A public comment hearings in Pittsburg, PA; it is intended to address the following improvements, developed in collaboration between a SEAC working group and NAHB:

1. Improve language in R328.8.1 to make it more accurately align with the associated Figure. The intent was to describe an area or space, not simply a “line”.
2. Incorporate a suggestion to reduce the “corner” area condition to 36” x 24” based on the geometry of a vehicle approaching at an angle. Important to note that an ESS that is wider than 24” inches when considering any required clearances would trigger the need for a barrier.
3. Clarify which dimensions are minimums and which are maximums; the language as previously approved may be confusing.
4. Further refine the guidance on wheel barriers:
 - 4-1. Add a length measurement - this was omitted in error. 70” was determined to be commonly available and wide enough to protect against the wheel track of an average passenger vehicle.
 - 4-2. This 70” length necessitated an additional fastener so the minimum of (2) was increased to (3).
 - 4-3. Reduce the minimum size based on commonly available pre-made wheel barriers
5. Further refine Figure R328.8.1:
 - 5-1. Add an ESS on an exterior wall not subject to damage as an example

5-2. Align terminology - replace “curb stop” with “wheel barrier”

5-3. Edit corner area dimensions

Item 3-10

Chapter 3, Building Planning, Section R337 Materials and Construction methods for Exterior Wildfire Exposure, Fire Protection Plan and Fire Hazard Severity Zones

During the 15-Day public comment period (November 1, 2021 through November 16, 2021) the SFM added the pointer to Chapter 49, of the California Fire Code to reference elements of a Fire Protection Plan. There are no other sections within Section R337 that specify actual elements for a Fire Protection Plan. The only requirement under Section R337.6 is that a Fire Protection Plan be submitted in accordance with CFC Chapter 49.

During the 15-Day public comment period the SFM added text that reflects the changes in Government Code Section 51178 statute. Senate Bill 63 (2021-2022) changed the Government Code to require the mapping of moderate and high fire hazard severity zones in the local responsibility areas.

An addendum attached withdraws the 15-Day proposed language as it relates to expanding the Wildland-Urban Interface (WUI) requirements to Local Responsibility Areas in the Moderate and High Fire Severity Zones. The Fire Severity Zone maps that designate both State and Local areas are anticipated to be published by CALFIRE early 2022. The SFM will continue development with stakeholders and other state agencies in the SFM WUI public forum workgroup to come to a consensus for the next rulemaking cycle to address legislation changes as they pertain to Local Responsibility Areas.

MANDATE ON LOCAL AGENCIES OR SCHOOL DISTRICTS

Pursuant to Government Code Section 11346.9(a)(2), if the determination as to whether the proposed action would impose a mandate, the agency shall state whether the mandate is reimbursable pursuant to Part 7 of Division 4. If the agency finds that the mandate is not reimbursable, it shall state the reasons for the finding(s).

The Office of the State Fire Marshal has determined that the proposed regulatory action would not impose a mandate on local agencies or school districts.

The proposed regulations are minimum standards for the prevention of fire and for the protection of life and property against fire.

OBJECTIONS OR RECOMMENDATIONS MADE REGARDING THE PROPOSED REGULATION(S).

Government Code Section 11346.9(a)(3) requires a summary of EACH objection or recommendation regarding the specific adoption, amendment, or repeal proposed, and an

explanation of how the proposed action was changed to accommodate each objection or recommendation, or the reasons for making no change. This requirement applies only to objections or recommendations specifically directed at the agency's proposed action or to the procedures followed by the agency in proposing or adopting the action, or reasons for making no change. Irrelevant or repetitive comments may be aggregated and summarized as a group.

The text with proposed changes was made available to the public for a 45-day comment period from September 3, 2021, until October 18, 2021. Comments were received during the comment period are shown here.

Item 2-9

Chapter 2, Section R202 General Definitions, Photovoltaic (PV) Panel System, Ground-Mounted

The SFM proposes a new definition for Photovoltaic (PV) Panel System, Ground mounted.

Commenter(s) and Recommendation (if applicable):

Joseph H. Cain, representing Solar Energy Industries Association (SEIA) and Benjamin Davis, California Solar & Storage Association (CALSSA)

Recommendation: For the California Residential Code, we support the new definition of Ground-mounted PV panel systems, as Section R324.7 already uses the newly defined term.

