INITIAL STATEMENT OF REASONS FOR PROPOSED BUILDING STANDARDS OF THE STATE FIRE MARSHAL REGARDING THE 2022 CALIFORNIA FIRE CODE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 9 (SFM 07/22)

The Administrative Procedure Act (APA) requires that an Initial Statement of Reasons be available to the public upon request when rulemaking action is being undertaken. The following information required by the APA pertains to this particular rulemaking action:

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS

Government Code Section 11346.2(b)(1) requires a statement of specific purpose of each adoption, amendment, or repeal and the problem the agency intends to address and the rationale for the determination by the agency that each adoption, amendment, or repeal is reasonably necessary to carry out the purpose and address the problem for which it is proposed. The statement shall enumerate the benefits anticipated from the regulatory action, including the benefits or goals provided in the authorizing statute.

ITEM 1
Chapter 1 SCOPE AND ADMINISTRATION, Division I, California Administration, Section 1.11.1 SFM-Office of the State Fire Marshal

The SFM is proposing to amend the definition of Specified State-Occupied.

Health and Safety Code 13146 (A) (5) The State Fire Marshal shall enforce the building standards and other regulations of the State Fire Marshal on all University of California campuses and properties administered or occupied by the University of California and on all California State University campuses and properties administered or occupied by the California State University. For each university campus or property, the State Fire Marshal may delegate that responsibility to the person of the State Fire Marshal's choice who shall be known as the Designated Campus Fire Marshal.

The University of California (UC) currently has a memorandum of understanding (MOU) with the State Fire Marshal. The authority of the State Fire Marshal has been delegated to the Designated Campus Fire Marshal's through the MOU. The language in item (8) of Specified state occupied buildings is not needed. The proposal to remove the reference to the UC has no regulatory effect.

The exception is being proposed for deletion. The exception creates more confusion than what is intended. Any of the listed items are under the jurisdiction of the Office of the State Fire Marshal's office.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 2
Chapter 2 DEFINITIONS, Section 202 GENERAL DEFINITIONS

ITEM 2-1
Care Suite

The SFM is proposing to delete the reference to I-2.1.

The SFM proposed amendment deletes the State of California provisions regulating occupancy Group I-2.1 as noted throughout the California Fire Code and adopts the model code provisions of the International Fire Code (IFC) regulating ambulatory care facilities as amended.

Specific provisions regulating ambulatory care facilities were originally adopted by the International Conference of Building Officials (ICBO) in the 1991 edition of the Uniform Building Code (UBC) as Group I Division 1.2 occupancies. The provisions regulating Group I Division 1.2 occupancies remained unchanged in the 1992 California Building Code (CBC), 1995 CBC, 1998 CBC and the 2001 CBC. All of the aforementioned editions of the CBC were based on provisions contained in the corresponding editions of the UBC as published by ICBO. The ICBO criteria in the UBC for Group I Division 1.2 occupancies did not contain a requirement for 24 hour or full-time care.

The 1991 edition of the Uniform Fire Code (UFC) was published jointly by ICBO and the Western Fire Chiefs Association (WFCA). The 1991 edition of the UFC was amended and published as the 1992 California Fire Code (CFC). The 1991 UFC/1992 CFC contained provisions regulating Group I Division 1.2 occupancies that corresponded with the regulations published in the 1991 UBC/1992 CBC. The provisions regulating Group I Division 1.2 occupancies remained unchanged in the 1995 CFC, 1998 CFC and the 2001 CFC. The 1995 and 1998 editions of the CFC, based on the 1994 and 1997 editions of the UFC, were published jointly by ICBO and the Western Fire Chiefs Association. The 2001 edition of the CFC, based on the 2000 edition of the UFC, was published by the Western Fire Chiefs Association.

The 2007 CBC based on the 2006 IBC was the first version of the CBC based on the IBC published by the International Code Council (ICC). The 2006 IBC contained no specific provisions regulating ambulatory care facilities. In the 2006 IBC, clinics were classified as Group B occupancies with provisions similar to doctor’s offices. The 2007 CBC was amended by the SFM to continue to include specific provisions regulating ambulatory care facilities as Group I-2.1 occupancies. The SFM amendments contained the requirements as previously published in the CBC based on the UBC/CBC. The SFM amendments did not contain a requirement for 24 hour or full-time care.

Similarly, the 2007 California Fire Code based on the 2006 International Fire Code (IFC) was the first edition of the CFC based on the IFC published by the ICC. The 2007 CFC and subsequent editions of the CFC continued to be amended to include specific provisions regulating ambulatory care facilities as Group I-2.1 occupancies.

The 2009 IBC incorporated additional provisions specific to ambulatory care facilities that distinguished them as special types of Group B occupancies. The new requirements for ambulatory care facilities published by the ICC in the 2009 IBC were not as comprehensive as the SFM amendments that regulated Group I-2.1 occupancies therefore, the SFM requirements regulating Group I-2.1 occupancies remained in effect.

Subsequent editions of the 2012, 2015, 2018 and 2021 IBC have continued to incorporate fire and life safety provisions regulating Group I-2.1 occupancies into the requirements regulating ambulatory care facilities. It is now desirable to delete the State of California (UBC) Group I-2.1 occupancy classification and include amendments as needed to coordinate CBC requirements with requirements in the NFPA 101 Life Safety Code for ambulatory health care facilities. Where appropriate, SFM proposed amendments continue to include requirements similar or identical to current requirements for Group I-2.1 occupancies.

Licensed ambulatory health care facilities that receive reimbursement for Medicare and Medicaid services are required to comply with the provisions of NFPA 101, The Life Safety Code, Chapter 20. Deleting Group, I-2.1 and regulating these facilities as ambulatory care facilities is consistent with NFPA 101.

The SFM proposed amendment aligns CBC and CFC requirements with those of other applicable national standards. Conflicting requirements are a source of confusion for designers, owners, and code officials. Conflicting requirements are especially burdensome when owners are required to comply with applicable national standards that are more restrictive.

Eliminating inconsistencies between applicable codes and standards assists with the interpretation, understanding and compliance of building code requirements.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 2-2
Flammable Gas

The SFM is proposing to amend definition of Flammable Gas.

In the 7th edition of the Global Harmonization System of Classification and Labelling of Chemicals (GHS) the classification of flammable gas was expanded. Flammable gases have three categories, Category 1A, Category 1B, and Category 2. The definition is revised to be consistent with the GHS. However, some of the subgroups of Category 1A are not identified since all the subclasses still fall within Category 1A. Not included in the definition are pyrophoric (flammable) gas and chemically unstable (flammable) gas. Within these two additional terms is a requirement that the gas must first meet the Category 1A definition. Hence, including these terms becomes unnecessary in the Fire Code. GHS also defines a Category 2 flammable gas. The definition of a Category 2 flammable gas is: Category 2 - A gas not meeting the criteria of Category 1A or 1B, which, at 68°F (20 °C) and a pressure of 14.7 psia (101 kPa), has a flammable range while mixed in air. It is recommended that ICC consider adding a note in the commentary that Category 2 flammable gases are not regulated as flammable gases in the Fire Code, however, GHS has a classification for such flammable gases.

The GHS table on flammable gases is as follows:

Table 2.2.1: Criteria for categorisation of flammable gases

Category			Criteria
1A	Flammable gas		Gases, which at 20 °C and a standard pressure of 101.3 kPa: (a) are ignitable when in a mixture of 13% or less by volume in air; or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammability limit unless data show they meet the criteria for Category 1B
	Pyrophoric gas		Flammable gases that ignite spontaneously in air at a temperature of 54 °C or below
	Chemically unstable gas	A	Flammable gases which are chemically unstable at 20°C and a standard pressure of 101.3 kPa
		B	Flammable gases which are chemically unstable at a temperature greater than 20°C and/or a pressure greater than 101.3 kPa
1B	Flammable gas		Gases which meet the flammability criteria for Category 1A, but which are not pyrophoric, nor chemically unstable, and which have at least either: (a) a lower flammability limit of more than 6% by volume in air; or (b) a fundamental burning velocity of less than 10 cm/s;
2	Flammable gas		Gases, other than those of Category 1A or 1B, which, at 20 °C and a standard pressure of 101.3 kPa, have a flammable range while mixed in air

NOTE 1: *Ammonia and methyl bromide may be regarded as special cases for some regulatory purposes.*

NOTE 2: *Aerosols should not be classified as flammable gases. See Chapter 2.3.*

NOTE 3: *In the absence of data allowing classification into Category 1B, a flammable gas that meets the criteria for Category 1A is classified per default in Category 1A.*

NOTE 4: *Spontaneous ignition for pyrophoric gases is not always immediate, and there may be a delay.*

NOTE 5: *In the absence of data on its pyrophoricity, a flammable gas mixture should be classified as a pyrophoric gas if it contains more than 1% (by volume) of pyrophoric component(s).*

Category 1A flammable gases have a higher flammability and become explosive. These are the flammable gases typically understood such as propane, acetylene, and butane. Category 1B flammable gases have a lower flammability and are not inherently explosive, although all flammable gases can have a deflagration under the right conditions. A typical Category 1B flammable gas would be difluoromethane. The gas has a lower flammable limit of 13.8 percent and an upper flammable limit of 29.9 percent. The burning velocity is 6.7 cm/s or 2.6 in/s. Other Category 1B flammable gases would include: 1,1,1 trifluoroethane; and 2,3,3,3-tetrafluoro-1-propene. Trans-1,3,3,3-tetrafluoro-1-propene, and ammonia are a Category 2 flammable gas. The last statement in the definition is to clarify that when not indicated, the term flammable gas applies to both Category 1A and Category 1B. When appropriate, the section in the code will state, “Category 1A flammable gas” or “Category 1B flammable gas.”

This proposal is submitted by the ICC Fire Code Action Committee (FCAC) and was successful for the 2024 Edition of the International Fire Code, in the Group A Hearings held virtually in April 2021.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. This change neither increases nor decreases the cost of construction. The change only impacts the classification of flammable gases, thus there are no other technical changes to the code through this revision of the definition.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 2-3
Group B, Business

The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 2-4
High-Hazard Group H-2, High-Hazard Group H-3

The SFM is proposing to amend definitions.

