

**INITIAL STATEMENT OF REASONS  
FOR PROPOSED BUILDING STANDARDS  
OF THE STATE FIRE MARSHAL  
REGARDING THE 2019 CALIFORNIA BUILDING CODE  
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2  
(SFM 01/19)**

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  
DIVISION II  
SCOPE AND ADMINISTRATION**

**SECTION 110  
INSPECTIONS**

**Section: 110.3.12 (New)**

**Reason:**

The International Code Council (ICC) Ad Hoc Tall Wood Building workgroup (TWB) determined that the proper construction of the fire resistance rating of mass timber structural elements was important enough, as demonstrated in a series of TWB proposals including this one, to warrant a specific requirement to inspect mass timber connections. The proposal complements the other code change submissions (e.g. Chapters, 7 "Fire and Smoke Protection Features", 17 "Special Inspections and Tests", and 23 "Wood"), and recognizes that building officials have the ability to inspect the protection of connections as part of the normal permit inspection process (e.g. footing and foundations, slabs, framing, etc.). The TWB, following input by code officials, did not feel this provision warranted being incorporated into Chapter 17 "Special Inspections and Tests" as this field inspection process did not require any special expertise for inspection nor tools for testing that were outside the capabilities of building officials today. However, the TWB did believe that some form of inspection should take place since the connections of the structural members, and their protection to achieve a fire resistance rating, represent a significant component to the entire design of mass timber buildings.

**Background information:** The ICC Board approved the establishment of an ad hoc committee for tall wood buildings in December of 2015. The purpose of the ad hoc committee is to explore the science of tall wood buildings and to investigate the feasibility and take action on developing code changes for tall wood buildings. The committee is comprised of a balance of stakeholders with additional opportunities for interested parties to participate in the four Work Groups established by the ad hoc committee, namely: Code; Fire; Standards/Definitions; and Structural. For more information, be sure to visit the [ICC website iccsafe.org/codes-tech-support/cs/icc-ad-hoc-committee-on-tall-wood-buildings/](http://iccsafe.org/codes-tech-support/cs/icc-ad-hoc-committee-on-tall-wood-buildings/) (link active and up to date as of 12/27/17). As seen in the “Meeting Minutes and Documents” and “Resource Documents” sections of the committee web page, the ad hoc committee reviewed a substantial amount of information in order to provide technical justification for code proposals.

The TWB believes the package of code change proposal will result in regulations that adequately address the fire and life safety issues of tall mass timber buildings.

California Governor Edmund G. Brown issued Executive Order B-52-18 on May 10, 2018 that became effective immediately. Among other directives, order number 13 charged the State Fire Marshal, the department of Housing and Community Development, the Division of the State Architect, the California Building Standards Commission and the Statewide Health Planning and Development to review the approved Tall Wood Building Proposals of the International Code Council's Ad Hoc Committee on Tall Wood Buildings and shall consider proposing its adoption into the California Building Standards Code in the subsequent intervening code cycle.

To review the [Executive Order B-52-18](#), please visit:

[ca.gov/archive/gov39/wp-content/uploads/2018/05/5.10.18-Forest-EO.pdf](http://ca.gov/archive/gov39/wp-content/uploads/2018/05/5.10.18-Forest-EO.pdf)

The State Fire Marshal initiated a workgroup to evaluate, discuss and make recommendations on the approved ICC Tall Wood Building proposals for adoption to the 2019 Title 24 intervening rulemaking cycle. Invitations were sent out to state agencies, stakeholders, fire service, building officials, interested parties and various industry organizations. The first meeting was held on April 2, 2019 at the State Fire Marshal headquarters at 2251 Harvard Street, Sacramento, CA 95815 from 0900 – 1500. There was a conference line and Skype computer meeting set up to accommodate widespread participation. The workgroup's last meeting was held on August 16, 2019, at which time all comments, presentations from industry, concerns and recommendations to the State Fire Marshal were finalized.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. Since all the code proposals related to Mass Timber products are to address new types of building construction, in theory this will not increase the cost of construction, but rather provides design options not currently provided for in the code. The committee took great care to not change the requirements of the pre-existing construction types, and our changes do not increase the cost of construction using those pre-existing construction types. (ADM35-19)

**Response to Code Advisory Committee (CAC): Approve as Submitted**  
SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Item 2. CHAPTER 2**

**DEFINITIONS**

**SECTION 202**

**DEFINITIONS**

**Definition: Mass Timber (New)**

**Reason:**

Mass Timber: The term “mass timber” is being proposed to represent both the legacy heavy timber (a.k.a. Type IV construction) and the three (3) new construction types that are proposed for Chapter 6 of the IBC. The purpose of creating this term and definition was to establish a single term which represented the various sawn and engineered timber products that are referenced in IBC Chapter 23 (Wood) and in PRG-320 “Standard for Performance-rated Cross-laminated Timber.”

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**Definition: Noncombustible Protection (For Mass Timber) (New)**

**Reason:**

Noncombustible Protection (For Mass Timber): The definition of “Noncombustible Protection (For Mass Timber)” is created to address the passive fire protection of mass timber. Mass timber is permitted to have its own fire-resistance rating (e.g., Mass Timber only) or have a fire resistance rating based on the fire resistance through a combination of the mass timber fire-resistance plus protection by non-combustible materials as defined in

Section 703.5 (e.g., additional materials that delay the combustion of mass timber, such as gypsum board). While it is not common to list a code section number within a definition it was felt necessary in this case to ensure that the user could understand the intent. The protection by a non-combustible material will act to delay the combustion of the Mass Timber.

### **Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation. The proposal is exactly what was approved at the 2021 ICC hearings.

### **Definition: Wall, Load-Bearing**

#### **Reason:**

The modification to the term “load-bearing wall” has been updated to include “mass timber” as a category equivalent to that of masonry or concrete. Based on the research done by the wood trade associations, mass timber walls (e.g. sawn, glued-laminated, cross-laminated timbers) have the ability to support the minimum 200 pounds per linear foot vertical load requirement.

### **The ICC Tall Wood Buildings workgroup (TWB)**

The ICC Tall Wood Buildings workgroup (TWB) was created by the International Code Council (ICC) Board to explore the science of tall wood buildings and act on developing code changes for tall wood buildings. The TWB has created several code change proposals with respect to the concept of tall buildings of mass timber and the background information is at the end of this statement. Within the statement are important links to information, including documents and videos, used in the deliberations which resulted in these proposals.

The TWB and its various work groups held meetings, studied issues and sought input from various expert sources around the world. The TWB has posted those documents and input on its website for interested parties to follow its progress and to allow those parties to, in turn, provide input to the TWB.

### **Performance Objectives**

At its first meeting, the TWB discussed several performance objectives to be met with the proposed criteria for tall wood buildings:

1. No collapse under reasonable scenarios of complete burn-out of fuel without automatic sprinkler protection being considered.
2. No unusually high radiation exposure from the subject building to adjoining properties to present a risk of ignition under reasonably severe fire scenarios.
3. No unusual response from typical radiation exposure from adjacent properties to present a risk of ignition of the subject building under reasonably severe fire scenarios.
4. No unusual fire department access issues.

5. Egress systems designed to protect building occupants during the design escape time, plus a factor of safety.
6. Highly reliable fire suppression systems to reduce the risk of failure during reasonably expected fire scenarios. The degree of reliability should be proportional to evacuation time (height) and the risk of collapse.

The comprehensive package of proposals from the TWB meet these performance objectives. Included in the proposal for Section 602.4 are three new/revised definitions; Wall, Load-Bearing; Mass Timber; and Noncombustible protection (for mass timber). They are important to understanding the subsequent proposed change to Section 602.4.

**Background information:** The ICC Board approved the establishment of an ad hoc committee for tall wood buildings in December of 2015. The purpose of the ad hoc committee is to explore the science of tall wood buildings and to investigate the feasibility and take action on developing code changes for tall wood buildings. The committee is comprised of a balance of stakeholders with additional opportunities for interested parties to participate in the four Work Groups established by the ad hoc committee, namely: Code; Fire; Standards/Definitions; and Structural. For more information, be sure to visit the [ICC website](http://iccsafe.org/codes-tech-support/cs/icc-ad-hoc-committee-on-tall-wood-buildings/) iccsafe.org/codes-tech-support/cs/icc-ad-hoc-committee-on-tall-wood-buildings/ (link active and up to date as of 12/27/17). As seen in the “Meeting Minutes and Documents” and “Resource Documents” sections of the committee web page, the ad hoc committee reviewed a substantial amount of information in order to provide technical justification for code proposals.

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participation. The workgroup's last meeting was held on August 16, 2019, at which time all comments, presentations from industry, concerns and recommendations to the State Fire Marshal were finalized.

**Cost Impact:** The code change proposals will not increase or decrease the cost of construction. (G108-18)

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation. The proposal is exactly what was approved at the 2021 ICC hearings.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Definition: Mechanical-Access Enclosed Parking Garage (New)**

**Reason:**

Enclosed mechanical-access parking garages are being constructed in the United States on an increasing basis, yet there are no prescriptive code requirements for these occupancies. These occupancies are unique from the traditional open mechanical-access parking garage in that there are no openings, the entire structure is enclosed. These occupancies are most like automated high rack storage systems, they have no floors, no stairwells and no above ground level access, except maintenance walkways and ladders. With these being a silent occupancy type, the Building or Fire Code does not provide the code official with prescriptive requirements. There are fires involving parked vehicles with the vehicle parked and the ignition system off. If a fire were to occur in an enclosed mechanical-access parking garage, unless the local code authority required additional fire protection during construction, they do not have a point-setter to code requirements. Where these systems have been installed, there is not a consistent fire protection methodology to protecting these structures from a fire.

An enclosed mechanical-access parking garage offers many firefighting challenges; most are constructed in a building shell, without a floor system. The vehicles are parked in a cage/rack system, with no safe elevated access to the interior of the structure. With

firefighter safety in mind and to have the ability to use fixed fire suppression to extinguish and/or control these fires, the code proposal is presented.