Agency Response:

The SFM appreciate the support of industry stakeholder for the development of code change proposals.

Item 2-10

Chapter 2, Section R202 General Definitions, Photovoltaic (PV) Support Structure Elevated

The SFM proposes a new definition for Photovoltaic (PV) support structure elevated. This proposal clarifies that PV panels marked "not fire rated" cannot be used on elevated/overhead PV structures that could have people or cars beneath them, with or without a full roof assembly.

Commenter(s) and Recommendation (if applicable):

Joseph H. Cain, representing Solar Energy Industries Association (SEIA) and Benjamin Davis, California Solar & Storage Association (CALSSA)

Recommendation: For the California Residential Code, we are unclear on the appropriateness of the definition and charging language for Elevated PV support structures. Questions:

1. Should elevated PV support structures be included in the CRC because they are considered an accessory structure and could occur in the parking lot (or elsewhere) of a residential project? -- OR --
2. Are these structures not appropriate for the CRC because they are engineered structures and are not a one- or two-family dwelling or townhouse?

Agency Response:

The SFM understood there was a correlation in Section R324 for Solar Energy Systems. For the next rulemaking we will update amended Section 8.3.10 of NFPA 13D, where currently the Elevated PV is stated as solar photovoltaic panel structures. The inclusion of the definition is to correlate with the California Building Code.

Item 3-5

Chapter 3, Building Planning, Section R324 Solar Energy Systems

The primary purpose of this proposal is to establish appropriate fire testing and listing criteria for overhead photovoltaic (PV) support structures that could have people or vehicles in the space beneath them.

Commenter(s) and Recommendation (if applicable):

Joseph H. Cain, representing Solar Energy Industries Association (SEIA) and Benjamin Davis, California Solar & Storage Association (CALSSA)

Recommendation: For the California Residential Code, if Section R324.8 is included, the reference to “either R324.8.1 or R324.8.3” should be “either R324.8.1 or R324.8.2.” This appears to be a typographical error.

Agency Response:

The SFM agrees with the typographical error and has corrected the referenced section number.

Item 3-8

Chapter 3, Building Planning, Section R328 Energy Storage Systems, Figure R328.8.1 ESS Vehicle Impact Protection

The SFM proposes to adopt Section R328, carry forward existing amendments, repeal and replace some amendments with model code language and propose new amendments.

Commenter(s) and Recommendation (if applicable):

Joseph H. Cain, representing Solar Energy Industries Association (SEIA) and Benjamin Davis, California Solar & Storage Association (CALSSA)

Item 3-8

Chapter 3, Building Planning, Section R328 Energy Storage Systems, Figure R328.8.1 ESS Vehicle Impact Protection

The SFM proposes to adopt Section R328, carry forward existing amendments, repeal and replace some amendments with model code language and propose new amendments.

Commenter(s) and Recommendation (if applicable):

Joshua Costello, County of Los Angeles Fire Department

Recommendation to remove from the figure the image of ESS "Stacked", as shown on the right-hand side wall of the garage. The code does not allow the stacking of ESS unless by special evaluation of an individual model (see code reference below). Therefore, the figure is misleading because it implies that that ESS stacking is acceptable without further determination. If retained, a prominent note needs to be made to the leader identifying the "Stacked ESS". The note would need to clearly state that "stacking" of ESS is only allowed under the special conditions stated in Section R328.3.1. For reference, see the following code section of the proposal (which is also current CA code language) requiring 3-foot spacing between individual ESS units:

R328.3 Installation. ESS shall be installed in accordance with the manufacturer's instructions and their listing.

R328.3.1 Spacing. Individual units shall be separated from each other by not less than three feet (914 mm) except where smaller separation distances are documented to be adequate based on large scale fire testing complying with Section 1207.1.5 of the California Fire Code.