This change coordinates the classification of high hazard with the change in definition to “flammable gas.” Category 1A flammable gases have an explosive component in that their deflagration index is extremely low. By comparison, Category 1B flammable gases with a burning velocity of 3.9 in/s or less have a very high deflagration index. Thus, there is a significant difference in the hazard level between the two flammable gas categories.

The more appropriate classification for a Category 1B flammable gas with a burning velocity of 3.9 in/s or less appears to be Use Group H-3. This classification can be supported by a comparison of level of hazard identified in the code change to the MAQ table for flammable gas. The minimum ignition energy varies by as much at 58,000 times. The heat of combustion is between 6 and 19 percent of these Category 1B flammable gases.

Thus, Use Group H-3 is the proper classification for Category 1B flammable gas with a burning velocity of 3.9 in/s or less.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC) and the ICC Building Code Action Committee (BCAC) and was successful for the 2024 Edition of the International Fire Code, in the Group A Hearings held virtually in April 2021.

Cost Impact: The code change proposal will decrease the cost of construction. This code change reduces the cost of construction. By modifying the Use Group for Category 1B flammable gas, the construction costs are also lowered. The construction costs for Category 1A flammable gas remain unchanged, neither increased nor decreased in the cost of construction.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 2-5
Group I, Institutional and Institutional Group I-2.1

The SFM is proposing to delete the reference to I-2.1.

The SFM proposed amendment deletes the State of California provisions regulating occupancy Group I-2.1 as noted throughout the California Fire Code and adopts the model code provisions of the International Fire Code (IFC) regulating ambulatory care facilities as amended.

Specific provisions regulating ambulatory care facilities were originally adopted by the International Conference of Building Officials (ICBO) in the 1991 edition of the Uniform Building Code (UBC) as Group I Division 1.2 occupancies. The provisions regulating Group I Division 1.2 occupancies remained unchanged in the 1992 California Building Code (CBC), 1995 CBC, 1998 CBC and the 2001 CBC. All of the aforementioned editions of the CBC were based on provisions contained in the corresponding editions of the UBC as published by ICBO. The ICBO criteria in the UBC for Group I Division 1.2 occupancies did not contain a requirement for 24 hour or full-time care.

The 1991 edition of the Uniform Fire Code (UFC) was published jointly by ICBO and the Western Fire Chiefs Association (WFCA). The 1991 edition of the UFC was amended and published as the 1992 California Fire Code (CFC). The 1991 UFC/1992 CFC contained provisions regulating Group I Division 1.2 occupancies that corresponded with the regulations published in the 1991 UBC/1992 CBC. The provisions regulating Group I Division 1.2 occupancies remained unchanged in the 1995 CFC, 1998 CFC and the 2001 CFC. The 1995 and 1998 editions of the CFC, based on the 1994 and 1997 editions of the UFC, were published jointly by ICBO and the Western Fire Chiefs Association. The 2001 edition of the CFC, based on the 2000 edition of the UFC, was published by the Western Fire Chiefs Association.

The 2007 CBC based on the 2006 IBC was the first version of the CBC based on the IBC published by the International Code Council (ICC). The 2006 IBC contained no specific provisions regulating ambulatory care facilities. In the 2006 IBC, clinics were classified as Group B occupancies with provisions similar to doctor’s offices. The 2007 CBC was amended by the SFM to continue to include specific provisions regulating ambulatory care facilities as Group I-2.1 occupancies. The SFM amendments contained the requirements as previously published in the CBC based on the UBC/CBC. The SFM amendments did not contain a requirement for 24 hour or full-time care.

Similarly, the 2007 California Fire Code based on the 2006 International Fire Code (IFC) was the first edition of the CFC based on the IFC published by the ICC. The 2007 CFC and subsequent editions of the CFC continued to be amended to include specific provisions regulating ambulatory care facilities as Group I-2.1 occupancies.

The 2009 IBC incorporated additional provisions specific to ambulatory care facilities that distinguished them as special types of Group B occupancies. The new requirements for ambulatory care facilities published by the ICC in the 2009 IBC were not as comprehensive as the SFM amendments that regulated Group I-2.1 occupancies therefore, the SFM requirements regulating Group I-2.1 occupancies remained in effect.

Subsequent editions of the 2012, 2015, 2018 and 2021 IBC have continued to incorporate fire and life safety provisions regulating Group I-2.1 occupancies into the requirements regulating ambulatory care facilities. It is now desirable to delete the State of California (UBC) Group I-2.1 occupancy classification and include amendments as needed to coordinate CBC requirements with requirements in the NFPA 101 Life Safety Code for ambulatory health care facilities. Where appropriate, SFM proposed amendments continue to include requirements similar or identical to current requirements for Group I-2.1 occupancies.

Licensed ambulatory health care facilities that receive reimbursement for Medicare and Medicaid services are required to comply with the provisions of NFPA 101, The Life Safety Code, Chapter 20. Deleting Group, I-2.1 and regulating these facilities as ambulatory care facilities is consistent with NFPA 101.

The SFM proposed amendment aligns CBC and CFC requirements with those of other applicable national standards. Conflicting requirements are a source of confusion for designers, owners and code officials. Conflicting requirements are especially burdensome when owners are required to comply with applicable national standards that are more restrictive.

Eliminating inconsistencies between applicable codes and standards assists with the interpretation, understanding and compliance of building code requirements.

The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 2-6
Non-Patient-Care Suite

The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 2-7
Proximate Audience

The SFM is proposing to delete the reference to NFPA 1123, as it is not adopted by the State Fire Marshal.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 2-8
Lodging houses

The SFM is proposing to correct the code reference section to sprinklers in the California Residential Code. Errata.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 3
Chapter 4 EMERGENCY PLANNING AND PREPAREDNESS, Sections 405.2, 405.5

The SFM is proposing to delete the reference to I-1 and replace with R-2.1.

The Number 2 exception in both sections should be deleted because it conflicts with Health and Safety Code 13133, R-2.1 occupancies shall apply uniformly throughout the state and no city, county or city and county shall adopt or enforce any ordinance or rule that is not adopted by the SFM. Evacuation drills are in Title 19.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 4
Chapter 5 FIRE SERVICE FEATURES, Sections 510.4.2, 510.5

The proposed SFM amendment replaces the discontinued publication of NFPA 1221 with the newest publication for Emergency Radio Response Communication Systems NFPA 1225-22 edition.

As part of the National Fire Protection Association Emergency Response and Responder Safety Document Consolidation Plan (consolidation plan) as approved by the NFPA Standards Council, NFPA 1225 is a combination of Standards NFPA 1061 and NFPA 1221. As part of the Emergency Response and Responder Safety Document Consolidation Plan (consolidation plan) as approved by the NFPA Standards Council, this Standard has been combined into a new consolidated Standard, NFPA 1225. For further information on the current edition of this consolidated Standard, go to NFPA 1225.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 5
Chapter 6 BUILDING SERVICES AND SYSTEMS

ITEM 5-1
Section 605.4

The SFM proposed amendment is not a new requirement. The proposed SFM amendment identifies that the installation of fuel oil storage and piping systems connected to combustion engines and gas turbines are included within the scope of Section 605.4.

California Fire Code Section 605.4 includes requirements for the installation of fuel oil storage and piping systems for building heating systems and also for generators and fire pumps. This is however not clear in the charging statement of this section.

California Fire Code Section 605.4 provides a reference to the California Mechanical Code for installation requirements for fuel oil piping systems. The California Mechanical Code contains no requirements for the installation of fuel oil storage or piping systems. The California Mechanical Code Section 1301.1 requires that fuel oil piping shall be installed in accordance with NFPA 31. NFPA 31 is not applicable to fuel oil piping systems for combustion engines and gas turbines.

As an alternative to California Fire Code Chapter 57 requirements, California Fire Code Section 605.4.2 contains fuel tank storage requirements inside buildings that include provisions for systems supplying generators and fire pumps.

The proposed SFM amendment identifies that fuel oil storage systems regulated by Section 605.4 also include systems supplying combustion engines and gas turbines in as indicated in Section 605.4.2. The SFM proposed amendment identifies NFPA 31 as the appropriate reference for installations associated with building heating systems. The SFM proposed amendment specifies that installations associated with generators and fire pumps are to be installed in accordance with Section 605.4.2 or Chapter 57 (when Section 605.4.2 does not apply).

Incomplete information and references to inapplicable or incorrect information are a source of confusion for designers, owners and code officials. Completing such information and correcting such references assists with the interpretation and understanding of provisions of the code.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 5-2
Section 605.4.1

The SFM proposed amendment is not a new requirement. The proposed SFM amendment provides direction to the appropriate requirements for the installation of above-ground tanks connected to building heating systems or combustion engines and gas turbines.

The intent of Section 605.4.1 is to regulate outside above-ground tanks exceeding a capacity of 660 gallons (2498 L). The reference to NFPA 31 pertains to only fuel oil storage serving building heating systems. The proposed SFM amendment references CFC Chapter 57 for requirements regulating outside above-ground tanks exceeding a capacity of 660 gallons (2498 L) when they are connected to combustion engines and gas turbines.

Incomplete information and references to inapplicable or incorrect information are a source of confusion for designers, owners and code officials. Completing such information and correcting such references assists with the interpretation and understanding of provisions of the code.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 5-3
Section 605.4.2.3

The SFM proposed amendment is not a new requirement. The proposed SFM amendment provides direction to the appropriate requirements for the installation of above-ground tank fuel oil connections to building heating systems and generators or fire pumps.

CFC Section 605.4.2.3 references the Mechanical Code for closed piping system requirements; however, there are no fuel oil piping requirements published in the California Mechanical Code. CMC Section 1301.1 references NFPA 31 for the installation of fuel oil piping. NFPA 31 is only applicable to fuel oil systems connected to building heating systems. The proposed SFM amendment identifies NFPA 30 as the appropriate reference for the installation of fuel oil piping connected to generators and fire pumps. This is in accordance with NFPA 37 and NFPA 110. The CBC and the CFC adopt these standards by reference.