The SFM is proposing a new definition of these occupancies which correlates with the NFPA 88A Standard for Parking Structures document and include all automatic parking systems. Open mechanical-access parking garages are defined in the codes, but do not pose the firefighting challenge as an enclosed mechanical access parking garage. An open parking garage has floors, stairwells, standpipe connections and natural ventilation. An enclosed garage is in a box, no stairwells or floors or standpipes for elevated firefighting, and no ventilation to remove the products of combustion, heat and superheated gases.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This proposal is to provide prescriptive language for enclosed mechanical-access parking garages. These code requirements are being currently enforced as part of a performance-based design when approved and constructed. As the designer and builder will have prescriptive requirements, they will not be required to obtain an Alternative Materials and Methods approval for each project. (G39-18)

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation. The proposal is exactly what was approved at the 2021 ICC hearings.

**[AUTOMATIC PARKING GARAGE 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

202 (New), 406.6.4 (New), 406.6.4.1 (New), 406.6.4.2 (New), 406.6.4.3 (New), 406.6.4.3.1 (New), 406.6.4.4 (New), TABLE 508.4, Table 903.2.11.6

**Definition: Puzzle Room (New)**

**Reason:**

Puzzle rooms are a new business model where people are placed in a room and asked either to find a way out of the room or to find their way to the next room in the puzzle. The rooms are typically small and might otherwise be classified as a B occupancy under the current code. Each of these are designed in a way to provide a unique experience for the customer. This unique design incorporates several possible features to disorient the occupants and/or disguise the exit route. Such a design is contrary to the foundations of code specified exiting provisions. This proposal seeks to establish criteria for puzzle rooms by incorporating them into the special amusement section. Since part of the appeal of this business model is that each experience is different, there is no way to prescriptively handle every situation. The language is generic but gives guidance on providing reliable exiting in an emergency.

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

### **Definition: Special Amusement Area**

#### **Reason:**

While researching this proposal, it was recognized that the special amusement building section needed some updating. The word "building" is changed to "area" and the fire alarm provisions were rewritten to correlate with section 907 of the fire code.

This proposal was heard and approved for the ICC 2021 codes. The SFM is proposing to bring these regulations in California to address the need for public and life safety, as well as give the code officials a tool for enforcement.

#### **Cost Impact**

The code change proposal will increase the cost of construction. Many of these rooms may be classified currently as a B occupancy as they are not specifically called out in the code. As such, there are very little requirements for fire alarm or sprinkler systems. Depending on the size and configuration of the room(s), this provision would increase the cost of construction. (G48-18)

#### **Response to Code Advisory Committee (CAC): Approve as Amended**

SFM agrees with the CAC recommendation. The recommendation of the committee members is to include the addition of the word "or" after each listed example in the definition of Special Amusement Area. This change more closely aligns with the original intent of the paragraph format.

### **[PUZZLE ROOM 2019 INTERVENING PROPOSALS]**

#### **[Associated Sections in Part 2, California Building Code]:**

Table of Contents, 202, Title 411, 411.1, 411.2, 411.3, 411.4, 411.5, 411.6, 411.6.1, 411.7, TABLE 903.2.11.6, 907.2.11, 907.2.11.2, 907.2.11.3, TABLE 1017.2, INDEX

## **Item 3. CHAPTER 3**

### **OCCUPANCY CLASSIFICATION AND USE**

#### **SECTION 306 FACTORY GROUP F**

#### **Section: 306.2**

[Add an additional example to Group F-1 in alphabetical order, after Electronics and before Engines]

#### **Reason:**

Add an additional example to Group F-1 in alphabetical order, after Electronics and before Engines. This proposal is a correlation issue with the CFC Section 1206 Energy Storage Systems (ESS) rewrite. The International Code Council Fire Code Advisory Committee looked at the hazards associated with dedicated use utility type ESS installations covered under the following section and decided that Group F-1 was an appropriate classification. For the most part they will serve the grid scale areas of ESS deployment and large facilities.



California Fire Code section 1206.7.2 Dedicated use buildings. For the purpose of the California Fire Code Table 1206.7 dedicated use ESS buildings shall be classified as Group F-1 occupancies and comply with all the following.

The building shall only be used for ESS, electrical energy generation, and other electrical grid related operations.

Occupants in the rooms and areas containing ESS are limited to personnel that operate, maintain, service, test and repair the ESS and other energy systems.

No other occupancy types shall be permitted in the building.

Administrative and support personnel shall be permitted in areas within the buildings that do not contain ESS, provided:

The areas do not occupy more than 10 percent of the building area of the story in which they are located.

A means of egress is provided from the incidental use areas to the public way that does not require occupants to traverse through areas containing ESS or other energy system equipment.

(Also the administrative support areas are separated from the ESS by a 2-hour fire separation.)

When looking at the group classifications and expected fuel loads the F-1 fits the ESS Dedicated Use Building from that standpoint, especially since Electric Generation Plants are already an F-1 Group. ESS are part of the overall electric generation and storage. If ESS is installed in a building occupied by another group, it will remain that Group and be required to have the increased fire protection features for the space the ESS occupies. That does not change from how the current code addresses ESS.

**Cost Impact:**

The code change proposal will decrease the cost of construction. This proposal provides correlation with an IFC proposal. The proposal will decrease the cost of construction because it will allow larger ESS installations in dedicated use indoor locations to be in Group F-1 occupancies, rather than in H-2 occupancies. (G17-18)

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**[ENERGY STORAGE SYSTEMS 2019 INTERVEING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

306.2, TABLE 414.5.1, TABLE 509, 707.4, TABLE 716.1(2), T ABLE 716.1(3), 716.2.5.4.1 (New), 716.3.2.1.1.1 (New), TABLE 903.2.11.6, [Chapter 35] NFPA 68 (New)

## SECTION 310 RESIDENTIAL GROUP R

### Section: 310.3.1

#### Reason:

The example of Community correction reentry centers is proposed to be deleted from the Residential Group R-2.1 occupancy classification which is no longer applicable. The new R-2.2 occupancy classification was introduced in the 2018 Triennial code cycle for Community Correctional Reentry Centers. This code change is editorial and corrects an error.

**Cost Impact:** There will be no cost increase or decrease.

#### **Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

### **[I-3 OCCUPANCY WORKGROUP 2019 INTERVENING PROPOSALS]**

#### **[Related Sections in Part 2, California Building Code]:**

310.3.1, 408.1.2.2, 408.3.6, TABLE 408.3.13 (New), 408.13, TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 508.4. 435.16 (Renumbered from 510.10), 1004.5, TABLE 1004.5, TABLE 1020.2, 1227.5, 1227.5.2, 1227.6-1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1, 1227.9.2.2, 1227.10-1227.10.7, 1227.12.1, 1227.22.1.1, 1227.23.1, 1230.1.2, 1230.1.4-1230.10, 1230.1.12, 1230.1.16, 1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8, 1230.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8, 1231.3.10, 1231.5, 1231.6-1231.6.7

### Section: 310.5

#### Reason:

This proposed change will correct the number of ambulatory clients. It was never intended to state the strict or exact number of 6 clients. The change also correlates with the fire code definition.

#### **Addendum Reason:**

This proposed addendum change will correct the number of ambulatory clients. It was never intended to state the strict or exact number of 6 clients. The change also correlates with Part 9 the California Fire Code definition.

#### **Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

## Item 4. CHAPTER 4

### SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE

**SECTION 403**  
**HIGH-RISE BUILDINGS, AND GROUP I-2 OCCUPANCIES HAVING OCCUPIED**  
**FLOORS LOCATED MORE THAN 75 FEET ABOVE THE LOWEST LEVEL OF FIRE**  
**DEPARTMENT VEHICLE ACCESS**

**Section: 403 (Title)**

**Section: 403.1**

**Reason:**

The proposed change adds a comma between the term high-rise and group I-2 in the title of section 403 to assist in the delineation between each special occupancy use. High-rise buildings are defined in Health and Safety Code section 13210. Hospitals which are classified in the California Building Code as Group I-2 occupancies are defined in Health and Safety Code section 1250.

The added code reference pointer is added to section 403.1 to emphasize the definition of a high-rise building is driven by statute. A high-rise building as defined by the Health and Safety Code is measured from the lowest floor level having building access. The Group I-2 hospital is measured from the lowest level of fire department access. The key difference is that the fire department access may not always be the lowest level of building access. The intent of the reference is to assist the code user in understanding the difference between a high-rise and Group I-2 hospital when it comes to the starting point for measuring the 75 feet.

For reference the Health and Safety Code section 13210 is provided.  
HEALTH AND SAFETY CODE - HSC

DIVISION 12. FIRES AND FIRE PROTECTION [13000 - 14960]  
*(Division 12 enacted by Stats. 1939, Ch. 60.)*

PART 2. FIRE PROTECTION [13100 - 13263]  
*(Part 2 enacted by Stats. 1939, Ch. 60.)*

CHAPTER 3. High Rise Structures [13210 - 13217]  
*(Chapter 3 added by Stats. 1973, Ch. 946)*

13210.

As used in this chapter:

(a) "Existing high-rise structure" means a high-rise structure, the construction of which is commenced or completed prior to July 1, 1974.

(b) "High-rise structure" means every building of any type of construction or occupancy having floors used for human occupancy located more than 75 feet above the lowest floor level having building access, except buildings used as hospitals, as defined in Section 1250.

(c) "New high-rise structure" means a high-rise structure, the construction of which is commenced on or after July 1, 1974.

*(Amended by Stats. 1974, Ch. 1246.)*

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**Section: 403.3.2**

**Reason:**

This code change proposal is editorial for buildings that are 120' and higher, it was added as part of the TWB workgroup. This added protection feature is already a requirement in California. Due to the limitations of fire service aerial apparatus' ability to apply water to elevated floors the 120' is an appropriate height to initiate the requirement. Considerations were also given to the difficulty of fire service companies accessing elevated floors under fire conditions.