Agency Response:

The proposed Figure R328.8.1 ESS Vehicle Impact Protection image is to illustrate the zones in which a typical residential garage ESS installation would trigger the need for impact protection. This figure is based on existing International Mechanical Code (IMC) commentary related to the installation of fuel-fired appliances that may pose a fire

hazard when damaged. The IMC commentary Figure 304.6 (2) has been modified to reflect common ESS installation locations and takes a similar approach to mitigating the risk of impact. These examples in the image are not intended to allow all possible installations to take place at the same time. The more specific regulations regarding installation shall apply including special evaluations where the spacing between units is less than 3-feet.

Item 3-8

Chapter 3, Building Planning, Section R328 Energy Storage Systems, Figure R328.8 ESS Vehicle Impact Protection

The SFM proposes to adopt Section R328, carry forward existing amendments, repeal and replace some amendments with model code language and propose new amendments.

Commenter(s) and Recommendation (if applicable):

Charles Picard, Tesla, Inc.

For Section R328.8 Tesla, Inc. recommends copying the proposed language from Section 1207.11.7.1 (as numbered in the Initial Express Terms) as modified by SEACs Public Comment 1 approved during the 2024 ICC Public Comment Hearings. Tesla does not support further modification at this time and prefers consistency with the model code given the substantial change.

Agency Response:

The SFM agrees with the commenters recommendation and revised Sections R328.8, R328.8.1, R328.8.2, R328.8.3 and Figutre R328.8.1 during an additional 15-Day public comment heraning from November 1, 2021, until November 16, 2021, to address editorial changes in the 45-day Express Terms. The proposed 15-Day language specifically addressed changes made during the 2024 ICC Public Comment Hearings to ESS vehicle impact protection. No comments addressing these specific code sections were received. There was no subsequent public comment period.

Item 3-10

Chapter 3, Building Planning, Section R337 Materials and Construction methods for Exterior Wildfire Exposure, Section R337.1.2 Purpose

The SFM proposes to adopt amend Section R337 based on recommendations for the SFM WUI workgroup, which are comprised of various stakeholders.

Commenter(s) and Recommendation (if applicable):

Massoud Araghi, Fire Marshal, Ventura County Fire Protection District

R337.1.2 Purpose.

Recommendation: Add acronym "WUI" to be consistent with this change in other sections of CBC Chapter 7A. CRC Section R337, CFC Chapter 49. The word " any " has been recommended to bring up a concern that by using the word "any", these sections apply to all FHSZs in both the SRA and LRA and any area designated by the local agency. SB63, Chaptered September 2021, now requires both the Moderate and High FHSZs to be mapped in the LRA effective January 1, 2022. The definition of Wildland-Urban Interface (WUI) Fire Areas will now include the same LRA moderate and high FHSZs as they are required under GC 51175-51189. This should be clarified in these sections based upon your response to the follow comment:

S863 amends Health & Safety Code Section 13108.5 by adding new item (2) and (3) regarding applicability of Chapter 7 A to the new (2) LRA High and (3) Moderate FHSZ. As this law takes effect January 1, 2022, and the tri-annual code adoption cycle is still in process. The SFM is in process of revising SRA and LRA FHSZ maps and the new LRA FHSZs should be issued and approved before the January 1, 2023, effective date of this Code. We should not wait another 3 years to apply the WUI building requirements in the LRA high FHSZ.

Agency Response:

The recommendation for the acronym "WUI" is editorial and updated for printing purposes. The SFM will continue development with stakeholders in the SFM WUI workgroup for the next rulemaking cycle to address legislation changes as for SB63 as they will pertain to Local Responsibility Areas.

Item 3-10

Chapter 3, Building Planning, Section R337 Materials and Construction methods for Exterior Wildfire Exposure, R337.1.3 Application

Commenter(s) and Recommendation (if applicable):

Massoud Araghi, Fire Marshal, Ventura County Fire Protection District

R337.1.3 Application.

Recommendation: Add word Urban to correct the proper term defined. Add acronym "WUI" to be consistent with this change in other sections of this chapter, CFC Chapter 49, and CRC Section R337.