Incomplete information and references to inapplicable or incorrect information are a source of confusion for designers, owners and code officials. Completing such information and correcting such references assists with the interpretation and understanding of provisions of the code.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 5-4
Section 605.4.2.5

The SFM proposed amendment is not a new requirement. The proposed SFM amendment identifies the appropriate standards that regulate the installation of fuel oil storage and piping systems connected to building heating systems, combustion engines and gas turbines included within the scope of Section 605.4.2.5.

California Fire Code Section 605.4.2.5 provides a reference to locations in the California Mechanical Code for installation requirements for fuel oil tank and piping systems. However, the California Mechanical Code contains no requirements for the installation of fuel oil storage or piping systems. The California Mechanical Code Section 1301.1 requires that fuel oil piping shall be installed in accordance with NFPA 31. NFPA 31 is applicable to fuel oil storage and piping systems for building heating systems. California Building Code Section 442.1 requires the installation of combustion engines and gas turbines shall be in accordance with NFPA 37. NFPA 37 is applicable to fuel oil storage and piping systems for combustion engines and gas turbines. The SFM proposed amendment coordinates CFC Section 605.4.2.5 requirements with existing provisions in the California Mechanical Code and the California Building Code that reference NFPA 31 and NFPA 37.

References to inapplicable or incorrect information are a source of confusion for designers, owners and code officials. Completing such information and correcting such references assists with the interpretation and understanding of provisions of the code.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 5-5
Section 605.4.3

The SFM proposed amendment is not a new requirement. The proposed SFM amendment further distinguishes the requirements for underground tank fuel oil storage for building heating systems from the requirements that apply to combustion engines and gas turbines.

In accordance with CFC Section 5701.2, Item 4, fuel oil storage connected to oil burning equipment are exempt from the provisions of CFC Chapter 57. In accordance with California Mechanical Code Section 1301.1, fuel oil in underground storage tanks for building heating systems shall be in accordance with NFPA 31. The CFC Section 5701.2 does not exempt fuel oil storage for combustion engines and gas turbines; therefore, Chapter 57 is the appropriate reference for the installation of underground tanks connected to combustion engines and gas turbines.

Incomplete information and references to inapplicable or incorrect information are a source of confusion for designers, owners and code officials. Completing such information and correcting such references assists with the interpretation and understanding of provisions of the code.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 6
Chapter 8 INTERIOR FINISH, DECORATIVE MATERIALS AND FURNISHINGS

ITEM 6-1
Table 803.3, Sections 804.3.3.2, 807.5.3, 807.5.3.3, 807.5.3.4

The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 6-2
Section 808.1

The SFM is proposing to delete the reference to I-1 and replace with R-2.1. I-1 is not used in California, it is referred to as R-2.1. The proposal is clean up.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 7
Chapter 9 FIRE PROTECTION AND LIFE SAFETY SYSTEMS

ITEM 7-1
Sections 903.2.1.2, 903.2.1.3, 903.2.3, 903.2.7

The SFM proposal is to correct an error where the state amended language says" … fire walls of less than 4-hour fire resistance rating…". It should say "… not less than 4-hour …".

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 7-2
Section 903.2.8.3

The SFM proposal is to correct an error for Group R-4. This is an existing amendment to remove the conditions of Group R-4 occupancies. This proposal correlates with the California Building Code.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 7-3
Section 903.3.2

The SFM proposal is to delete language that is not needed for I-2 occupancies. An existing amendment to the California Mechanical Code already prohibits installation of gas fireplace appliances.

The SFM proposed amendment is not a new requirement. A new provision added to the 2021 IBC Section 903.3.2 requires quick-response or residential sprinklers in a Group I-2 smoke compartment containing gas fireplace appliances or decorative gas appliances. An existing HCAI (OSHPD) amendment to California Mechanical Code Section 911.1 prohibits the installation of a vented decorative fireplace appliance in any hospital, skilled nursing facility, intermediate care facility or correctional treatment center. The new provision published in the IBC infers that gas fireplace appliances and decorative gas appliances are permitted in a Group I-2. This is not the case in California.

Misleading provisions in the code lead to confusion, design and construction delays additional cost when prohibited installations must be removed or corrected.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 7-4
Sections 907.2.6.2, 907.2.9.3, 907.2.13, 907.5.1.1

The SFM is proposing to delete the reference to I-2.1 and amend section 907.2.9.3 based on a recommendation from the Office of the State Fire Marshal Fire Alarm Advisory Committee.

Rationale for 907.2.6.2, 907.2.13 and 907.5.1.1:
The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3.

Rationale for 907.2.9.3:
The Office of the State Fire Marshal’s Fire Alarm Advisory committee has proposed the

amended section to address several identified problems and issues brought to the committee from the fire alarm industry, authority having jurisdiction and other stakeholders.

1. The current California Fire Code necessitates that “Required smoke alarms” listed to UL 217 be interconnected with the building Fire Alarm (FA) system in accordance with NFPA 72. This interconnection between UL 217 smoke alarms and a building FA system creates the following potential problems and issues:
    a. NFPA 72 does not require smoke alarms to be supervised for trouble conditions when connected to the building FA system and this is against the intent for higher reliability and functionality required for students housing.
    b. Some Smoke alarms may have the capability to be supervised for trouble conditions but not all available UL 217 smoke alarms have this capability.
    c. The self-test feature on the smoke alarms may cause technical issues when tied into the building FA system.
    d. Smoke alarms interconnected in tandem within a dwelling unit may cause technical issues for trouble supervision when tied into the building FA system
    e. The Reset function of smoke alarms via the building FA system may cause technical problems.
    f. Other potential problems due to compatibility issues between UL 217 alarms and FA systems and UL 864 listed Fire Alarm Control Units (FACU).
2. The intent of the California Fire code in this section is to require more reliable and more functional smoke detection compared to stand alone smoke alarms, which are required in all other R-2 buildings. This intent is based on the specific nature of R-2 buildings used explicitly for student housing since there is supporting data showing more fires, more death and more general fire risk than other R-2 buildings.
3. The more reliable and functional smoke detection is in the students’ sleeping areas requires supervision for trouble conditions on the building FA system, (since there is a need to know or supervise when students remove the alarms, etc.)
4. Therefore, ONLY UL 268 smoke detectors should be required in student sleeping areas in NEW construction and NOT UL 217 smoke alarms. The UL 268 smoke detectors will comply with the intent of the code with added reliability and functionality, they will be fully supervised for trouble conditions (device missing, etc.) by the FACU, they will generate a supervisory signal on the FACU, and they will cause the activation of a local alarm within the sleeping area either with an associated sounder base OR with a separate FA system audible appliance
5. This proposal is based on existing California Fire code Section 907.2.11.7 – The only difference is that this proposal requires mandatory language. The devices “shall be installed” versus the permissive language “shall be an acceptable alternative”.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 7-5
Sections 907.3.3, 907.3.3.1

The SFM is proposing to further clarify the need for detection to remain in the hoist way for the activation of recall.

This section provides correlation with Section 607.1 of the California fire Code by making it clear that automatic fire detection devices used to initiate Phase I emergency recall of elevators are to be installed in accordance with both Title 8 Elevator Safety Orders and NFPA 72.

For the 2022 edition of NFPA 72, text revisions were made to 21.3.6.1 through 21.3.6.3 to avoid conflicts with ASME A17.1/CSA B44. The resulting language specifically prohibits the installation of smoke detectors in un-sprinklered elevator hoist-ways unless required by ASME A17.1/CSA B44 to initiate Elevator Phase I Emergency Recall Operation as specified in 21.3.14.1(2) and 21.3.14.2(2), or where required by other codes and standards for the actuation of elevator hoist-way smoke relief equipment. If sprinklers are installed in the hoist-way, then the smoke detector (or other automatic fire alarm initiating device) is necessary to provide the required recall feature.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 7-6
Section 907.5.2.3.1 Public use area and common use areas

The SFM is proposing to add more specific clarifying example where strobes shall be provided.

#6 Rationale: Conference rooms are specifically intended for meetings purposes. They are intended for common-use by the occupants/employees of the building and/or for public-use by the public, regardless their size. However, since Conference and Huddle rooms are not specifically defined in CBC/CFC as meeting rooms, this proposed change clarifies their use and purpose as rooms intended for meetings.

#12 Rationale: Shared-office rooms are common-use areas used by the occupants/employees of the building, they are shared by two or more persons, and they are enclosed rooms which are different than open/ non-enclosed shared office-space. This specific item also clarifies that a “Private-Office” used by ONE person only, who is a building occupant/employee, will not require a strobe.

#13 Rationale: The term “Normally-Occupied” is used in CBC and in NFPA 72. These rooms are not specifically defined by CBC or CFC. They could vary in size, (be very small or very large), they could have different furniture layouts, etc. and they are normally occupied and used by either the building’s occupants/employees and/or by the general public. Therefore, strobe protection is required in these undefined rooms regardless their size and configuration if they are classified and intended by the owner/architect to be used by two or more persons.

#14 Rationale: The term “Normally-Occupied” is used in CBC and in NFPA 72. Storage rooms could be normally used by the occupants/employees of the building and/or by the general public. If these rooms are normally not-occupied such as a private storage room or closet, they are not required to have strobes in them. However, if they are common or public use areas which are normally occupied and used by the building occupants/employees and/or by the public, they should have strobe protection in them.

#15 Rationale: There is already a CSFM code interpretation requiring this. It is better to have this requirement in the body of the code rather than on an online code interpretation.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 7-7
Sections 907.5.2.5, 909.5.3, 909.5.3.1

The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 7-8
Table 911.1 Explosion Control Requirements

This change coordinates with the change in the definition of flammable gas. Explosive flammable gases do not include Category 1B flammable gases having a burning velocity of 3.9 in/s or less (Low BV). Table 911.1 has been modified accordingly. Category 1B low burning velocity flammable gases are excluded from the explosive flammable gas requirements. A reference to the International Mechanical Code has been added as an exception for the cleaning and purging of flammable gas piping systems requirements. Chapter 11 of the International Mechanical Code includes requirements for cleaning and purging using Category 1B low burning velocity flammable gases.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC) and was successful for the 2024 Edition of the International Fire Code, in the Group A Hearings held virtually in April 2021.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. This code change neither increased nor decreased in the cost of construction. The change clarifies that the requirements in these sections are applicable to Category 1A flammable gases.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 8
Chapter 10 MEANS OF EGRESS

ITEM 8-1
Sections 1003.2, 1003.3, 1003.3.1, 1003.3.3.1, 1003.5, 1006.2.1, Table 1006.3.4(2), 1008.3.2, 1010.1.1, 1010.1.1.1, 1010.1.2, 1010.2.9, 1011.2, Table 1017.2, Sections 1019.3, 1019.4, 1020.2, Table 1020.2, Sections 1020.5, 1022.3, 1026.4.1

The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3.