This requirement was adopted due to the recognized importance of insuring a continuous water supply to the active fire protection systems in the event of a fire in these structures. This recommendation was highlighted in the National Institute of Standards and Technology's (NIST) report on the structural collapses on September 11, 2001.

The SFM proposal provides further clarity that all buildings of all construction types that are 120' and higher are required to have continuous water supply to insure the reliable performance of active and passive protection features to insure the safety of occupants and responding fire fighters.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (G28-18)

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3,

3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

## **SECTION 404 ATRIUMS**

### **Section: 404.6**

#### **Reason:**

State Fire Marshal SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) are proposing an amendment to 404.6. The 2018 International Building Code includes a new Section 404.6, Exception 4. The proposed change identifies that exception 4 is not applicable to Group I and R-2.1 occupancies. The proposed change coordinates the new exception with the requirements of California Building Code Section 404.5. Because, Section 404.5 requires that Group I and R-2.1 occupancies must have a smoke control system, Exception 4 should not apply to Group I and R-2.1 occupancies. This proposed amendment does not establish a new requirement.

#### **Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

### **[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSALS]**

#### **[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1

## **SECTION 406 MOTOR-VEHICLE-RELATED OCCUPANCIES**

### **Section: 406.2.1**

#### **Reason:**

Senate Bill 969 (Chapter 621, Statutes of 2018) required backup batteries for garage door openers as of January 1, 2019. SB 969 amended HSC section 19891 which is already referenced in Section 406.3.6 (2019 CBC), however, also added new Section 19892 related to the sale and installation of garage door openers and replacement garage doors connected to existing openers without a backup battery. These amendments are for the purpose of informing the code user of the latest California garage door opener requirements. Due to the operative date of the legislation and the status of the 2018 Triennial Code Adoption Cycle, these changes are being proposed for the 2019 Intervening Code Adoption Cycle. The provisions of Section 19892 may result in some functional garage door openers being replaced with new garage door openers with battery backup when garage doors are replaced. The cost of installing a new garage door opener may range from \$250 to \$500 depending on model and cost of labor, however, the number of needed replacement garage door openers cannot be determined on a statewide basis. In addition, the replacement has been statutorily required since January 1, 2019, and the proposed regulations are not proposing a new mandate, separate from or in addition to, the statute.

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**Section: 406.6.4 (New)**

**Reason:**

Enclosed mechanical-access parking garages are being constructed in the United States on an increasing basis, yet there are no prescriptive code requirements for these occupancies. These occupancies are unique from the traditional open mechanical-access parking garage in that there are no openings, the entire structure is enclosed. These occupancies are more similar to automated high rack storage systems, they have no floors, no stairwells and no above ground level access, except maintenance walkways and ladders. With these being a silent occupancy type, the Building or Fire Code does not provide the code official with prescriptive requirements. There are fires involving parked vehicles with the vehicle parked and the ignition system off. If a fire were to occur in an enclosed mechanical-access parking garage, unless the local code authority required additional fire protection during construction, they do not have a point-setter to code requirements. Where these systems have been installed, there is not a consistent fire protection methodology to protecting these structures from a fire.

An enclosed mechanical-access parking garage offers many firefighting challenges; most are constructed in a building shell, without a floor system. The vehicles are parked in a cage/rack system, with no safe elevated access to the interior of the structure. With firefighter safety in mind and to have the ability to use fixed fire suppression to extinguish and/or control these fires, the code proposal is presented.

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**Section: 406.6.4.1 (New)**

**Reason:**

406.6.4.1 is added to require a minimum 2-hour fire separation between these occupancies and other uses. If a fire were to occur in the occupancy, partitioning is needed to protect adjoining occupancies and other uses until the fire can be contained by the sprinkler system and mechanical ventilation.

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**Section: 406.6.4.2 (New)**

**Reason:**

406.6.4.2 A smoke removal system is being proposed mitigate the intense smoke and heat that may occur during a very large fire, taking in to consideration the plastics and fuels that may contribute to the extremely hot toxic fire.

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**Section: 406.6.4.3 (New)**

**Reason:**

406.6.4.3 The fire control equipment room is intended to be housed within a defined space. The size of the room is defined to have a minimum of 50 square feet. This dimension was derived by comparing the language and use of an emergency response area used in the California Building Code for L occupancy for supplies and equipment. The room is not intended to be used for fire suppression command and control use. The room is designed to only operate fire protection systems.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The proposal was modified to include an exception for when a fire command center is provided, the fire control equipment room would not be required. This addresses the committee's concern on conflicting requirements for high-rise structures or buildings that may already have a fire command center.

**Section: 406.6.4.3.1 (New)**

**Reason:**

406.6.4.3.1 The emergency shut down switch has been clarified to what the function is intended to achieve. The section number is a subsection of the fire control equipment room for code user ease.

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**Section: 406.6.4.4 (New)**

**Reason:**

406.4.4.4 Fire Department access is a critical component of firefighting operations. The proposal gives the minimum access for fire department response. With the similarities between mechanical-access enclosed parking garages and high-pile rack storage systems, the demand for fire fighter access requirements are comparable. To achieve consistency within the code for fire fighter access the reference to section 3206.7 has been added.

**Cost Impact:** The code change proposal will decrease the cost of construction. This proposal is to provide prescriptive language for enclosed mechanical-access parking garages. These code requirements are being currently enforced as part of a performance-based design when approved and constructed. As the designer and builder will have prescriptive requirements, they will not be required to obtain an Alternative Materials and Methods approval for each project. (G39-18)

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**[AUTOMATIC PARKING GARAGE 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

202 (New), 406.6.4 (New), 406.6.4.1 (New), 406.6.4.2 (New), 406.6.4.3 (New),  
406.6.4.3.1 (New), 406.6.4.4 (New), TABLE 508.4, Table 903.2.11.6

**SECTION 407**  
**GROUP I-2 AND GROUP I-2.1**

**Section: 407 (Title)**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed change to the title of CBC Section 407 to indicate that the section includes requirements for both Group I-2 and Group I-2.1 occupancies.

The proposed change does not establish a new requirement. The proposed change properly identifies the scope of Section 407 which also includes requirements for Group I-2.1. Group I-2.1 is not included in the title of International Building Code Section 407. Group I-2.1 is an occupancy group unique to the California Building Code.

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**Section: 407.1.1**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed change to CBC Section 407.1.1 clearly identifying the types of construction where mental health patients who are restrained are permitted to be housed in a Group I-2 occupancy.

The change CBC Section 407.1.1 is to clearly indicate that when mental health patients are restrained in a Group I-2 occupancy, such patients shall be housed in buildings of Type IA or Type IB construction. Prior to publication of the July 1, 2018 CBC Supplement, the restraint of patients was permitted only in a Group I-3 occupancy. The proposed change is consistent with the construction requirements for a Group I-3 occupancy.

The proposed change reformats the existing CBC Section 407.1.1 as an exception. The reformatted exception continues to permit the restraint of patients housed in one-story buildings of Type IIA, Type IIIA or Type VA construction without change.

The proposed change does not establish a new requirement. The proposed change affirms that the restraint of patients in Group I-2 occupancies of Type IA and IB construction is permitted.



**Addendum reason:**

Type IA construction is being proposed to be added to the list of permitted construction for I-2 occupancies with mental health patients. Stakeholders have pointed out this oversight as Type IA is the most restrictive construction type and was always intended to be included in the list. This will help code readers, code enforcement and designs better understand the intent.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The comment from the committee was to include Type IV-A, Type IV-B and Type IV-C as allowable construction types. OSHPD and SFM will evaluate the use of the new construction types for the 2022 Triennial.

**Section: 407.4.4.3**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed change to California Building Code (CBC), Section 407.4.4.3 is to remove a conflict with regulations and national standards regulating health care facilities and eliminate confusion between conflicts in the California Building Code.

The 2018 IBC, Section 407.4.4.3, contains an exception permitting an increase in the distance of travel for care suites from 100 feet to 125 feet when an automatic detection system is provided throughout a care suite. The SFM is proposing to delete the exception to IBC Section 407.4.3.3. The 2012, 2015 and 2018 editions of NFPA 101 LSC limit the travel distance in patient care suites to not more than 100 feet. The IBC exception to Section 407.4.3.3 conflicts with NFPA 101 LSC Sections 18.2.5.7.2.4 (A) and 18.2.5.7.3.4 (A).

The 2018 CBC exception to Section 407.4.3.3 also conflicts with the CBC exception to Section 407.4.4.3.2 which permits 100 feet of travel distance when the I-2 fire area is protected by fire sprinklers and an automatic smoke detection system is provided throughout a patient care suite. The IBC exception to Section 407.4.3.3 creates confusion when attempting to design and comply with care suite requirements. The IBC exception to Section 407.4.3.3 is a new provision in the IBC. In the published edition of the IBC the exception is not identified as a change to the IBC.

The proposed change will allow the travel distance in care suites to continue to comply with requirements contained in other standards and with other provisions of the California Building Code. The proposed change eliminates conflicts that otherwise create a potential for project delays and increased construction cost.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 407.4.4.5**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed change to the California Building Code (CBC) Section 407.4.4.5 is to remove a conflict between the CBC and other regulations and national standards regulating health care facilities.

The 2018 IBC Section 407.4.4.5, Item 1 contains a reference to care suites containing more than eight care recipient beds. The proposal is to delete Item 1. California amendment Section 1224.29.1.1 permits as many as twelve patient care beds in a care suite. The eight-bed limitation has its origin with the NFPA Life Safety Code. The 2000 NFPA 101 LSC included the 8 bed criteria within Sec. 18.2.5. Arrangement of Means of Egress. In current editions of the NFPA 101 LSC, the eight-bed limitation for a suite is no longer a requirement or an alternative for direct and constant supervision. Compliance with the current 2018 CBC Section 407.4.4.5, Item 1 is in conflict with NFPA 101 LSC requirements.