The word " any " has been recommended to bring up a concern that by using the word "any", these sections apply to all FHSZs in both the SRA and LRA and any area designated by the local agency. SB63, Chaptered September 2021, now requires both the Moderate and High FHSZs to be mapped in the LRA effective January 1, 2022. The definition of Wildland-Urban Interface (WUI) Fire Areas will now include the same LRA moderate and high FHSZs as they are required under

GC 51175-51189. This should be clarified in these sections based upon your response to the follow comment:

S863 amends Health & Safety Code Section 13108.5 by adding new item (2) and (3) regarding applicability of Chapter 7 A to the new (2) LRA High and (3) Moderate FHSZ. As this law takes effect January 1, 2022, and the tri-annual code adoption cycle is still in process. The SFM is in process of revising SRA and LRA FHSZ maps and the new LRA FHSZs should be issued and approved before the January 1, 2023, effective date of this Code. We should not wait another 3 years to apply the WUI building requirements in the LRA high FHSZ.

Agency Response:

The SFM will continue development with stakeholders in the SFM WUI workgroup for the next rulemaking cycle to address legislation changes as they will pertain to Local Responsibility Areas. Editorial corrections have been made to correct section numbers and adding the acroym "WUI" to be consistant with other codes.

Item 3-10

Chapter 3, Building Planning, Section R337 Materials and Construction methods for Exterior Wildfire Exposure, R337.1.3.1 Application date and where required

Commenter(s) and Recommendation (if applicable):

Massoud Araghi, Fire Marshal, Ventura County Fire Protection District

R337.1.3.1 Application date and where required.

Recommendation: Add word Urban to correct the proper term defined. Add acronym "WUI" to be consistent with this change in other sections of R337, CFC Chapter 49, and CBC Chapter 7A.

See reason in R337.1.2 regarding the use of the word "any."

Agency Response:

The SFM will continue development with stakeholders in the SFM WUI workgroup for the next rulemaking cycle to address legislation changes as they will pertain to Local Responsibility Areas. Editorial corrections will be made at that time as well as other clean up. This section was not part of the original proposal.

Item 3-10

Chapter 3, Building Planning, Section R337 Materials and Construction methods for Exterior Wildfire Exposure, R337.2 Definitions

The SFM proposes to modify the definition of a fire protection plan, which will correlate to changes proposed in the California Fire Code Chapter 49.

Commenter(s) and Recommendation (if applicable):

Massoud Araghi, Fire Marshal, Ventura County Fire Protection District

R337.2 Definitions.

Fire Protection Plan

Recommendation: Revise as follow. Note: The order of listing Fire Protection Plan and Fire Hazard Severity Zones should be reversed to follow proper alphabetical order of listing definitions.

Add acronym "WUI" to be consistent with this change in other sections of CBC Chapter 7A. CRC Section R337, CFC Chapter 49.

There are no other sections within Section R337 that specify actual elements for a Fire Protection Plan. The only requirement under Section R337.6 is that a Fire Protection Plan be submitted in accordance with CFC Chapter 49. A separate proposed change to CFC Section 4903.2 referencing CRC Section R337.6 is being submitted under a separate letter regarding CFC Chapter 49.

Agency Response:

The SFM will continue development with stakeholders in the SFM WUI workgroup for the next rulemaking cycle to enhance the provisions that are proposed. The definition of Fire Protection Plan is existing text the pointer to the California Fire Code (CFC) was added as a reminder to the code user to see the California Fire Code for the details of a Fire Protection Plan.

Item 3-10

Chapter 3, Building Planning, Section R337 Materials and Construction methods for Exterior Wildfire Exposure, R337.2 Definitions

The SFM proposed to make an editorial correction to the definition of Fire Hazard Severity Zones.

Commenter(s) and Recommendation (if applicable):

Massoud Araghi, Fire Marshal, Ventura County Fire Protection District

R337.2 Definitions.

Fire Hazard Severity Zones

Recommendation: Senate Bill 63 (2021-2022) requires the mapping of moderate and high fire hazard severity zones in the Local Responsibility Areas (LRA). The FHSZ maps are not limited to SRA and include the LRA. Additionally, there is no other reference to Title 14, Section 1280, within Section R337 and California Fire Code Chapter 49. This paragraph can be deleted.

Agency Response:

During the 15-Day public comment period (November 1, 2021 through November 16, 2021) the SFM added text that reflects the changes in Government Code Section 51178 statute. Senate Bill 63 (2021-2022) changed the Government Code to require the mapping of moderate and high fire hazard severity zones in the local responsibility areas.