1010.1.1 Size of doors.
The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3. When a door serves as a means of egress in an ambulatory care facility, the SFM proposed amendment maintains the 44“ minimum width for doors that must accommodate the movement of bed and stretcher patients.

The proposal to delete the 48” maximum width requirements for swinging doors was approved and missed in the printing of the California Fire Code. This should be an errata.

From the IBC Commentary: The maximum width for a means of egress door leaf in a swinging door is 48 inches (1219 mm) because larger doors are difficult to handle and are of sizes that typically are not fire tested.

We somewhat agree with this statement in the IBC Commentary. However, it is the width plus the height and the construction of the door (i.e., weight) which results in a door which may be difficult to open and / or close. Our perspective is the performance requirements in IBC Section 1010.1.3 Door Opening Force and the Chapter 11 Accessibility requirements effectively result in the design and installation of appropriately sized doors. Regarding fire tested doors (i.e., fire-rated doors) – the solution is simple – install fire-rated doors which meet the existing door opening force requirements of the IBC.

The revision in the 1st exception correlates with the proposed deleted text in the charging paragraph.

The revision in the 4th exception clarifies the exception.

From a different perspective, NFPA 101 has not had a requirement for maximum swinging door leaf width since the 1997 edition, stating there is insufficient reason to limit the maximum width of a door leaf provided the door is maintained in good working order. In addition, there is a trend in health-care occupancies for wider doorways to accommodate patient and equipment movement needs.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. We see no cost implications for the vast majority of buildings. However, this proposal may allow the use of a single door – that meets all IBC operational force requirements – where today the 48” width limit results in two doors in an opening. In these rare situations, the cost of construction may be reduced.

1011.2 Width and capacity.
The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3. When a stairway serves an ambulatory care facility, the SFM proposed amendment maintains the 44“ minimum width for stairways that must accommodate the movement of bed and stretcher patients.

Table 1017.2 Exit Access Travel Distance.
The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3. The SFM proposed amendment adds a new section to footnote a that references ambulatory care facility means of egress travel distance requirements that are more restrictive than the general requirements for Group B occupancies. A proposed SFM amendment coordinates the travel distance requirements of the CBC with those of NFPA 101, The Life Safety Code. The proposed SFM amendment limits the maximum permitted means of egress travel distance in an ambulatory care facility. The SFM proposed amendment requires the travel distance in an ambulatory care facility not exceed 200 feet. This is consistent with NFPA 101 Life Safety Code means of egress travel distance requirements for ambulatory health care occupancies.

Licensed ambulatory health care facilities that receive reimbursement for Medicare and Medicaid services are required to comply with the provisions of NFPA 101, The Life Safety Code, Chapter 20.

The SFM proposed amendment aligns CBC requirements with those of NFPA 101, The Life Safety Code. Conflicting requirements are a source of confusion for designers, owners and code officials. Conflicting requirements are especially burdensome when owners are required to comply with an applicable standard that is more restrictive.

Eliminating inconsistencies between applicable codes and standards assists with the interpretation, understanding and compliance of building code requirements.

1026.4.1 Capacity.
The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3. The SFM proposed amendment reinstates Group B ambulatory care facilities in the scope of the section and references additional refuge capacity provisions in other sections of the California Building Code.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 8-2
Section 1010.2.13.1

The SFM proposal to delete model code language and add a pointer to the existing requirements for automatic sprinklers and fire detection in I-2 occupancies when delayed egress in installed.

The SFM proposed amendment is not a new requirement. The SFM proposed amendment coordinates requirements in Section 1010.2.13.1, Item 1 for the deactivation of a delayed egress locking system with provisions in Section 1010.2.13 that requires both automatic sprinklers and smoke or heat detection systems in occupancies where a delayed egress system is installed.

Incomplete or incorrect information is a source of confusion for designers, owners and code officials. Completing such information and correcting such references assists with the interpretation and understanding of provisions of the code.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 9
Chapter 11 CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

ITEM 9-1
Section 1103.1

The SFM is proposing to delete the reference to I-1. I-1 is not used in California. The proposal is clean up.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 9-2
Sections 1103.7.3, 1103.7.3.1

The SFM proposed amendment deletes reference to Group I-2.1 occupancies. The SFM proposed amendment is associated with the proposed elimination of the Group I-2.1 occupancy classification from the California Building Code Sections 304.1 and 308.3.3.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 9-3
Sections 1105.12, 1105.12.1

The SFM proposed amendment is a new requirement. A new provision published in the 2021 International Fire Code Section 3305.9 regulates the materials used for construction separations in Type I and II construction. No other types of construction are considered. The materials approved by International Fire Code Section 3305.9 include plastic sheeting. Plastic sheeting is not always appropriate for use as a separation for construction, alteration, or demolition.

The SFM proposed amendment provides requirements for construction separations in existing Group I-2 occupancies regardless of type of construction. Where construction is not otherwise required to be fire-resistance rated, the proposed SFM amendment permits construction separations using floors, walls and partitions identified in California Building Code Table 601.

When approved by the authority (fire code official) having jurisdiction, the proposed SFM amendment allows areas of minor building work not considered as construction, alteration or demolition (identified in California Building Code Section 105.2, Item 7) to be separated by flame retardant materials including plastic sheeting. Such minor work is often identified in Infection Control Risk Assessments (ICRAs) required by health care concerns and as such must be provided with a separation of the minor work from occupied areas with such materials.

The SFM proposed amendment is consistent with provisions of NFPA 241 adopted by reference in California Fire Code Section 3301.1 and NFPA 101-2012, Section 4.6.10.1.

While a new requirement, the SFM proposed amendment reflects how these concerns are currently addressed by the State Fire Marshal, the Department of Health Care Access and Information (OSHPD), the California Department of Health, the Centers for Medicare and Medicaid Services, The Joint Commission, health care facilities and the construction industry.

Incomplete information and conflicting, inapplicable, or incorrect information are a source of confusion for designers, owners, and code officials. The proposed SFM amendment is necessary to prevent new provisions published in the International Fire Code that can mislead a code user to believe that a construction separation in a Group I-2 is only necessary if the building is of Type I or Type II construction. The SFM amendment permits the use of flame-retardant materials for minor work when approved by the fire code official.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 10
Chapter 12 ENERGY SYSTEMS

ITEM 10-1
Section 1203.1.3.1

The SFM proposed amendment is not a new requirement. The SFM proposed amendment provides a reference to an existing SFM amendment published in California Building Code Section 442. CBC Section 442.1 contains requirements pertaining to the installation and location of combustion engines and gas turbines and adopts NFPA 37 as the standard for the installation of combustion engines and gas turbines. The information provided in the SFM proposed amendment is specific to California and as such, is not included in International Fire Code Section 1203.1.3.

The requirements in the California Building Code have a significant impact on the installation and location of combustion engines and gas turbines. Incomplete information and references are a source of delays and confusion for designers, owners and code officials. Completing such information and including such references assists with the interpretation and understanding of provisions of the code.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 10-2
Section 1207.11.4, Table 1207.11.4

The proposed changes to the first three sentences of 1207.11.4 clarify the original intent for this section, which was to provide a maximum threshold for each location. It was not the intent to limit installations to one location on the property, or to limit to only 80 kWh for all ESS installed on the property.

Providing the various maximum thresholds in tabular form provides an easier method for the code user to determine the limits for each location.

Within utility closets, basements and storage or utility spaces:
The 40-kWh limit is unchanged from the 2022 CFC. That language clarifies that the 40-kWh limit does not apply to spaces or closets located within garages or accessory structures. It only applies to within the dwelling.

In attached garages:
As the ESS industry has gained more experience with the needs of their customers and the grid, and the building safety community has gained more experience with ESS, it is becoming clear that the arbitrary capacity restrictions in the residential code are a hinderance to the deployment of clean energy technologies and are unneeded for safety. Hundreds of thousands of residential batteries have been installed and constructed to standards leading to greater levels of safety. Taken together these facts support a reasonable increase in kWh capacity to align with other anticipated hazards and fuel loads that may be present in a residential garage.

A modest increase in the allowable aggregate ESS capacity from 80-kWh to 100-kWh does not pose a significant elevated fire risk in the garage.

Manufacturers design ESS to well-established safety standards, have proven track records of operating without igniting in homes, and are built in ways to resist adding fuel to fires from other sources. In the rare event of an ESS fire, a fire from 100-kWh of energy storage does not pose a significantly greater threat to occupant safety and is not significantly more difficult to extinguish than a fire from 80 kWh of energy storage.

The fuel energy density and heat release rate potential presented by a 100-kWh energy storage system are comparable to that of vehicles parked in garages. 100-kWh is a typical capacity of currently available electric vehicles (EVs), which use lithium-ion chemistries as do many stationary ESS. EVs also present significant additional fuel load through materials like upholstered seating and plastic trim. Internal combustion engine (ICE) vehicles have fuel, engine lubricants, and other components with the potential for very significant heat release rates. While the fuel load in a vehicle fueled by a gaseous fuel such as CNG or hydrogen can be less than that of a 100-kWh ESS in total energy output, the dynamics of a designed quick release of a gaseous fuel due to fire exposure in an attached garage can pose a significant concentrated fire exposure, or potentially a deflagration hazard risk to occupants and emergency responders.