The proposal to adopt IBC Section 407.4.4.5, Item 3 with additional amendments. IBC Section 407.4.4.5, Item 3 permits automatic smoke detectors in patient sleeping rooms in suites as an alternative to direct and constant supervision. California amendment Section 1224.29.1.3 requires patient rooms in suites include a means to provide visual privacy. The provisions of IBC Section 407.4.4.5, Item 3 are consistent with NFPA 101 LSC requirements. The provisions of the IBC and NFPA 101 are predicated on new construction protected by automatic sprinklers. Numerous projects involving care suites occur within existing facilities that may not be protected by automatic sprinklers, therefore, the proposal to amend CBC Section 407.4.4.5, Item 3 to include fire sprinkler protection. The proposal is to include a reference to CBC Section 907.2.6.2.2, Item 1. This section does not change the requirements for the installation of patient room smoke detectors in care suites.

The item numbers of CBC Section 407.4.4.5 are renumbered to accommodate the proposal.

The proposed changes will allow for the arrangement of care suites to coordinate with requirements for patient privacy, accommodate the floor area and patient capacity provisions for care suites and comply with requirements contained in other standards.

### **Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

#### **Section: 407.4.4.5.1**

##### **Reason:**

The change is errata; the initial proposal was submitted and approved for the 2015 Triennial Rulemaking as a series of proposals in Section 407.

Rationale from 2015 rulemaking:

407.4.4.3, 407.4.4.3.1, 407.4.4.3.2, 407.4.4.5, 407.4.4.5.1, 407.4.4.5.2, 407.4.4.5.3,

#### 407.4.4.6, 407.4.4.6.1 and 407.4.4.6.2

SFM is proposing to modify model code and to carry forward existing amendments for care suites. These provisions address exit access through intervening rooms to limit the travel distance to the suite boundary when passing through more than one intervening room; moves a model code requirement for an automatic smoke detection system to the specific section where special allowances apply; addresses situations where existing, non-sprinklered facilities constructed prior to 1972 may continue to have and remodel existing suites; relocates and adopts model code provisions allowing sleeping room suites to be increased to 7,500 sq. ft. or 10,000 sq. ft. where sprinklers and/or automatic smoke detection systems are installed; and carries forward an amendment that limits the travel distance in sleeping room suites to 100 feet. These provisions are intended to balance the provisions that allow non-rated exit access corridor construction with requirements for increased surveillance of the areas by trained facility staff who can take an immediate action in the event of a fire.

SFM proposes not to adopt model code which would allow treatment room suites to have areas up to 15,000 sq. ft.; healthcare facilities that receive federal reimbursement from the Centers for Medicare and Medicaid Services (CMS) are required to comply with the Life Safety Code as a condition of participation. NFPA specifically refused to adopt proposed code language in NFPA 101 allowing these area increases. If the California codes do not correlate with the Life Safety Code, conflicts with California Department of Public Health and the Joint Commission for Accreditation of Healthcare Organizations enforcing CMS provisions will occur.

#### **Addendum Reason:**

The change is errata; the initial proposal was submitted and approved for the 2015 Triennial Rulemaking as a series of proposals in Section 407.

#### **Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

#### **Section: 407.9**

##### **Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed change deletes model code requirements for automatic fire detection that conflict with California amendments regulating automatic fire detection requirements located in CBC Section 907.2.6.2.2 and California Fire Code Section 907.2.6.2.2. The proposed change includes a reference to CBC Section 907.2.6.2.2.

The model code language was not included in the 2016 CBC, however; it was mistakenly included in the 2016 CBC, July 01, 2018, Supplement. The proposed change corrects this error.

#### **Addendum reason:**

California amendment has deleted the definition of I-2 condition 1 and 2 from Section

308.3. The reference in the text to conditions are not relevant as they are not defined in the California Building Code.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The proposal was modified to smoke detection to make the intent clear for the code user.

**Section: 407.11**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed change to CBC Section 407.11 is to delete the adoption of the essential electrical system requirements of NFPA 99 and to reference requirements of the California Electrical Code provisions for health care facilities that are already adopted. CBC Section 407.11 requires electrical components of essential electrical systems in Group I-2 occupancies be in accordance with the provisions of Chapter 27 and NFPA 99. The California Electrical Code contains numerous amendments that modify not only essential electrical systems but also other electrical construction and installation requirements for health care facilities. These amendments are not included in NFPA 99. The proposal to amend CBC Section 407.11 to delete requirements for compliance with NFPA 99. The proposed language requires compliance with provisions for electrical construction and installation in health care facilities in accordance with Article 517 of the California Electrical Code. The proposed language does not alter the CBC reference to Chapter 27 which adopts the California Electrical Code.

The proposed change does not alter existing requirements. The proposed language eliminates a reference to an NFPA standard that is specific to only essential electrical systems and does not include California amendments that modify health care facility electrical provisions. Requiring the designer and code enforcer to comply with NFPA 99 results in incomplete and inaccurate information. The proposed change replaces the CBC reference to NFPA 99 with a reference to an article in the California Electrical Code that contains existing California amendments pertaining to health care facility electrical construction and installation.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 407.12 (New)**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed change to the CBC adding a new Section 407.12 requiring a fire separation

for a technology equipment center in a hospital. This is a new use identified elsewhere in the CBC. The proposed change places a fire separation requirement in the CBC while coordinating with an existing requirement located in the California Electrical Code (CEC). CBC Section 1224.5.2 published in the July 1, 2018 CBC Supplement identifies and establishes requirements for providing a technology equipment center located in a hospital building. CBC Section 1224.5 requires a technology equipment center comply with the California Electrical Code. Provisions for a technology equipment center are in CEC Article 645. The SFM adopts the entire CEC Article 645. CEC Section 645.4(5) requires a technology equipment center be separated from other occupancies by fire-resistant-rated walls, floors, and ceilings with protected openings. However, CEC Section 645.4(5) does not specify a fire-resistance rating for the required separation. For further information on room construction requirements, CEC Section 645.4(5) contains an informational note with a reference to NFPA 75-2013, *Standard for the Protection of Information Technology Equipment*. Neither the SFM nor the IBC adopt NFPA 75.

The proposed change does not establish a new requirement. The proposed change includes an existing CEC fire separation requirement. The SFM is proposing to change the CBC to include a requirement for a specific minimum one-hour fire resistant-rated separation for a technology equipment center serving a Group I-2 occupancy. Requiring a specific fire protection rating eliminates confusion, avoids a potential for requiring or providing a greater fire separation than is necessary in a hospital and places a fire separation requirement in the CBC.

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1

**SECTION 408  
GROUP I-3**

**Section: 408.1.2.2**

**Reason:**

408.1.2.2 This code section did not properly address Type I construction requirements. The word “and” made the regulation inclusive of both a housing unit and suite, which was not the intent. The word “and” was changed to “or” because this section also applies to detention areas other than or outside a housing unit. Number 4 criteria was added to address evolving industry standards which include program suites within detention environments, and to clarify that the construction requirements are covered by this code section. The benefit of this change is to provide clear and consistent direction for stakeholders.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 408.3.6**

**Reason:**

408.3.6 The code section language was inconsistent with the requirements of section 1028.5. The 2016 Intervening rulemaking code cycle change to section 1028.5 for 7 square feet per person to access the public way, was to allow for the practice of inmates in the prone position during emergencies in the areas of evacuation. The benefit to the change is to remove the conflict and correlate with the changes to 1028.5.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: TABLE 408.3.13 (New)**

**Reason:**

Table 408.3.13 is proposed to clarify the occupancy load factor to be used during the review of I-3 facilities, which include housing pods, refuge areas, safe dispersal areas as well as holding cells, and bench seating. Chapter 10, Table 1004.5 does not clearly list any occupant load factor for these functions of space that are unique to the I-3 facilities regulated by Chapter 4. This code change proposal is to address the need for a concise location for evaluating the exiting requirements based on occupant load factor for I-3 functions of space, which are scattered throughout the regulations in Chapter 4. The table format is a tool to bring all the different section requirements in one place for code user ease. By using a standard occupant load factor, the code user can then easily and consistently determine which condition is required to be met. The intent of the proposal is to give the code user a tool for calculating the number of required exits within a detention facility that may not otherwise be clear. A footnote reference is added to Table 1004.5 to point to Table 408.3.13 for these special functions of space.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 408.13**

**Reason:**

408.13 The state agency for the Department of Corrections and Rehabilitation (CDCR) name has been updated to include the term Rehabilitation to this section.

The design criteria guidelines manual for security glazing products has been corrected to the most recent reference. This Standard supersedes CDCR 860 standards for security glazing products and is subject to revision at any time. CDCR takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in the Standard. Users of this Standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility. Appendix H covers requirements for determination of the suitability of an individual glazing product produced by an individual manufacturer for use as Security Glazing by CDCR.

The change provides the code user with the most current information when evaluating design criteria.

**Cost Impact:** There will be no cost increase or decrease to construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[I-3 OCCUPANCY WORKGROUP 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

310.3.1, 408.1.2.2, 408.3.6, TABLE 408.3.13 (New), 408.13, TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 508.4, 435.16 (Renumbered from 510.10), 1004.5, TABLE 1004.5, TABLE 1020.2, 1227.5, 1227.5.2, 1227.6-1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1, 1227.9.2.2, 1227.10-1227.10.7, 1227.12.1, 1227.22.1.1, 1227.23.1, 1230.1.2, 1230.1.4-1230.10, 1230.1.12, 1230.1.16, 1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8, 1230.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8, 1231.3.10, 1231.5, 1231.6-1231.6.7

**SECTION 411  
SPECIAL AMUSEMENT BUILDINGS AREAS**

**Section: 411 (Title)**

**Reason:**

Puzzle rooms are a new business model where people are placed in a room and asked either to find a way out of the room or to find their way to the next room in the puzzle. The rooms are typically small and might otherwise be classified as a B occupancy under the current code. Each of these are designed in a way to provide a unique experience for the customer. This unique design incorporates several possible features to disorient the occupants and/or disguise the exit route. Such a design is contrary to the foundations of code specified exiting provisions. This proposal seeks to establish criteria for puzzle rooms by incorporating them into the special amusement section. Since part of the appeal of this business model is that each experience is different, there is no way to prescriptively handle every situation. The language is generic but gives guidance on providing reliable exiting in an emergency. While researching this proposal, it was recognized that the special amusement building section needed some updating. The word "building" is changed to "area" and the fire alarm provisions were rewritten to correlate with section 907 of the fire code.