An attached addendum withdraws the 15-Day proposed text as it relates to expanding the Wildland-Urban Interface (WUI) requirements to Local Responsibility Areas in the Moderate and High Fire Severity Zones. The Fire Severity Zone maps that designate both State and Local areas are anticipated to be published by CALFIRE early 2022. The SFM will continue development with stakeholders and other state agencies in the SFM WUI public forum workgroup to come to a consensus for the next rulemaking cycle to address legislation changes as they pertain to Local Responsibility Areas.

Item 3-10

Chapter 3, Building Planning, Section R337 Materials and Construction methods for Exterior Wildfire Exposure, R337.2 Definitions

The SFM proposed to make an editorial correction to the definition of Fire Hazard Severity Zones.

The text with proposed changes was made available to the public for an additional 15-day comment period from November 1, 2021, until November 16, 2021, to address editorial changes in the 45-day Express Terms related. Comments were received during the 15-day comment period are shown below. There was no subsequent public comment period.

Commenter(s) and Recommendation (if applicable):

Chris Ochoa and Robert Raymer, California Building Association (CBIA)

Please be advised that CBIA has a concern that, while well-intended, the State Fire Marshal may be prematurely amending code to incorporate specific provisions of SB 63 (Stern), legislation recently signed into law by Governor Newsom.

CBIA, along with the fire service, strongly supported the passage of SB 63. Relating to building in the Wildland-Urban Interface, this bill directs the Office of the State Fire Marshal to complete fire hazard severity zone maps for “moderate” and “high” fire severity zones (GC 51178). Once the SFM completes this task, the maps will be forwarded to local jurisdictions for certification. Once a local jurisdiction has received the maps from the SFM, the local jurisdiction shall have 300-days to make the maps available for public comment (GC 51178.5).

SB 63 takes effect on January 1, 2022. Once the maps are completed and certified by the local jurisdictions, CBIA will support the expansion of the WUI building

standards to High Fire Severity Zones during the next regularly occurring code adoption cycle. Depending on when the SFM completes the maps and forwards them to the local jurisdictions, this could come as early as the code that becomes effective in July of 2024.

Recommendation: CBIA respectfully requests the SFM withdraw these five changes from the 2021 Triennial Code Adoption Cycle and reconsider them in a subsequent rulemaking when all the maps are completed and certified by local jurisdictions. Once the maps are done and certified by locals, you can count on CBIA support for expansion of the WUI Building Standards to High Fire Severity Zones.

Agency Response:

During the 15-Day public comment period (November 1, 2021 through November 16, 2021) the SFM added text that reflects the changes in Government Code Section 51178 statute. Senate Bill 63 (2021-2022) changed the Government Code to require the mapping of moderate and high fire hazard severity zones in the local responsibility areas.

An attached addendum withdraws the 15-Day proposed text as it relates to expanding the Wildland-Urban Interface (WUI) requirements to Local Responsibility Areas in the Moderate and High Fire Severity Zones. The Fire Severity Zone maps that designate both State and Local areas are anticipated to be published by CALFIRE early 2022. The SFM will continue development with stakeholders and other state agencies in the SFM WUI public forum workgroup to come to a consensus for the next rulemaking cycle to address legislation changes as they pertain to Local Responsibility Areas.

Item 3-10

Chapter 3, Building Planning, Section R337 Materials and Construction methods for Exterior Wildfire Exposure, Section R337.6.2 Requirements for Ventilation

The SFM proposes to adopt amend Section R337 based on recommendations for the SFM WUI workgroup, which are comprised of various stakeholders.

The SFM proposes to delete language that was incorporated into the main Section R337.6.2 Requirements for Ventilation openings and add a compliance path for the use of off ridge and ridge venting.