This proposal allows homes to add an aggregate of 100-kWh of energy storage to an attached garage, while keeping the content fuel loads at safe levels. While actual fuel loads in garages can vary widely, this can be demonstrated using typical and conservative figures:

A reasonable fuel load for a garage is approximately 22,300 MJ. This assumes the garage is 20’ x 20’ and that a reasonable fuel load density is 600 MJ/m . Parking two gasoline powered cars in the garage makes up approximately 10,600 MJ of fuel load. Other garage items can make up approximately 3,300 MJ of fuel load. The remaining fuel load available to an ESS (22,300 MJ minus 10,600 MJ minus 3,300 MJ) is 8,400 MJ. 8,400 MJ is equivalent to an ESS with an aggregate capacity of 100 kWh, assuming the ESS has a fuel load of 84 MJ/kWh.

On or within 3 feet (914 mm) of exterior walls of dwellings and attached garages:
ESS on the exterior side of exterior walls pose less of a safety risk than ESS inside attached garages. If an ESS with an aggregate rating of 100-kWh in an attached garage is considered reasonable, then an ESS with an aggregate rating of 100-kWh on the exterior side of exterior walls should also be reasonable.

If an ESS with an aggregate rating of more than 100 kWh catches on fire, the non-combustible surface would protect occupant safety. Batteries that undergo burn tests on non-combustible surfaces, including masonry and cementitious board, perform well. Some tests have been done as part of 9540A.

In detached garages and detached accessory structures:
This scenario poses minimal risk to occupant safety, considering the distance from the dwelling and testing required of ESS. ESS in detached structures pose less of a safety risk than ESS on the exterior side of the dwelling. If an ESS with an aggregate rating of 200-kWh on the exterior side of the dwelling is considered reasonable, then an ESS with an aggregate rating of 200 kWh should be reasonable for ESS in detached structures.

600-kWh matches Table 1207.5 of the IFC. ESS in structures separated from the dwelling by 10 feet do not pose demonstrable risk to occupants.

Outdoors on the ground:
This scenario poses minimal risk to occupant safety, considering the distance from the dwelling and the testing required of ESS. Ground mount ESS pose less of a safety risk than ESS on the exterior side of the dwelling. If an ESS with an aggregate rating of 200-kWh on the exterior side of the dwelling is considered reasonable, then an ESS with an aggregate rating of 200 kWh should be reasonable for ESS mounted on the ground.

Additionally, 200 kWh is equivalent to two typical EVs that can be parked anywhere on the property. 600 kWh matches Table 1207.5 of the IFC. ESS separated from the dwelling by 10 feet do not pose demonstrable risk to occupants.

Endnotes:

1. Tesla Model X has a capacity of 100 kWh. Tesla Model S has a capacity of 70-85 kWh. Chevy Bolt has a capacity of 66 kWh. The electric Ford F150 has a capacity of 110-130 kWh or 150-180 kWh with extended range.
   Sources:
   https://www.forbes.com/wheels/cars/tesla/model-x/
   https://www.tesla.com/sites/default/files/tesla-model-s.pdf
   https://media.chevrolet.com/media/us/en/chevrolet/vehicles/bolt-ev/2021.tab1.html
   https://www.forbes.com/wheels/news/2022-ford-f-150-lightning-ev-pickup-debuts-300-mile-range-priced-at-40k
2. Builders' websites show the typical two-garage is around 20' x 20'. For example, HWS Garages' website states that "The average 2-car garage size is anywhere from 18' x 20' to 22′ x 22'." While some garages are one-car and some are three-car, a poll conducted by Garage Living shows that 61 percent of garages are two-car. Sources: www.hwsgarage.com/average-garage-sizes/ and www.garageliving.com/blog/home-garage-stats.
3. The average fuel load of a living room is 600 MJ/m. 600 MJ/m^2 is also the business standard in NFPA 557. Sources: Alex Bwalya et al., "A Pilot Survey of Fire Loads in Canadian Homes," National Research Council Canada, March 9, 2004; National Fire Protection Association, "NFPA 557: Standard for Determination of Fire Loads for Use in Structural Fire Protection Design," 2020 Edition, Section 6.1.3.
4. 10,577 MJ (rounded to 10,600 MJ) assumes a small car (2,909 MJ) and large car (7,648 MJ). Sources: Mohd Tohir and Michael Spearpoint, "Distribution analysis of the fire severity characteristics of single passenger road vehicles using heat release rate data," Fire Science Reviews, 2013. Also see M.J. Spearpoint, et. al., "Fire load energy densities for risk-based design of car parking buildings," Case Studies in Fire Safety, 29 April 2015.
5. 3,341 MJ (rounded to 3,300 MJ) is equivalent to half the fuel load items in a typical basement living room. Source: Bwalya, A.C., et. al., "Survey Results of Combustible Contents and Floor Areas in Multi-Family Dwellings," National Research Council Canada, 24 October 2008.
6. 84 MJ/kWh is derived from the estimated fuel load of the gases released by an ESS in thermal runaway (44 MJ/kWh) and the estimated fuel load of the burnable contents

inside the ESS (40 MJ/kWh). 44 MJ/kWh was derived from reviewing several studies referenced below. 40 MJ/kWh was derived from multiplying 2 kg/kWh (a conservative figure for burnable contents inside the ESS – the weight of internal contents for some ESS is 1.0- 1.5 kg/kWh) by 20 MJ/kg (the typical fuel load of a computer). Sources for fuel load of gases: Frederik Larsson, "Toxic fluoride gas emissions from lithium-ion battery fires," Scientific Reports, 30 August 2017; David Sturk et. al., “Fire Tests on E-vehicle Battery Cells and Packs,” Traffic Injury Prevention, 25 February 2015. Sources for kg/kWh weight of internal burnable contents: Tesla, SimpliPhi, and Solaredge. Source for fuel load of a computer: Alex Bwalya et al., "A Pilot Survey of Fire Loads in Canadian Homes," National Research Council Canada, March 9, 2004.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. It clarifies how the maximum thresholds are applied. Allows for more ESS while maintaining a level of safety.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 11
Chapter 27 SEMICONDUCTOR FABRICATION FACILITIES

The SFM proposes to adopt Chapter 27.

To correct the typo in the 2021 Triennial, that was discussed at the Building Standards Commission hearing as an addendum. The determination at the Commission hearing was that Chapter 27 was adopted by the State Fire Marshal (SFM). This proposal is to provide the official rulemaking documents to be filed that reflect the SFM adoption of Chapter 27.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 12
Chapter 33 FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

ITEM 12-1
Section 3305.9

The SFM proposed amendment references a new requirement. A new provision published in the 2021 International Fire Code Section 3305.9 regulates the materials used for construction separations in Type I and II construction. No other types of construction are considered. The materials approved by International Fire Code Section 3305.9 include plastic sheeting. Plastic sheeting is not always appropriate for use as a separation for construction, alteration, or demolition.

The SFM proposed amendment provides a reference to a new SFM proposed amendment containing requirements for construction separations in existing Group I-2 occupancies regardless of type of construction.

Incomplete information and conflicting, inapplicable or incorrect information are a source of confusion for designers, owners and code officials. The proposed SFM amendment is necessary to prevent new provisions published in the International Fire Code that can mislead a code user to believe that a construction separation in a Group I-2 is only necessary if the building is of Type I or Type II construction.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 12-2
Section 3307.2.1 Pipe cleaning and purging

This change coordinates with the change in the definition of flammable gas. Explosive flammable gases do not include Category 1B flammable gases having a burning velocity of 3.9 in/s or less (Low BV). Table 911.1 has been modified accordingly. Category 1B low burning velocity flammable gases are excluded from the explosive flammable gas requirements. A reference to the International Mechanical Code has been added as an exception for the cleaning and purging of flammable gas piping systems requirements. Chapter 11 of the International Mechanical Code includes requirements for cleaning and purging using Category 1B low burning velocity flammable gases.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC) and was successful for the 2024 Edition of the International Fire Code, in the Group A Hearings held virtually in April 2021.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. This code change neither increased nor decreased in the cost of construction. The change clarifies that the requirements in these sections are applicable to Category 1A flammable gases.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 13
Chapter 49 REQUIREMENTS FOR WILDLAND-URBAN INTERFACE AREAS

ITEM 13-1
Sections 4901.1, 4902, 4904.1, 4904.2, 4904.3, 4904.3.1, 4904.3.2, 4905.3

Correct the term Wildland-Urban Interface (WUI) used in the text to correlate with the

definition of WUI. Update the reference to the State Fire Marshal as the agency responsible for designating Fire Severity Zones.

AB-211(2021-2022) Chaptered and Published on September 28, 2022, states that existing law requires the State Fire Marshal to identify areas of the state as moderate, high, and very high fire hazard severity zones based on specified criteria.

Fire Prevention: Moderate and High Fire Hazard Severity Zones (SB 63 (Stern). Requires a local agency to designate moderate and high fire hazard severity zones within 120 days of receiving recommendations from the State Fire Marshal (SFM). This provision also authorizes a local agency, at its discretion, to include areas within its jurisdiction, not identified as moderate and high fire hazard severity zones by the SFM, as moderate and high fire hazard severity zones; and prohibits the local agency from decreasing the level of fire hazard severity zone as identified by the SFM.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 13-2
Section 4911

Adopt a model ordinance that provides for the establishment of very high fire hazard severity zones pursuant to the Government Code Section 51179.

Government Code 51179.

(a) A local agency shall designate, by ordinance, very high fire hazard severity zones in its jurisdiction within 120 days of receiving recommendations from the State Fire Marshal pursuant to Section 51178.

(b) A local agency may, at its discretion, include areas within the jurisdiction of the local agency, not identified as very high fire hazard severity zones by the State Fire Marshal, as very high fire hazard severity zones following a finding supported by substantial evidence in the record that the requirements of Section 51182 are necessary for effective fire protection within the area.

(c) The local agency shall transmit a copy of an ordinance adopted pursuant to subdivision (a) to the State Board of Forestry and Fire Protection within 30 days of adoption.

(d) Changes made by a local agency to the recommendations made by the State Fire Marshal shall be final and shall not be rebuttable by the State Fire Marshal.

(e) The State Fire Marshal shall prepare and adopt a model ordinance that provides for the establishment of very high fire hazard severity zones.