**Section: 411.1**

**Reason:**

This proposal was heard and approved for the ICC 2021 codes. The SFM is proposing to bring these regulations in California to address the need for public and life safety, as well as give the code officials a tool for enforcement.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM addressed the committee comments to include some editorial corrections, to address the meaning of temporary, and an alternate may be determined by the authority having jurisdiction. The corresponding Part 9, California Fire code section is 914.7.

**Section: 411.2**

**Reason:**

Section 411.2 gives specific criteria for the requirement of sprinklers in the special amusement areas where the building may not have been equipped with sprinklers prior to establishing the business. Many of the business models of puzzle or escape rooms have been classified as a B occupancy. The code proposal is a minimum sprinkler requirement for the safety of the public in these places of amusement. An exception of sprinklers is given for a minimal floor area and an exit within 50 feet, to accommodate to small businesses and not be over restrictive when there is a reasonable safety of life safety.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM addressed the committee comments to include some editorial corrections, to address the meaning of temporary, and an alternate may be determined by the authority having jurisdiction. The corresponding Part 9, California Fire code section is 914.7.1.

**Section: 411.3 (New)**

**Reason:**

Section 411.3 correlates fire alarm requirements for smoke detection in the California Fire Code and cleans up the existing code language in section 411.4.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM addressed the committee comments to include some editorial corrections, to address the meaning of temporary, and an alternate may be determined by the authority having jurisdiction. The corresponding Part 9, California Fire code section is 914.7.2.

**Section: 411.4**

**Reason:**

The benefits of early smoke detection are that it gives people a chance to get out of the building before they smell or see smoke and it allows for the fire department to respond quicker to a fire incident.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM addressed the committee comments to include some editorial corrections, to address the meaning of temporary, and an alternate may be determined by the authority having jurisdiction.



**Section: 411.5**

**Reason:**

Section 411.5 is renumbered to 411.4 as the existing language of 411.4 is proposed to be incorporated into section 411.3 to correlate with section 907 of the California Fire Code. The corresponding Part 9, California Fire code section is 914.7.3.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 411.6**

**Reason:**

Section 411.6 emphasizes that exiting requirements shall comply with Chapter 10. These puzzle or escape rooms are not allowed to have any locking devices installed, which is what the strategy of the business model would like to do. Locking the doors creates an unsafe condition for the public safety of the users. An alternative design proposal is added to give the local authority having jurisdiction a tool to accept a condition that may be acceptable to allow the business to operate in a safe matter.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM addressed the committee comments to include some editorial corrections, to address the meaning of temporary, and an alternate may be determined by the authority having jurisdiction.

**Section: 411.7**

**Reason:**

Sections 411.6 and 411.7 have proposed changes to correlate with the concept of the special amusement area. The proposal creates consistency within the code.

**Cost Impact:**

The code change proposal will increase the cost of construction. Many of these rooms may be classified currently as a B occupancy as they are not specifically called out in the code. As such, there are very little requirements for fire alarm or sprinkler systems. Depending on the size and configuration of the room(s), this provision would increase the cost of construction. (G48-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[PUZZLE ROOM 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

Table of Contents, 202, Title 411, 411.1, 411.2, 411.3, 411.4, 411.5, 411.6, 411.6.1, 411.7, TABLE 903.2.11.6, 907.2.11, 907.2.11.2, 907.2.11.3, TABLE 1017.2, INDEX

**SECTION 414  
HAZARDOUS MATERIALS**

## Section: TABLE 414.5.1

### Reason:

The addition of energy storage system (ESS) requirements into the 2018 code was an initial effort to address safety hazards associated with the increased use of lithium-ion batteries, capacitors and other modern energy storage system (ESS) technologies for an expanded number of grid related energy storage applications. The new requirements were a huge step toward addressing modern ESS technologies and grid based applications. However as written the requirements made it difficult to apply appropriate safety requirements for different installations, each with their own risks and exposures. Case in point, a lead acid battery ESS installation in an unmanned rural telecommunications repeater doesn't present the same risks and exposures as a lithium ion battery ESS installation in a mixed occupancy high rise in an urban area.

Since the 2018 ESS requirements were developed there has been a lot of work done by private and government stakeholders to enhance ESS installation requirements, including the initial drafting of the NFPA 855 Energy Storage System standard. The ICC Fire Code Action Committee's ESS work group, which includes 45+ code officials, manufacturers, users and industry experts identified several areas in the 2018 code that needed to be addressed to provide requirements that better address the hazards and exposures associated with various types of ESS installations, technologies and operations.

The footnote added to Table 414.5.1 gives the building code user a reference pointer to the appropriate section in the California Fire Code.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. (F203-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

### **[ENERGY STORAGE SYSTEMS 2019 INTERVEING PROPOSALS]**

#### **[Associated Sections in Part 2, California Building Code]:**

306.2, TABLE 414.5.1, TABLE 509, 707.4, TABLE 716.1(2), T ABLE 716.1(3),  
716.2.5.4.1 (New), 716.3.2.1.1.1 (New), TABLE 903.2.11.6, [Chapter 35] NFPA 68  
(New)

## **SECTION 435**

### ***SPECIAL PROVISIONS FOR LICENSED 24-HOUR CARE FACILITIES IN A GROUP R-2.1, R-3.1, R-4 [SFM]***

## Section: 435.16

### Reason:

Section 435.16 is being proposed to be relocated and renumbered from section 510.10. The California amendment as currently written in chapter 5 conflicts with the new occupancy classification for R-2.2. With the creation of the R-2.2 occupancy in the 2018 Triennial rulemaking code cycle, the code section limits the height, area and type of

construction, which was not the intent. The R-2.2 occupancy was created by legislation SB112 (2018). The section creates confusion. The benefit of moving the section and adding the specific occupancy groups, is that it complies with statute.

Section 435 is the more appropriate location for this regulation. Section 435 is where the provisions of the HSC 13131.5 limit the height and type of construction of non-ambulatory clients or protective social care housing. The proposed relocation and adding the applicable code sections clarifies the intent of which occupancies have construction type and height restrictions.

**For reference:**

**Health and Safety Code Section 13131.5**

**(a)**

All of the following building standards shall apply to any single-story building housing non-ambulatory persons which is operated as a residential care facility for the elderly and licensed to care for more than six persons:

- (1) The entire building shall have installed a State Fire Marshal approved fully automatic fire extinguishing system, designed and installed in accordance with Section 2-3801(d) of Chapter 2-38 of Part 2 of Title 24 of the California Code of Regulations.
- (2) The entire building shall have installed a State Fire Marshal approved and listed manual fire alarm system.
- (3) The entire building shall be of at least Type V one-hour fire resistive construction, as described in Chapter 2-22 of Part 2 of Title 24 of the California Code of Regulations.
- (4) A building with individual floor areas over 6,000 square feet per floor shall have an approved smoke barrier dividing the floor approximately in half, unless there is direct exiting available from each dwelling unit.

**(b)**

All of the following building standards shall apply to any two-story building housing non-ambulatory persons on a second floor, which is operated as a residential care facility for the elderly and licensed to care for more than six persons:

- (1) The entire building shall have installed a State Fire Marshal approved fully automatic fire extinguishing system, designed and installed in accordance with Section 2-3801(d) of Chapter 2-38 of Part 2 of Title 24 of the California Code of Regulations.
- (2) The entire building shall have installed a State Fire Marshal approved and listed automatic fire alarm system.
- (3) The entire building shall be of at least Type V one-hour fire resistive construction, as described in Chapter 2-22 of Part 2 of Title 24 of the

California Code of Regulations.

(4) A building with individual floor areas over 6,000 square feet per floor shall have an approved smoke barrier dividing the floor approximately in half, without regard to whether direct exiting is available from each dwelling unit.

(5) The entire building shall have at least two sets of enclosed stairways.

**(c)**

All of the following building standards shall apply to any multistory building housing non-ambulatory persons on the third, fourth, or fifth floor, which is operated as a residential care facility for the elderly and licensed to care for more than six persons:

(1) The entire building, unless otherwise exempt pursuant to subdivision (d) of Section 13113, shall have installed a State Fire Marshal approved fully automatic fire extinguishing system, designed and installed in accordance with Section 2-3801(d) of Chapter 2-38 of Part 2 of Title 24 of the California Code of Regulations.

(2) The entire building shall have installed a State Fire Marshal approved and listed automatic fire alarm system.

(3) The entire building shall be of Type II fire resistive construction, as described in Chapter 2-19 of Part 2 of Title 24 of the California Code of Regulations.

(4) A building with individual floor areas over 6,000 square feet per floor shall have an approved smoke barrier dividing the floor approximately in half, without regard to whether direct exiting is available from each dwelling unit.

(5) The entire building shall have at least two sets of enclosed stairways.

**(d)**

All of the following building standards shall apply to any multistory building housing non-ambulatory persons on floors above the fifth floor, which is operated as a residential care facility for the elderly and licensed to care for more than six persons:

(1) The entire building, unless otherwise exempt pursuant to subdivision (d) of Section 13113, shall have installed a State Fire Marshal approved fully automatic fire extinguishing system, designed and installed in accordance with Section 2-3801(d) of Chapter 2-38 of Part 2 of Title 24 of the California Code of Regulations.

(2) The entire building shall have installed a State Fire Marshal approved and listed automatic fire alarm system.

(3) The entire building shall be Type I fire resistive construction, as described in Chapter 2-18 of Part 2 of Title 24 of the California Code of Regulations.

(4) A building with individual floor areas over 6,000 square feet per floor shall have an approved smoke barrier dividing the floor approximately in half, without regard to whether direct exiting is available from each dwelling unit.