Commenter(s) and Recommendation (if applicable):

Aaron Phillips, Asphalt Roofing Assication (ARMA)

The Asphalt Roofing Manufacturers Association (ARMA) supports the replacement of Section R337.6.2.1 in Chapter 3 (Building Planning), Section R337 (Materials and Construction Methods for Exterior Wildfire Exposure) of the California Residential

Code, as proposed in Item 3-10 of SFM 05-21 45Day ET-Pt25 with new language. This is an important change necessary to improve the code by providing a compliance path for rooftop vents. Existing code language requires vents to be listed in accordance with ASTM E2886. However, the scope of that standard excludes “Roof ridge and off-ridge (field) vents.” The proposed new language fills an important gap in the existing code by establishing an ember resistance requirement for rooftop (i.e., ridge and off-ridge) vents. This proposed change is especially important in satisfying Building Standards criteria number 3 by addressing a critical fire safety public interest. ARMA encourages acceptance of this change to Section R337.6.2.1. ARMA suggests a minor amendment to the proposed language of Section R337.6.2.1—removal of the phrase “in diameter.” Mesh used in these applications may contain openings that are square, rectangular, circular, or some other shape. Removal of the phrase, “in diameter,” will improve the language and eliminate the implication that only circular shaped openings are permissible.

Agency Response:

The SFM appreciates the support from stakeholders and will continue to hold workshops to address any developments in technology.

Item 9-2

Chapter 9, Roof Assemblies, Section R902.4 Rooftop-mounted photovoltaic (PV) panel systems

The SFM proposes to correlate with the California Building Code.

Commenter(s) and Recommendation (if applicable):

Joseph H. Cain, representing Solar Energy Industries Association (SEIA) and Benjamin Davis, California Solar & Storage Association (CALSSA)

Recommendation: Keep Section R902.4 but strike out new sentence “Listed systems shall be installed in accordance with the manufacturer’s installation instructions and their listing.” as it is redundant with Section R324.3:

Agency Response:

The SFM is proposing to correlate the language with the California Building Code for consistency. The regulation may be redundant with another section, but the inclusion and consistency between the codes is useful for the code user.

Item 9-3

Chapter 9, Roof Assemblies, Sections R907.1 through R907.5

The SFM proposes to move existing amendments from R918 for Rooftop mounted photovoltaic panel systems to the appropriate section R907.

Commenter(s) and Recommendation (if applicable):

Joseph H. Cain, representing Solar Energy Industries Association (SEIA) and Benjamin Davis, California Solar & Storage Association (CALSSA)

R907 Rooftop-Mounted Photovoltaic Panel Systems

Recommendation: Keep Heading Section R907 and Section R907.1 only, as a pointer to the “solar road map” in Section R324 – as in the model code. Do not move existing amendments from R918; strike them out:

R907.2 Fire classification

Recommendation: Strike all of Section R907.2, as it is redundant with Section R902.4:

R907.3 Installation

Recommendation: Strike all of Section R907.3, as it is redundant with Section R324.3:

R907.4 Photovoltaic panels and modules

Recommendation: Strike all of Section R907.4:

1. The section title indicates “panels and modules.”
2. UL 2703 is not a mandatory standard for PV panels systems.
3. For rooftop-mounted PV panel systems, a fire classification is required according to UL 2703.
4. Reference to manufacturer’s installation instructions is redundant with Section R324.3.

R907.5 Fire safety provisions for photovoltaic panels systems

Recommendation: Strike all of Section R907.5, as it is redundant with Section R324, and the California Residential Code should not be further dependent on the California Fire Code.

Agency Response:

R907 Rooftop-Mounted Photovoltaic Panel Systems

R907.2 Fire classification

R907.3 Installation

R907.4 Photovoltaic panels and modules

R907.5 Fire safety provisions for photovoltaic panels systems

The intent was to move existing California amendments from Section 918 to the appropriate Section 907. The SFM will evaluate the amendments as the model code language is improved. The SFM will consider proposals for the next rulemaking in a public forum workshop where all interested parties and stakeholder can come to a consensus.

Item 44-9

Chapter 44, Referenced Standards, UL 9540 Standard for Energy Storage Systems and Equipment

The second edition of UL 9540 has new requirements that limit the maximum energy capacity of individual nonresidential electrochemical ESS to 50 kWh unless they comply with UL 9540A fire test performance criteria. Similarly, there are new requirements for nonresidential electrochemical ESS intended for indoor installations with separations less than three feet to comply with UL 9540A fire test criteria. The minimum separation distances to adjacent units and walls established by UL 9540A fire testing will be reflected in the installation instructions.