(f) Any ordinance adopted by a local agency pursuant to this section that substantially conforms to the model ordinance of the State Fire Marshal shall be presumed to be in compliance with the requirements of this section.

(g) A local agency shall post a notice at the office of the county recorder, county assessor, and county planning agency identifying the location of the map provided by the State

Fire Marshal pursuant to Section 51178. If the agency amends the map, pursuant to subdivision (b) or (c) of this section, the notice shall instead identify the location of the amended map.

(Amended by Stats. 2021, Ch. 225, Sec. 6. (AB 9) Effective January 1, 2022.)

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 14
Chapter 50 HAZARDOUS MATERIALS

ITEM 14-1
Section 5003.1 Scope

The SFM amendment provides a compliance path between the California Fire Code and NFPA 99 for Group I-2 occupancies to allow for medical gases stored and used for patient care.

Section 5003.1.1 requires that Maximum Allowable Quantities of Hazardous Materials per control area shall be as specified in Tables 5003.1.1(1) through 5003.1.1(4) without exception for Group I-2 occupancies. If hospitals were to comply with the specified Tables, many hospitals would not be able to operate and provide care services in their capabilities to utilize medical gases such as oxygen and nitrous oxide. Hospitals are required to meet federal Joint Commission requirements that utilize NFPA 99 which addresses medical gases without the restrictions that the CFC restricts.

Clearly, application of the CFC with strict enforcement restricts the storage and use of medical gases from being used in a way that is consistent with standardized patient care.

For the number of local fire departments and designated campus fire marshals charged with this enforcement of this requirement, is this practice identified above condoned to provide medical care to citizens of California?

It should be noted that HCAI has stated that it is their expectation that the requirements of CFC relating to Maximum Allowable Quantity's be enforced as published in the CFC. But in discussion with several fire marshals through-out California and in conversation with designated campus fire marshals; no one has been enforcing CFC requirements for maintenance of MAQ's associated with medical gases.

This conflict in code between CFC and NFPA 99 has been brought up to the Division Chief in charge of Fire & Life Safety. Informally, he had recognized the conflict and the need to provide patient care with the decision the designated campus fire marshals may defer to NFPA 99 in lieu of applying the CFC as adopted.

A discussion was made with the Division Chief of Code Development & Analysis regarding this subject matter, and he recognizes the conflict and the impossibilities to provide adequate patient care without access to medical gasses. He does suggest that a code modification should be made to address this issue.

We have concern if the Office of the State Fire Marshal interprets the CFC the way we expect it to be interpreted. This will disrupt patient care and the delivery of care services throughout the health care industry beyond the University of California. Medical facilities need this item addressed and the capability to utilize NFPA 99 for compliance rather than the CFC to provide basic patient care.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 14-2
Table 5003.1.1 (1), Table 5003.1.1 (3), 5003.8.3.5, 5003.8.3.5.4, 5003.11, 5003.11.1, 5003.11.2, 5003.11.1.1, 5003.11.1.1.1, 5003.11.1.1.2, 5003.11.1.1.3, 5003.11.1.1.4, 5003.11.1.1.5, 5003.11.1.1.6, 5003.111.1.1.7, 5003.11.1.1.8, 5003.11.1.1.9, 5003.11.1.1.10, 5003.11.1.1.11, 5003.11.2, Table 5003.11.2, 5003.11.2.1.

This proposal coordinates with the change in the definition of flammable gas.

This proposed change coordinates the requirements for flammable gas with the change in definition to “flammable gas.” The change in definition results in two categories of flammable gas, Category 1A and Category 1B. The existing requirements in the code are based on Category 1A flammable gases. As a result, new requirements had to be developed to regulate Category 1B flammable gases. It should be noted that there is a distinction between Category 1B flammable gas based on the burning velocity. The research on this code change is based on a burning velocity of 3.9 in/s (10 cm/s) or less. Higher burning velocity Category 1B flammable gases are not commercially available, hence there is no means of evaluating their performance. The changes to the table for the higher allowable quantities are for the Category 1B low burning velocity flammable gases. There is no change to the Category 1B high burning velocity flammable gases.

A change is necessary to Tables 5003.1.1(1) and 5003.1.1(3) regarding the maximum allowable quantities for control area. The approach that was taken is like the approach used in the code for other hazardous materials that have different classes or categories based on the hazard level of the material. The current requirements in the tables will continue to apply to Category 1A flammable gases. This requires the addition of the words “Category 1A and Category 1B (High BV)” to be added in front of the term “flammable gas.” The new requirements for "Category 1B (Low BV)" flammable gases are based on a comparative analysis of the hazard of these flammable gases. The approach was to added limitations in the maximum allowable quantity table with a new section added that specifically regulates the requirements for storage in Use Group M and S. It should be noted that other than Use Group H, the predominant storage location of flammable gases is in Use Group M and S buildings. Section 5803.1.1 of the Fire Code will continue to have restrictions on the storage and use of flammable gases in other Use Groups. A new Section 5003.11.2 and Table 5003.11.2 in the Fire Code will add specific requirements for Use Group M and S. A similar Section 414.2.5.3 will be added to the Building Code. In developing these limitations, a comparison of existing requirements was evaluated for other hazardous materials.

The following table provides a comparison between various flammable gases and flammable liquids:

Item	Liquid or Gas	Gas Cat.	Liquid Class	LFL (LEL)	UFL (UEL)	lb per 10,000 cu ft to LFL	Burning Velocity (in/sec)	Heat of Combustion (Btu/lb)	Min. Ignition Energy (mJ)	Deflagration Index K_G (or K_{ST})[c] (100kPa/s)	Auto Ignition Temp.	Flash Point	Basic MAQ
Propane	Gas	1A		2.1	9.6	5.6	17.9	21,638	0.25	100	920°F		150 lb
Acetylene	Gas	1A		2.5	81		50.4	21,500	0.017	1415	581°F		150 lb
Hydrogen	Gas	1A		4	75	2.1	116.5	60,870	0.019	550	932°F		150 lb
Difluoromethane	Gas	1B		14.4	29.9	192	2.6	4,041	65	11	1,198°F		?
2,3,3,3-tetrafluoro-1-propene	Gas	1B		6.2	12.3	188	0.6	4,601	>1000	8	761°F		?
R454B	Gas	1B		11.8	21.5	880	2.5	4,319	100-300		928°F		?
Trans-1,3,3,3-tetrafluoro-1-propene	Gas	2		Note a	Note a	188	0.5	4,601	62,500	9	694°F		Unlimited
Ammonia	Gas	2		16.7	28	292[b]	2.8	8,020	100-300	10	1,204°F		Unlimited
Gasoline	Liquid		IB	1.4	7.6	NG[d]	15	20,400	0.8		536°F	-45°F	120 gallons (756 lb)
Propyl Alcohol	Liquid		IC	2.1	13.5	NG[d]	19.6	13,192	0.65		700°F	77°F	120 gallons (809 lb)
Kerosene	Liquid		II	0.7	5.0	NG[d]	15.7	19,862	20		428°F	110-150°F	120 gallons (816 lb)
Diesel (2-D)	Liquid		II	0.6	7.5	NG[d]		18,900			410°F	126-205°F	120 gallons (816 lb)
Linseed Oil	Liquid		IIIA	-	-	NG[d]		16,800			650°F	200°F	330 gallons (2,558 lb)
Ethylene Glycol	Liquid		IIIB	3.2	15.2	NG[d]	15.7	7,297	1.2		770°F	232°F	13,200 gallons (122,232 lb)
Olive Oil	Liquid		IIIB	-	-	NG[d]	7.8	16,663			815°F	437°F	13,200 gallons (100,452 lb)

Note a. No LFL and UFL at 20°C, flame begins at 28°C, classified as flammable refrigerant A2L when used as a refrigerant.
Note b. Ammonia is toxic at 0.56 pounds per 10,000 cubic feet.
Note c. Deflagration index based on NFPA 68. K_G (K_{ST}) is the maximum rate of pressure increase normalized to the volume in which the rate was measured.
Note d. NG is not germane. Any spill can result in ignition. The grouping is not appropriate for comparison purposes.

A survey was conduct by HARDI to determine the amount of refrigerant gas that is stored in facilities today. That information helped to ascertain the quantity of Category 1B Low BV flammable gas that will be stored as Group A2L refrigerant in the near future.

A study from Japan by Tei Saburi, National Institute of Advanced Industrial Science and Technology, indicates that Category 1B (Low BV) flammable gases are most closely aligned with Category 2 flammable gases. As the chart indicates, Category 2 flammable gas has never been regulated in the MAQ table. While Category 2 flammable gas is identified as unlimited, this value could not be justified for Category 1B (Low BV) flammable gas.

However, when comparing Category 1A to both Category 1B (Low BV) and Category 2 flammable gas, a much higher MAQ can be established for Category 1B (low BV) than Category 1A since the fire hazard from storage is much lower.

An evaluation of various fire tests on Category 1B (Low BV) flammable gas also helped to establish the MAQ. A conservative value of 10,000 pounds of Category 1B (Low BV) flammable gas was established as the maximum for a non-sprinklered control area. Comparing the deflagration index, Category 1B (Low BV) range from 0.5 to 11 percent of the deflagration index of Category 1A flammable gases. The minimum ignition energy varies by as much at 58,000 times. The heat of combustion is between 6 and 19 percent of Category 1B (Low BV). Thus, the value selected is conservative but agreeable to industry.

With the established base maximum, the value for a control area is double for a sprinklered control area. The special requirements for Use Group M and S are also doubled for a non-sprinklered control area. The maximum allowable quantity is double to 40,000 for a sprinklered control area in a use Group M or S. The sprinklered control area

storage maximum can double again when additional floor area is provided in the control area.

The appendices have been updated to correlate with the revisions to the MAQ table. **If the proposal reclassifying 1B Flammable Gases to association with the Group H-3 occupancy classification is successful, Tables 5003.1.1(1) and 307.1(1) will need to be revised so that the "GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED" row says "H-2 or H-3."

This proposal is submitted by the ICC Fire Code Action Committee (FCAC).