(5) The entire building shall have at least two sets of enclosed stairways.

**(e)**

This section and the regulations adopted by the State Fire Marshal pursuant to subdivision (f) shall apply uniformly throughout the state and no city, county, city and county, or district shall adopt any ordinance, rule, or regulation which is inconsistent with this section or with the regulations adopted by the State Fire Marshal pursuant to subdivision (f).

(f) The State Fire Marshal shall adopt regulations establishing a reasonable fee, not to exceed the actual costs of inspection to the agency conducting the inspection, for the final inspection of any facility which is subject to the standards established pursuant to this section.

(g) This section shall be enforced in accordance with the division of authority prescribed in Section 13146.

*(Added by Stats. 1990, Ch. 436, Sec. 1.)*

**Cost Impact:** There is no cost increase or decrease.

**Response to Code Advisory Committee (CAC):** Approved as Submitted  
SFM agrees with the CAC recommendation.

### **[I-3 OCCUPANCY WORKGROUP 2019 INTERVENING PROPOSALS]**

#### **[Related Sections in Part 2, California Building Code]:**

310.3.1, 408.1.2.2, 408.3.6, TABLE 408.3.13 (New), 408.13, TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 508.4, 435.16 (Renumbered from 510.10), 1004.5, TABLE 1004.5, TABLE 1020.2, 1227.5, 1227.5.2, 1227.6-1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1, 1227.9.2.2, 1227.10-1227.10.7, 1227.12.1, 1227.22.1.1, 1227.23.1, 1230.1.2, 1230.1.4-1230.10, 1230.1.12, 1230.1.16, 1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8, 1230.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8, 1231.3.10, 1231.5, 1231.6-1231.6.7

## **SECTION 453 GROUP L [SFM]**

**Section: 453.4.4**

**Reason:**

The proposal to section 453.4.4 is to provide clarity that the authority having jurisdiction (AHJ) may reduce the size of the emergency response equipment area when required. The exception is given after it has been determined that the required supplies and equipment are provided for and can sufficiently fit in a smaller room. The 50-square foot room is the minimum size, but it can be reduced based on the actual need. This will allow some flexibility for industry when designing an L occupancy laboratory.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 453.4.7.2**

**Reason:**

The addition of the word vertical is to specify that both directions of the duct assembly shall be located within a fire resistance assembly having a rating equal to the fire barrier. The vertical protection has been missed on several projects in the initial construction. The benefit of the clarification will help take out the guess work for both designers and enforcement.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 453.9**

**Reason:**

Existing Group L occupancies were in the past identified as Group H-8 occupancies pre-2007. The intent was to include the H-8 occupancies to be directed to the appropriate sections in Chapter 11 of the California Fire Code and the California Existing Building Code. The word "or" has been misinterpreted to be a choice. The proposal to change the word "or" to "and" will met the intent of the section and clean up the misapplication.

**Cost Impact:** There is no cost increase or decrease.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[L OCCUPANCY WORK GROUP 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

453.4.4, 453.4.7.2, 1020.5, 3001.6

**Item 5. CHAPTER 5**

**GENERAL BUILDING HEIGHTS AND AREAS**

**SECTION 504**

**BUILDING HEIGHT AND NUMBER OF STORIES**

**Section: TABLE 504.3 (I-3 Workgroup)**

**Reason:**

The new R-2.2 occupancy classification was introduced in the 2019 Triennial code cycle and the NS value row needs to be added to Table 504.3. The NS values for the R-2.2 occupancy was missed in the 2018 Triennial rulemaking package. The NS value is needed in the table for consistency. The benefit of the NS value is for code consistency.

**Cost Impact:** There will be no cost increase or decrease.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[I-3 OCCUPANCY 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

310.3.1, 408.1.2.2, 408.3.6, TABLE 408.3.13 (New), 408.13, TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 508.4. 435.16 (Renumbered from 510.10), 1004.5, TABLE 1004.5, TABLE 1020.2, 1227.5, 1227.5.2, 1227.6-1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1, 1227.9.2.2, 1227.10-1227.10.7, 1227.12.1, 1227.22.1.1, 1227.23.1, 1230.1.2, 1230.1.4-1230.10, 1230.1.12, 1230.1.16, 1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8, 1230.2.10, 1231.2.2, 1231.2.3, 1231.2.5131.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.2, 1231.2.3, 1231.2.5131.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8, 1231.3.10, 1231.5, 1231.6-1231.6.7

**Section: TABLE 504.3 (Tall Wood Workgroup)**

**Reason:**

Allowable Height proposal addresses the allowable building height, in terms of feet, for the three new construction types proposed by the TWB. As set forth in the proposal to Section 602.4, the three new types of construction are Types IV-A, IV-B, and IV-C. The TWB examined each proposed type of construction for its safety and efficacy with regard to each occupancy type.

The following approach was used to develop proposed allowable heights of the new construction types, based on the conclusions of the Committee:

1. Based upon TWB review of fire safety and structural integrity performance, Type IV-B is equated to Type I-B for height (in feet). A noteworthy item to remember is that, per Section 403.2.1.1 of the IBC, Type IB construction is permitted to be reduced to 1-hour Fire Resistance rating; however, the TWB does not propose to allow the same reduction for Type IV-B. As a result, the comparison is between 2-hr mass timber construction that is partially exposed, versus 1-hr Type IB construction, and the Committee believes that 2-hr mass timber construction that is partially exposed per the limits of proposed Section 602.4 warrants the same heights as allowed for 1-hr Type I-B construction. It should be noted that the unprotected mass timber also needs to meet the 2 hour FRR, thus the protected area will likely be conservatively higher FRR than actually required;

2. Type IV-A should be somewhat larger than IV-B, as Type IV-A construction is entirely protected (no exposed mass timber permitted) and the required rating of the structure is equivalent to those required of Type I-A construction (3-hr rating for structural frame). However, the Committee did not find it acceptable to allow the unlimited heights of Type I-A to be applied to Type IV-A. Instead, the Committee applied a multiplier of 1.5 to the heights proposed for Type IV-B construction, in order to propose reasonable height allowances for IV-A construction;
3. The Committee viewed Type IV-C as similar to existing HT construction with the exception that IV-C has a 2 hour FRR where HT is acceptably fire resistant based on the large sizes of the members. As such, the height in feet is proposed to be equal to the height in feet of Type IV-HT. In terms of stories, however, the Committee proposed an additional number of stories for IV-C in recognition of its greater FRR.
4. While the base code seems to allow significant heights for buildings without sprinklers (e.g., Table 504.3 currently allows a height of 160 feet for NS Type I-B construction for many occupancy classifications), the Committee believes that no additional heights over what is already permitted for Type IV-HT would be proposed for the NS (non sprinklered) rows. As such, where separate rows are provided for heights for the NS situation, the proposed heights for Types IV-A, IV-B, and IV-C are the same as those heights already permitted for Type IV for the NS condition.

## Methodology

This methodology explains the majority of the recommendations here. Specifically, for occupancy groups A, B, E, F, I-4, M, R, S, U, the methodology described above accurately reflects how the height proposals were developed.

After undergoing this methodology to develop initial height recommendations, the TWB then applied professional judgment (from both a fire safety and a structural perspective), to develop a working draft table, cell by cell, for all occupancy types.

The exercise for establishing the allowable number of stories for the three new types of construction started with setting Type I-B allowances equivalent to Type IV-B. The tabular fire resistance ratings of building elements for these two types of construction is identical (not including the reduction permitted by 403.2.1.1), so the identical number of stories was deemed a reasonable starting point. From this point, the TWB Committee reviewed each occupancy classification to see if the Type I-B story allowance required adjustment.

## Summary

### Allowable number of stories

Following is a summary of how allowable number of stories for sprinklered I-B were adjusted for IV-B:

A-1, A-2, A-3, A-4, A-5, B, E, H-1, H-5, I-1(1), I-1(2), I-2, I-3, I-4, R-1, R-2, R-3, R-4, U: no adjustment, same number of allowable stories as Type I-B.



F-1 and S-1: reduced from 12 to 7 (2 story increase from Type IV-HT)

F-2, M, S-2: reduced from 12 to 8 (2 story increase from Type IV-HT)

H-2: reduced from 3 to 2 (same as Type IV-HT)

H-3: reduced from 6 to 4 (same as IV-Type HT)

H-4: reduced from 8 to 7 (1 story increase from Type IV-HT)

### **Height in feet**

Similarly, to establish the height in feet for Type IV-B:

A-1, A-2, A-3, A-4, A-5, B, E, F-1, F-2, I-4, M, R-1, R-2, R-3, R-4, S-1, S-2, U: same allowable height as I-B.

H-1, H-2, H-3: reduced from 180' to 90'

H-4: reduced from 180' to 100'

H-5: reduced from 160' to 90'

I-1(1): reduced from 180' to 120'

I-1(2): reduced from 180' to 65'

I-2: reduced from 180' to 65'

I-3: reduced from 180' to 120'

### **Allowable number of stories**

Adjusting IV-B up to IV-A for allowable number of stories:

A-1, A-2, A-3, A-4, A-5, B, E, F-2, I-4, M, R-1, R-2, R-3, R-4, S-1, S-2, U – 1.5 x IV-

B number of stories

F-1, S-1 increase by 3 stories

H-1, H-3 same as IV-HT

H-2, H-4, H-5 increase by 1 story

I-1(1), I-1(2), I-2, I-3 increase by 2 stories

H-3 reduced from 6 to 4 (same as IV-HT)

H-4 reduced from 8 to 7 (1 story increase from IV-HT)

I-I(1), I-1(2), I-2, I-3, same as IV-HT

### **Adjusting IV-B to IV-A for building height:**

A-1, A-2, A-3, A-4, A-5, B, E, F-1, F-2, H-1, H-5, I-1(1), I-3, I-4, M, R-1, R-2, R-3, R-4, S-1, S-2, U: multiply 1.5 x Type IV-B (180 ft.)

H-1, H-2 H-3, H-5: increase by 30 ft.