Commenter(s) and Recommendation (if applicable):

Joseph H. Cain, representing Solar Energy Industries Association (SEIA) and Benjamin Davis, California Solar & Storage Association (CALSSA)

The proposed language would set Edition 2 of UL 9540 as the referenced standard for energy storage systems. Referenced standards do not provide edition numbers, and we are concerned that setting Edition 2 of UL 9540 as the referenced standard would preclude jurisdictions from accepting energy storage systems listed to Edition 1 and Edition 3. Edition 3 of UL 9540 is slated to be in print by the time California Residential Code becomes effective or soon after. The requirements for lithium chemistries between Edition 1 and Edition 2 were largely unchanged, with the exception that Edition 2 erroneously requires the “for use in residential dwelling unit” marking for ESS installed inside the dwelling unit, which is not the intent of the marking.

For these reasons, we suggest setting the referenced standard to UL 9540-2020 and not providing an edition.

Agency Response:

The SFM had overwhelming consensus in the SFM ESS workgroup to be specific in the adoption of the Second Edition. The SFM will evaluate the latest editions as they become available and approved. The standards can be updated in future rulemaking cycles.

Item 44-10

Chapter 44, Referenced Standards, UL 9540A Standard for Safety Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

UL 9540A, Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems, was developed to help manufacturers have a means of proving compliance to the new regulations. Leveraging our long practice of developing standards with vast experience in similar industries, we worked with regulators to understand concerns and deliver a viable test method to accelerate adoption of innovative technology.

UL 9540A was developed to address safety concerns identified by the building codes and the fire service in the United States. The current ICC International Fire Code (2018 IFC) allows an individual battery energy storage system (BESS) unit not exceeding 50 kWh and having a maximum quantity of systems totaling 600 kWh of energy per indoor fire area (battery room). The 2018 IFC and the draft NFPA 855 standards for installation of energy storage systems currently limits the individual BESS unit size for UL 9540 listed units to 250 kWh. These BESS units are to be installed with separation distances of 3 feet (1 meter) between units and between units and any wall. The latest IFC and NFPA 855 drafts allow the code official (AHJ) to approve larger individual BESS units, and separation distances less than 3 feet based on large scale fire testing conducted in accordance with the UL 9540A Test Method.

Results from the UL 9540A Test Method addresses the following key issues identified by building codes and the fire service:

- BESS installation instructions
 - Installation ventilation requirements
 - Effectiveness of fire protection (integral or external)
- Fire service strategy and tactics

Commenter(s) and Recommendation (if applicable):

Joseph H. Cain, representing Solar Energy Industries Association (SEIA) and Benjamin Davis, California Solar & Storage Association (CALSSA)

The proposed language would set Edition 4 of 9540A as the referenced standard for the safety test method for energy storage systems. Since 9540A is not referenced in the California Residential Code, it should not be in the Referenced Standards section. Additionally, manufacturers have tested their energy storage systems to earlier editions of 9540A, and we are concerned that jurisdictions would reject 9540A test results for these systems if the referenced standard in the code is for Edition 4.

Agency Response:

The SFM had overwhelming consensus in the SFM ESS workgroup to be specific in the adoption of the Fourth Edition. The SFM will evaluate the latest editions as they become available and approved. The standards can be updated in future rulemaking cycles.

DETERMINATION OF ALTERNATIVES CONSIDERED AND EFFECT ON PRIVATE PERSONS

Government Code Section 11346.9(a)(4) requires a determination with supporting information that no alternative considered would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected private persons than the adopted regulation, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law.

The SFM has determined that no alternative considered would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective as and less burdensome to affected private persons than the proposed amendments. Therefore, there are no alternatives available to the SFM regarding the proposed adoption and amendment of this code.

REJECTED PROPOSED ALTERNATIVE THAT WOULD LESSEN THE ADVERSE ECONOMIC IMPACT ON SMALL BUSINESSES:

Government Code Section 11346.9(a)(5) requires an explanation setting forth the reasons for rejecting any proposed alternatives that would lessen the adverse economic impact on small businesses, including the benefits of the proposed regulation per 11346.5(a)(3).

n/a