Cost Impact: The code change proposal will decrease the cost of construction. This code change reduces the cost of construction. By modifying the maximum allowable quantities for Category 1B flammable gas, the construction costs are lowered. The construction costs for Category 1A flammable gas remain unchanged, neither increased nor decreased in the cost of construction.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 15
Chapter 57 FLAMMABLE AND COMBUSTIBLE LIQUIDS, Section 5704.2

The SFM proposed amendment provides two exceptions when the storage of flammable and combustible liquids in tanks is not regulated by Section 5704.2. In accordance with CFC Sections 5701.2, Item 4 and 605.4, tank storage connected to oil burning equipment is not within the scope of CFC Ch. 57. Flammable and combustible liquid storage tanks inside buildings that are connected to generators and fire pumps in accordance with CFC 605.4.2.are not regulated by CFC Ch. 57.

Section 5704.2 identifies flammable and combustible liquid storage tank requirements located in Ch. 57. There are more specific and less restrictive requirements located in CFC Section 605 that are applicable. Incomplete information and references to inapplicable or incorrect information are a source of confusion for designers, owners, and code officials. Completing such information and including such references assists with the interpretation and understanding of provisions of the code.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 16
Chapter 80 REFERENCE STANDARDS

ITEM 16-1
ASHRAE 15

Adopt the 2022 Edition of ASHRAE 15

Justification:
Assembly Bill (AB) 209[1] requires consideration of adoption of the "most recent versions of consensus safety standards" for the refrigeration and heating, ventilation, and air conditioning (HVACR) sectors into California building codes. The relevant safety standards are developed by nationally-accredited standard setting organizations – the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and Underwriters Laboratories (UL) – and include ASHRAE Standard 15, ASHRAE Standard 34, UL 60335-2-40 and UL 60335-2-89. The latest versions of these standards are ASHRAE 15 (2022)[2], ASHRAE 34 (2022)[2], UL 60335-2-40 Edition 4[3] and UL 60335-2-89 Edition 2.[4] With clear direction from AB 209, it is imperative that California State agencies adopt the latest versions of the safety standards into California building codes.

The International Code Council, which develops the International Mechanical Code (IMC), followed by about 45 states, has adopted the editions of the standards into their 2024 model code publications. The International Association of Plumbing and Mechanical Officials, which develops the Uniform Mechanical Code (UMC), and typically adopted by California has not adopted the latest versions of the safety standards into their 2024 model code. Adopting the latest versions of the safety standards directly into California building codes allows California to align with the rest of the nation rather than lag in technology and safety. Several other states have passed legislation to directly adopt the latest safety standards into their respective building codes.[5]

Benefits
HVACR equipment utilize refrigerants as heat transfer fluids. The refrigerants predominantly in use have high global warming potential (GWP). The GWP of a fluid is a measure of its impact to trap heat and impact the climate relative to carbon dioxide (CO_2). Refrigerants in HVACR equipment have GWPs that are thousands of times that of CO_2. Additionally, they are short-lived climate pollutants (SLCPs) which means they have a disproportionately higher climate impact in the near term and conversely, reducing SLCPs is one of the most effective climate action strategies. The latest HVACR safety standards allow for the use of climate-friendly refrigerants in various applications that were previously not permissible. Adopting the latest safety standards and enabling the use of low-GWP

1 Bill Text - AB-209 Energy and climate change. (ca.gov)
2 Published in October 2022
3 Published in November 2022
4 Published in October 2021. UL Standard | UL 60335-2-89 (shopulstandards.com)
5 Washington legislation - RCW 70A.60.020: Refrigerant substitutes—Limitations—Rule making. (wa.gov); New York legislation - S9405 | New York 2021-2022 | Establishes the "Advanced Building Codes, Appliance and Equipment Efficiency Standards Act of 2022" | TrackBill

technologies will have significant climate benefits.[6]

Recognizing the impact of SLCPs, California has adopted ambitious hydrofluorocarbon (HFC), the most common class of refrigerants currently in use, reduction mandates.[7] CARB regulations for the HVACR sector require the use of climate-friendly refrigerants in various sectors; large commercial and industrial refrigeration systems are required to use refrigerants with a GWP < 150 effective 2022 and air conditioning systems are required to use refrigerants with a GWP < 750 effective 2023-2026 depending on equipment type.[8] The latest safety standards are necessary to allow regulated entities to comply with CARB regulations.

Beyond CARB regulations, there is a national and global HFC phasedown in effect per the Kigali Amendment to the Montreal Protocol.[9] The supply of HFCs used in the HVACR sectors has already become restricted and will be dramatically reduced in the coming years, especially for higher-GWP refrigerants. HVACR equipment provides numerous health and safety benefits to humanity such as cooling during heat waves, access to fresh foods and vaccines to name a few. Enabling the operation of HVACR equipment that relies on lower-GWP refrigerants is critical to preserve these benefits. Without the latest safety standards in place, HVACR equipment with lower-GWP refrigerants cannot be used in California.

Since most states adopt the IMC, the latest HVACR technologies will be available in most of the U.S. Adopting the latest safety standards will allow for the most innovative technologies with the best safety features to also become available in California. Consensus safety standards take several years to develop, are updated continually based on the latest science and safety testing and undergo a comprehensive public review process to ensure that public comments and concerns are addressed before standards are published. California is a world leader when it comes to climate action and adopting safety standards that allow climate-friendly refrigerants is essential for California to continue its environmental leadership.

Who will be affected?
Manufacturers of HVACR equipment will be able to sell the latest innovative climate-friendly technologies in California. Californians will be able to use the latest and most environmentally friendly technologies on the market. By aligning with the rest of the US, manufacturers will be able to produce the same equipment for the nation allowing them to reach economies of scale and keep critical HVACR equipment affordable. Without the adoption of the latest safety standards, HVACR equipment will have to continue using high-GWP refrigerants which will be subject to a severe supply shortage due to the national and global HFC phasedown and costs of HVACR equipment will be higher for Californians.

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6 Staff Report ISOR HFC (ca.gov)
7 Bill Text - SB-1383 Short-lived climate pollutants: methane emissions: dairy and livestock: organic waste: landfills. (ca.gov)
8 Final Regulation Order (ca.gov)
9 The Kigali Amendment (2016): The amendment to the Montreal Protocol agreed by the Twenty-Eighth Meeting of the Parties (Kigali, 10-15 October 2016) | Ozone Secretariat (unep.org)

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 16-2
ASTM E108

Adopt the latest edition of ASTM E108

ASTM E108 is a fire-test-response standard that is used to evaluate roof coverings in both residential and commercial roofing applications for materials used on combustible or noncombustible decks. The evaluation simulates the fire originating outside the building accompanied by wind conditions. The 3 classifications afford different severity of testing parameters and criteria; Class A roof coverings are effective against severe fire test exposures, Class B roof coverings are effective against moderate fire test exposures, and Class C roof coverings are effective against light fire test exposures.

Applicable Products: Roof covering materials, including but not limited to asphalt shingles, sheet roofing, fire-retardant-treated wood shingles and shakes.

Test Procedure: The roof covering material is installed on a test deck to create a roof assembly. The test deck can either be of combustible (plywood or wood boards) or noncombustible (metal, concrete, gypsum) material depending on the intended installation of the product. The test exposure depends on the classification that is being sought by the manufacturer. The test parameters will vary depending on which class is being specified for the evaluation.

There are 6 different test sections that the roof covering can be tested to depending on the type of roof covering and associated characteristics. The sections are: Spread of Flame test, Intermittent Flame test, Burning Brand test, Flying Brand test, Rain test, and Weathering test.

- Roof coverings on combustible decks, other than fire-retardant-treated wood shakes or shingles, shall be subjected to the spread of flame, intermittent flame, and burning brand tests. The flying brand test is only required for these types of decks if there is a potential for the roof covering to break into pieces of flying, flaming brands or particles which continue to glow after reaching the floor. The rain test and weathering tests are only required if the fire-retardant characteristics of the roof covering material has the potential of being adversely affected by water or weather outdoors, respectively.
- Roof coverings restricted to noncombustible decks only require the spread of flame test.
- Roof coverings consisting of fire-retardant-treated wood shakes and shingles shall be subjected to all the test sections: the spread of flame test, intermittent flame test, burning brand test, flying brand test, rain test, and weathering test.

This test procedure utilizes a test apparatus which exposes a roof system to simulated wind conditions and fire sources (test specimen exposure simulates a fire originating from outside environment) by means of an inline blower and either a gas burner or burning

brands. The test apparatus framework incline can be adjusted to different slopes as per the test sponsor's instructions, with the default test slope being 5 inches per horizontal foot. The blower is adjusted to simulate a 12 mile per hour wind condition over top of the roof covering. The gas burner (for intermittent flame, spread of flame, and flying brand tests) is adjusted to 1400°F ± 50°F for Class A and B test exposures or 1300°F ± 50°F for Class C test exposure. The brands for Class A and Class B are constructed from 1-inch-by-1-inch wood strips spaced 1/4 in. The Class A brands are 12 inches by 12 inches by 2¼ inch, and Class B brands are 6 inches by 6 inches by 2¼ inch. Class C brands are 1½-inch-by-1½-inch-by-25/32-inch wood pieces with two 1/8-inch saw kerfs. Class A tests use a single brand, Class B tests use two brands, and Class C tests use 20 brands.

Result: The test results will indicate if the roof covering achieves a classification of A, B, or C. For certification projects the final deliverable will be a listing report and authorization to mark the product. For performance only projects, the final deliverable will be a test report.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 16-3
International Fuel Gas Code

Adopt the International Fuel Gas Code

Many sections in the fire code reference the International Fuel Gas Code. This is a model code standard. The California Mechanical and Plumbing Code do not address all the specific requirements that the IFGC does. The International Code are developed and coordinated together. Without this adoption is leaves gaps in the requirements. By default, enforcement officials and designers must use the standard to adequately install equipment safely.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 16-4
NFPA 13-22

Make corrections to NFPA 13-22 California amendments that were missed during the Triennial. The Sections 8.15.5.1 and 8.15.5.2 were moved from the NFPA 13 2016 edition to the Sections 9.3.6.1 and 9.3.6.2 in the NFPA 13 2022 edition. The California amendment to not adopt those sections was missed during the Triennial rulemaking. This proposal is an erratum to correct that oversight.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 16-5
NFPA 24, 409, 495, 1124, 1221, 1225

Adopt the 2022 edition of NFPA 24 and 409, Adopt NFPA 495, repeal the California amendment to NFPA 1124-17 edition, replace NFPA 1221 with the newest edition of 1225-22.