H-4: increase by 40 ft.

I-1(2), I-2: same as Type IV-HT

### **Groups H-1, H-2, H-3, and H-5**

For instance, for Groups H-1, H-2, H-3, and H-5, while the table allows 160 feet for Type I-B construction, the TWB Committee proposed a height of 90 feet for Type IV-B construction, and is using a multiplier of 1.33 to propose a height for Type IV-A construction of 120 feet height, intentionally made equal to the existing Heavy Timber heights.

### **Group H-4**

For H-4, corrosives represent a health hazard (but not necessarily a fire hazard) to building occupants and first responders, the Committee believed that reduced heights were warranted. These are slightly greater than discussed above for the H-occupancy groups (140 feet versus 120 feet for IV-A construction, and 100 feet versus 90 feet for IV-B construction), but these still are far below what is permitted for Type I-B construction (180 feet permitted for the sprinklered condition), and is in recognition of the particular type of Hazardous occupancy covered by the H-4 occupancy group.

### **Group I**

For Group I occupancies, there are two rows in the table, one being a row that includes I-1 Condition 1 and I-3 occupants (more capable of self-preservation) and the other being a row that includes I-1 Condition 2 and I-2 occupants (less capable of self-preservation). For I-1 Condition 1 and I-3 occupants, the Committee proposed a height of 120 feet for Type IV-B (versus 180 feet from the general methodology summarized above) and a height of 180 feet for Type IV-A (versus 270 feet from the general methodology summarized above). For those I-1 Condition 2 and I-2 occupants, the TWB Committee took a very conservative approach and will only allow the heights that are already permitted by code for traditional Type IV construction.

ICC Committee Modification: In Table 503.4, the value under Type IV A construction is to be 180 instead of 270 and the value under Type IV B construction is to be 120 instead of 180. All other portions of the proposal are not modified. This floor modification DiGiovanni-1 changed the height for one occupancy group, I-4, but the excerpt from the report of the CAH fails to make that distinction clear. The intent of the modification was further confirmed in an email by ICC Technical Services SVP Michael Pfeiffer, P.E. on August 8, 2019.

ICC Committee Reason for modification: The modification proposed makes this proposal work. The proposal was excessive without it. Otherwise, many of the reasons cited by the committee for proposal G80-18 apply as well.

**State Fire Marshal (SFM) Background:**

The SFM Tall Wood Buildings workgroup evaluated the existing California amendments to the Table for allowable height, stories and area. In the 2007 Triennial rulemaking code cycle, the SFM took a balanced approach to fire protection based on the historical use of height and area provisions and data demonstrated that California's minimum requirements for the built environment have safeguarded the public health, safety and general welfare of the occupants and to the property as a whole since the 1920s.

The additional safety provided by an automatic sprinkler system has been acknowledged as justification for either increasing the allowable height of a building by one (1) story or increasing the allowable area beyond the limits established in Table 506.2, but not both.

The SFM recognizes and supports the benefits of automatic fire sprinkler protection in buildings. The need for a balanced approach to fire protection is also recognized and is the basis for maintaining the current California amendments which permit the use of automatic sprinkler systems for an increase in height or area but not both. During the 2007 Triennial rulemaking California code adoption process, building and fire officials reviewed data from various sources to justify the increased building size of the 2006 IBC over the allowable areas and heights in all three legacy codes. At the time there appeared to be little science behind the table values and formulas, SFM and California code officials involved in the process were not comfortable and could not justify the elimination of redundancy from the code and an over reliance on fire sprinkler systems.

During the SFM Tall Wood Building workgroup it was discussed and recognized that the tables for allowable height, stories and area need to be re-evaluated. The SFM plans to address those comments, concerns, and recommendations for the 2022 Triennial rulemaking code package.

Per California regulations buildings housing Group I-3 occupancies, shall be constructed of Type I-A or Type IB, for this reason, the new Types of mass timber construction are not permitted.

Per Health and Safety Code 13131.5 buildings housing Group R-2.1, shall not be permitted in non-fire resistive construction. For this reason, only Type VI-A is allowed.

During the SFM Tall Wood Building workgroup, representatives from the office of Statewide Health Planning and Development (OSHPD), determined that at this time the proposed Type IV-A, Type IV-B, and Type IV-C as well as HT will not be permitted for Group I-2 and I-2.1 occupancies in California.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction This section provides information that was not previously set forth in the code,

and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (G75-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Section: TABLE 504.4 (I-3 Workgroup / OSHPD)**

**Reason:**

The new R-2.2 occupancy classification was introduced in the 2018 Triennial code cycle and the NS value row needs to be added to Table 504.4. The NS values for the R-2.2 occupancy was missed in the 2018 Triennial rulemaking package. The NS value is needed in the table for consistency. The benefit of the NS value is for code consistency. It was also identified that by Health and Safety Code (HSC) Section 13143.7; Type II-B, Type III-B and Type V-B are not permitted for the R-2.2 occupancy classification. This error has been corrected.

**Addendum reason of OSHPD:**

Group I-1 is not a California occupancy. The code reference and language are not relevant for California Code users.

**Cost Impact:** There will be no cost increase or decrease.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[I-3 OCCUPANCY 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

310.3.1, 408.1.2.2, 408.3.6, TABLE 408.3.13 (New), 408.13, TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 508.4, 435.16 (Renumbered from 510.10), 1004.5, TABLE 1004.5, TABLE 1020.2, 1227.5, 1227.5.2, 1227.6-1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1, 1227.9.2.2, 1227.10-1227.10.7, 1227.12.1,

1227.22.1.1, 1227.23.1, 1230.1.2, 1230.1.4-1230.10, 1230.1.12, 1230.1.16,  
1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8, 1230.2.10, 1231.2.2, 1231.2.3,  
1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.2, 1231.2.3,  
1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8,  
1231.3.10, 1231.5, 1231.6-1231.6.7

## **Section: TABLE 504.4 (Tall Wood Workgroup)**

### **Reason:**

This proposal addresses the building height, in terms of the number of stories, for the three new construction types proposed by the TWB. As set forth in the proposal to Section 602.4, the three new types of construction are Types IVA, IV-B, and IV-C. The TWB Committee examined each proposed type of construction for its safety and efficacy regarding each occupancy.

The following approach was considered appropriate for the heights of the new construction types, based on the conclusions of the TWB Committee:

Based upon TWB committee review of fire safety and structural integrity performance, Type IV-B is equated to Type I-B for height (in number of stories). A noteworthy item is that, per Section 403.2.1.1 of the IBC, Type I-B construction is permitted to be reduced to 1-hour Fire Resistance Rating (FRR); however, the TWB does not propose to allow the same reduction for Type IV-B. As a result, the comparison is between 2-hr mass timber construction that is permitted to be partially unprotected, versus 1-hr Type IB construction, and the TWB Committee believes that 2-hr mass timber construction that is partially exposed per the limits of proposed Section 602.4 warrants the same heights as allowed for 1-hr Type I-B construction;

Type IV-A should be somewhat larger than IV-B, as Type IV-A construction is entirely protected (no exposed mass timber permitted) and the required rating of the structure is equivalent to those required of Type I-A construction (3-hr rating for structural frame). However, the Committee did not find it acceptable to allow the scale of heights (many of which are unlimited) of Type I-A to be applied to Type IV-A. Instead, the Committee applied a multiplier of 1.5 to the heights proposed for Type IV-B construction (rounded up or down based on judgment) in order to propose reasonable height allowances for IV-A construction;

The TWB Committee viewed Type IV-C as sufficiently similar to existing HT construction, especially in terms of the percentage of exposed wood (it is permitted to be entirely unprotected), and the resulting contribution to fire. While the height in feet for Type IV-C is proposed to be equal to the height in feet of Type IV-HT, the TWB Committee felt that additional stories was warranted in some cases. Therefore, in terms of stories, the TWB Committee proposes additional number of stories for Type IV-C construction when compared to traditional Type IV heavy timber construction. The TWB Committee feels that some recognition is warranted for the fire resistance rating requirements (Type IV-C has 2-hour rating on structural elements, whereas traditional Type IV Heavy Timber used dimensional wood, which is understood to yield an approximate fire resistance rating equivalent to about 1-hour construction) and provided that flexibility when developing

height, in terms of stories, for Type IV-C construction. A multiplier of 1.5 was applied from the Type IV-HT heights to develop reasonable numbers of stories for Type IV-C construction. While the base code seems to allow significant heights for buildings without sprinklers (e.g., Table 504.4 currently allows 11 stories for NS Type I-B construction for many occupancy classifications), the TWB Committee believes that no additional heights over what is already permitted for Type IV should be proposed for the NS (non sprinklered) rows. As such, where separate rows are provided for heights for the NS condition, the proposed heights for Types IV-A, IV-B, and IV-C are the same as those heights already permitted for Type IV for the NS condition. This methodology explains the majority of the recommendations included in this proposal. Specifically, for occupancy groups A, B, E, R, and U, the methodology described above accurately reflects how the height proposals were developed.

The TWB Committee applied professional judgment (from both a fire safety and a structural perspective) to develop a draft table, cell by cell, for all occupancy types. After further examination, reduced heights were proposed for F, H, I, M, and S occupancy classifications.

### **F-1 occupancies**

For F-1 occupancies, the TWB Committee proposed a height of 7 stories for Type IV-B construction (versus the 12 stories currently permitted for I-B construction). A multiplier of 1.5 was used to propose a height of 10 stories for Type IV-A construction (when rounded down). No additional height was proposed for Type IV-C construction (Type IV-C proposed at 5 stories, and 5 stories is already permitted by code for Type IV-HT).

### **F-2 occupancies**

For F-2 occupancies, again the Committee is proposing a reduced number of stories, with 8 stories for Type IV-B construction (versus 12 stories that would be derived from the methodology). Again, a multiplier of 1.5 was used to propose a height of 12 stories for Type IV-A construction. No additional height is proposed for Type IV-C construction (Type IV-C proposed at 6 stories, and 6 stories is already permitted by code for Type IV-HT).