Adopt the latest edition of the NFPA 24 standard. This corelates with the adoption of the 2022 editions of NFPA 13 and 72.

The latest edition of NFPA 409 is the standard that dictates fire protection in aircraft hangars. And with California (and MANY other states) banning PFAS, PFOS, it's been a huge challenge to find a suitable replacement.

The 2022 edition of NFPA 409 came out with a new provision that can be a huge help for Group II hangars. It allows sprinklers only with NO foam. It would be a huge help if this was adopted sooner than the next triennial to avoid having to file AM&Ms and "re-invent the wheel" since the new Standard now gives another option.

The 2022 edition of NFPA 409 was issued by the Standards Council on 2 October 2021 with an effective date of 22 October 2021. A particularly significant change in the 2022 edition was recognition by the Technical Committee supporting the removal of foam fire suppression systems in Group II hangars due to a multitude of issues including lack of historical data supporting the fuel spill hazard that foam suppression systems were intended to protect. Verbiage approved in NFPA 409 Section 9.1.5 (copied below) permits the use of closed-head automatic fire sprinkler systems for Group II hangars where hazardous operations are not performed:

9.1.5

For the protection of aircraft storage and servicing areas of Group II aircraft hangars where hazardous operations, including but not limited to fuel transfer, welding, torch cutting, torch soldering, doping, hot work (e.g., welding, cutting, brazing, grinding), spray painting, oxygen service, composite repairs, fuel system or fuel tank maintenance, aircraft cabling, wiring changes, or initial electrical system testing, are not performed, a closed-head automatic sprinkler system in accordance with Section 9.2 shall be permitted.

The committee's statement regarding this change was,

"…The requirements for foam in a Group II hangar have not kept pace with the current risk of fire in modern hangar operations and aircraft. The low risk of fuel spill fires in non-hazardous operations hangars warrants modified protection requirements…"

One of the major reasons for the change was based on this research.

University of Maryland report

Phase 1 – 2019 Review of Foam Fire Suppression System Discharges in Aircraft Hangars

Review of Foam Fire Suppression System Discharges in Aircraft

https://www.nata.aero/assets/Site_18/files/NFPA%20409/UMD%20Report%2011-12.pdf

Phase 2 – 2021 UMD Report Focuses on Foam Fire Suppression System Discharges in Aircraft Hangars

UMD Report Focuses on Foam Fire Suppression System Discharges in Aircraft Hangars

https://www.nata.aero/pressrelease/umd-report-focuses-on-foam-fire-suppression-system-discharges-in-aircraft-hangars

NFPA 495 is referenced in several adopted sections in the California Fire Code. The proposal is to adopt the model code reference standard.

NFPA 1124-2017 edition does not have retail sales provisions. The 1124-2006 edition is referenced in the section 5601.1.3 for the retail sales provisions. The SFM will retain the adoption of the 2006 edition for the requirements associated with retail sales of fireworks.

NFPA 1221 replaced with NFPA 1225. As part of the National Fire Protection Association Emergency Response and Responder Safety Document Consolidation Plan (consolidation plan) as approved by the NFPA Standards Council, NFPA 1225 is a combination of Standards NFPA 1061 and NFPA 1221. As part of the Emergency Response and Responder Safety Document Consolidation Plan (consolidation plan) as approved by the NFPA Standards Council, this Standard has been combined into a new consolidated Standard, NFPA 1225. For further information on the current edition of this consolidated Standard, go to NFPA 1225.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

ITEM 16-6
UL 790

Adopt the 9th edition of UL 790

UL 790, 9th Edition, February 18, 2022 - UL Standard for Safety Standard Test Methods for Fire Tests of Roof Coverings

These requirements cover the measurement of the relative fire characteristics of roof coverings exposed to simulated fire sources originating from outside a building on which the coverings are installed. They are applicable to roof coverings intended for installation on either combustible or noncombustible roof decks (see 1.4) when the roof coverings are applied as intended. The following test methods are included:

a) Intermittent-Flame Exposure test;
b) Spread of Flame test;
c) Burning Brand test;
d) Flying Brand test; and
e) Rain test.

Three classes of fire exposure are described.

a) Class A roof coverings that are expected to be effective against severe fire

exposures. Under such exposures, roof coverings of this class afford a high degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brand.

b) Class B roof coverings that are expected to be effective against moderate fire exposures. Under such exposures, roof coverings of this class afford a moderate degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brand.

c) Class C roof coverings that are expected to be effective against light fire exposures. Under such exposures, roof coverings of this class afford a light degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brand.

Tests conducted in accordance with these requirements are intended to demonstrate the performance of roof coverings during the types and periods of fire exposure involved, but are not intended to determine the acceptability of roof coverings for use after exposure to fire. These fire test methods do not provide a basis to compare expected performance under all actual fire conditions, but they do provide a basis for comparison of the response of roof coverings when subjected to fire sources that are described herein.

These test methods address roof coverings used over both combustible and noncombustible decks. A combustible deck is generally constructed using materials that do not comply with the requirements of ASTM E136, such as wood sheathing boards, oriented strand boards (OSB), or plywood. A noncombustible deck is generally constructed entirely of materials that comply with the requirements of ASTM E136, such as metal, concrete, or poured gypsum.

CAC Recommendation:

Enter CAC recommendation(s), if any

Agency Response:

Enter the agency's response to CAC recommendation(s)

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS

Government Code Section 11346.2(b)(3) requires an identification of each technical, theoretical, and empirical study, report, or similar document, if any, upon which the agency relies in proposing the regulation(s).

The SFM did not rely on any technical, theoretical, and empirical study, report, or similar documents outside of those contained in this rulemaking in proposing amendments for the California Building Standards Codes.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS

Government Code Section 11346.2(b)(1) requires a statement of the reasons why an agency believes any mandates for specific technologies or equipment, or prescriptive standards are required.

The SFM believes that the amendments to the code and additional building standards proposed are offered in both a prescriptive and performance base. The nature and format of the code adopted by reference allow for both methods, the following is a general overview of the code proposed to be adopted by reference as well as state modifications:

This comprehensive code establishes minimum regulations for fire prevention and fire protection systems using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new system designs.

This code is founded on principles intended to establish provisions consistent with the scope of a building and fire code that adequately protects public health, safety, and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products, or methods of construction; and provisions that do not give preferential treatment to types or classes of materials, products, or methods of construction.

CONSIDERATION OF REASONABLE ALTERNATIVES

Government Code Section 11346.2(b)(4)(A) requires a description of reasonable alternatives to the regulation and the agency's reasons for rejecting those alternatives. In the case of a regulation that would mandate the use of specific technologies or equipment or prescribe specific action or procedures, the imposition of performance standards shall be considered as an alternate. It is not the intent of this paragraph to require the agency to artificially construct alternatives or describe unreasonable alternatives.

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 and less burdensome to affected private persons than the proposed adoption by reference with SFM amendments. Therefore, there are no alternatives available to the SFM regarding the proposed adoption of this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS

Government Code Section 11346.2(b)(4)(B) requires a description of any reasonable alternatives that have been identified or that have otherwise been identified and brought to the attention of the agency that would lessen any adverse impact on small business.

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 and less burdensome to affected small business than the proposed adoption by reference with SFM amendments. Therefore, there are no alternatives available to the SFM regarding the proposed adoption of this code.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS

Government Code Section 11346.2(b)(5)(A) requires the facts, evidence, documents, testimony, or other evidence on which the agency relies to support an initial determination that the action will not have a significant adverse economic impact on business.

The SFM has determined that this proposed action will not have a significant adverse economic impact on business. The SFM affirms that this rulemaking action complies specifically with the mandates of HSC Sections 13143, 18928, 18949.2(b), 18949(c) and the mandates of the statutory authority of the SFM. Numerous public workshops were held during the per-rulemaking phase of the intervening code cycle and no comments have been made that the proposed changes would have significant statewide adverse economic impact on businesses

Therefore, the SFM has determined that there are minimal facts, evidence, documents, testimony, or other evidence upon which the agency relied to support its initial determination of no effect pursuant to Government Code Section 11346.2(b)(5)(A). The public is welcome to submit any information, facts, or documents either supporting SFM's initial determination or finding to the contrary.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

Government Code Sections 11346.3(b)(1) and 11346.5(a)(10)

The SFM has assessed whether and to what extent this proposal will affect the following:

A. The creation or elimination of jobs within the State of California.
These regulations will not affect the creation, or cause elimination, of jobs within the State of California.

B. The creation of new businesses or the elimination of existing businesses within the State of California.
These regulations will not affect the creation, or cause elimination, of existing businesses within the State of California.

C. The expansion of businesses currently doing business within the State of California.
These regulations will not affect the expansion of business currently doing business within the State of California.

D. The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.
These regulations will update and improve minimum existing building standards, which will provide increased protection of public health and safety, worker safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

Government Code Section 11346.2(b)(5)(B)(i) states if a proposed regulation is a building standard, the initial statement of reasons shall include the estimated cost of compliance, the estimated potential benefits, and the related assumptions used to determine the estimates.

The SFM does not anticipate any increase in cost of compliance with the proposed building standards.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

Government Code Section 11346.2(b)(6) requires a department, board, or commission within the Environmental Protection Agency, the Resources Agency, or the Office of the State Fire Marshal to describe its efforts, in connection with a proposed rulemaking action, to avoid unnecessary duplication or conflicts with federal regulations contained in the Code of Federal Regulations addressing the same issues. These agencies may adopt regulations different from these federal regulations upon a finding of one or more of the following justifications: (A) The differing state regulations are authorized by law and/or (B) The cost of differing state regulations is justified by the benefit to human health, public safety, public welfare, or the environment.

The SFM has determined that this proposed rulemaking action does not unnecessary duplicate or conflict with federal regulations contained in the Code of Federal Regulations that address the same issues as this proposed rulemaking.