A conservative approach also explains the proposed heights for Group H occupancies. For Group H-1, only 1 story buildings are permitted by Table 504.4 for all construction types, so the proposal was adjusted to also limit all the new Type IV construction types to 1 story as well.

### **Groups H-2, H-3, and H-5**

For Groups H-2, H-3, and H-5, heights were intentionally made equal to the existing Heavy Timber heights. In other words, there is no proposal to any increased heights over what is already allowed by code for these use groups.

### **Group H-4**

Group H-4, being corrosives which represents a health hazard (but not necessarily a fire hazard) to occupants and first responders, was also reduced, slightly. The TWB proposes 7 stories for Type IV-B construction (equivalency to Type I-B would have yielded 8 stories). The proposal allows only 8 stories for Type IV-A construction. No additional height is

proposed for Type IV-C construction (Type IV-C proposed at 6 stories, and 6 stories is already permitted by code for Type IV-HT).

### **Group I**

Group I, the Committee took a more conservative approach and proposed an equivalent number of stories for Type IV-A construction, as is provided for Type I-B construction (10 stories for both construction types and occupancy types). The allowable heights for Type IV-B construction were selected to fall between the 10 stories for Type IV A and the number of stories for Type IV-C construction. The Committee proposed a height of 7 stories for I-1, and 6 stories for I-2. No additional height was proposed for Type IV-C construction (IV-C construction heights in floors is equal to the number of floors already allowed for Type IV-HT, 5 stories for I-1, 4 stories for I-2).

### **Group M occupancies**

For Group M occupancies, the Committee again took a conservative approach, and proposed an equivalent number of stories for Type IV-A construction, as is provided for Type I-B construction (12 stories for both construction types). The proposal for Type IV-B construction is 8 stories which is based on the use of the multiplier of 1.5 with respect to the Type IV-A proposal. A modest increase (from 5 to 6 stories) is proposed for Type IV-C construction due to the higher requirement for structural fire-resistance.

### **Group S**

For Group S, while the base code does not differentiate between S-1 and S-2 in Type I-B construction (both 12 stories), the Committee recognized that the base code does provide a difference for Group F (10 stories for F-1, 12 stories for F-2). As explained above, this led the Committee to propose lower heights for F-1, than for F-2. The Committee felt this was appropriate with respect to the hazard differences between F-1 and F-2. Rather than basing our proposal for S occupancies on the same starting point of 12 stories, the Committee decided to simply copy the proposed heights for Group F into the rows for Group S for both IV-A and IV-B construction types. No additional height is proposed for IVC construction (IV-C proposed at 5 stories for both S-1 and S-2, same as existing Type IV-HT heights).

This proposed change corrects the tabular value errors that went undetected in the original code change until after the completion of the 2012 cycle: the tabular story and height numbers for Type IV Group S-2. The proposal corrects those errors. (G81-18)

### **State Fire Marshal (SFM) Background:**

The SFM Tall Wood Buildings workgroup evaluated the existing California amendments to the Table for allowable height, stories and area. In the 2007 Triennial rulemaking code cycle, the SFM took a balanced approach to fire protection based on the historical use of height and area provisions and data demonstrated that California's minimum requirements for the built environment have safeguarded the public health, safety and general welfare of the occupants and to the property as a whole since the 1920s.

The additional safety provided by an automatic sprinkler system has been acknowledged as justification for either increasing the allowable height of a building by one (1) story or increasing the allowable area beyond the limits established in Table 506.2, but not both.

The SFM recognizes and supports the benefits of automatic fire sprinkler protection in buildings. The need for a balanced approach to fire protection is also recognized and is the basis for maintaining the current California amendments which permit the use of automatic sprinkler systems for an increase in height or area but not both. During the 2007 Triennial rulemaking California code adoption process, building and fire officials reviewed data from various sources to justify the increased building size of the 2006 IBC over the allowable areas and heights in all three legacy codes. At the time there appeared to be little science behind the table values and formulas, SFM and California code officials involved in the process were not comfortable and could not justify the elimination of redundancy from the code and an over reliance on fire sprinkler systems.

During the SFM Tall Wood Building workgroup it was discussed and recognized that the tables for allowable height, stories and area need to be re-evaluated. The SFM plans to address those comments, concerns, and recommendations for the 2022 Triennial rulemaking code package.

Per California regulations buildings housing Group I-3 occupancies, shall be constructed of Type I-A or Type IB, for this reason, the new Types of mass timber construction are not permitted.

Per Health and Safety Code 13131.5 buildings housing Group R-2.1, shall not be permitted in non-fire resistive construction. For this reason, only Type VI-A is allowed.

During the SFM Tall Wood Building workgroup, representatives from the office of Statewide Health Planning and Development (OSHPD), determined that at this time the proposed Type IV-A, Type IV-B, and Type IV-C as well as HT will not be permitted for Group I-2 and I-2.1 occupancies in California.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (G80-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE



722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

## **SECTION 506 BUILDING AREA**

### **Section: TABLE 506.2 (I-3 Workgroup / OSHPD)**

#### **Reason:**

The new R-2.2 occupancy classification was introduced in the 2018 Triennial code cycle and the NS value row needs to be added to Table 506.2. The NS values for the R-2.2 occupancy was missed in the 2018 Triennial rulemaking package. The NS value is needed in the table for consistency. The benefit of the NS value is for code consistency. The footnote was added to provide the NS allowable area for the frontage calculations. The intent is to allow R-2.2 occupancies to use the frontage increase formula. It was also identified that by Health and Safety Code (HSC) Section 13143.7; Type II-B, Type III-B and Type V-B are not permitted for the R-2.2 occupancy classification. This error has been corrected.

**Cost Impact:** There will be no cost increase or decrease.

#### **Addendum reason (OSHPD):**

Group I-1 is not a California occupancy. The code reference and language are not relevant for California Code users.

#### **Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

### **[I-3 OCCUPANCY 2019 INTERVENING PROPOSALS]**

#### **[Related Sections in Part 2, California Building Code]:**

310.3.1, 408.1.2.2, 408.3.6, TABLE 408.3.13 (New), 408.13, TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 508.4. 435.16 (Renumbered from 510.10), 1004.5, TABLE 1004.5, TABLE 1020.2, 1227.5, 1227.5.2, 1227.6-1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1, 1227.9.2.2, 1227.10-1227.10.7, 1227.12.1, 1227.22.1.1, 1227.23.1, 1230.1.2, 1230.1.4-1230.10, 1230.1.12, 1230.1.16, 1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8, 1230.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8, 1231.3.10, 1231.5, 1231.6-1231.6.7

### **Section: TABLE 506.2 (Tall Wood Workgroup)**

#### **Reason:**

In addressing Allowable Area topic, it was necessary to develop height and area criteria to address each new type of construction being proposed. Relying upon each new type of construction proposed for tall wood buildings (Types IV-A, IV-B and IVC), the TWB committee examined each type of construction for its safety and efficacy with regard to

each occupancy type. This proposal on allowable areas should be considered as a companion proposal to the height proposals. The three proposals were developed regarding one another as well as with regard to the new types of construction.

The TWB also determined that fire testing was necessary to validate these concepts. At its first meeting, members discussed the nature and intention of fire testing so as to ensure meaningful results for the TWB and, more specifically, for the fire service. Subsequently a test plan was developed. The fire tests consisted of one-bedroom apartments on two levels, with both apartments having a corridor leading to a stairway. The purpose of the tests was to address the contribution of mass timber to a fire, the performance of connections, the performance of joints, and to evaluate conditions for responding fire personnel. The Fire Work Group then refined the test plan, which was implemented with a series of five full-scale, multiple-story building tests at the Alcohol, Tobacco and Firearms (ATF) laboratories in Beltsville, MD.

### **Test Results**

The results of those tests, as well as testing conducted by others, helped the TWB Committee form the basis upon which the Codes Work Group developed its code change proposals. This code change proposal is one of those developed by the Codes Work Group and adopted by the TWB.

To review a [summary of the fire tests](#), please visit:

[bit.ly/ATF-firetestreport](http://bit.ly/ATF-firetestreport)

To watch summary [videos of the fire tests](#), which are accelerated to run in 3-1/2 minutes each, please visit:

[bit.ly/ATF-firetestvideos](http://bit.ly/ATF-firetestvideos)

Both links were confirmed active on October 11, 2019

Each proposed new type of construction was examined for its fire safety characteristics and compared to the existing, long-standing type of construction known as Heavy Timber. The TWB committee found that it was reasonable to develop a multiplier which could be applied to the traditional HT areas. This was done for each new type of construction. Thus, the proposed new Type IV-C was 1.25 times the HT allowable area, IV-B was 2.00 times the HT allowable area and IV-A was 3.00 times the HT allowable area.

These multipliers were examined in terms of relative performance compared to traditional HT. They were reexamined on a case-by-case basis based upon relative hazard and occupancy classification. Some hazards were perceived to be greater and, thus, areas were adjusted downward to reflect the hazard. Other situations were similarly considered. For example, Hazardous and Institutional occupancies do not fully follow the multiplier method, as most areas for those occupancies were reduced from what the multiplier method would suggest.

Also, the TWB committee reconsidered this proposal with respect to the companion height proposal. This review was to be sure that allowable areas were commensurate with the risk posed by being allowed on some particular story or at some height above grade plane.

This proposed change corrects the tabular value errors that went undetected in the original code change until after the completion of the 2012 cycle: the tabular story and height numbers for Type IV Group S-2. The proposal corrects those errors.

**State Fire Marshal (SFM) Background:**

The SFM Tall Wood Buildings workgroup evaluated the existing California amendments to the Table for allowable height, stories and area. In the 2007 Triennial rulemaking code cycle, the SFM took a balanced approach to fire protection based on the historical use of height and area provisions and data demonstrated that California's minimum requirements for the built environment have safeguarded the public health, safety and general welfare of the occupants and to the property as a whole since the 1920s.

The additional safety provided by an automatic sprinkler system has been acknowledged as justification for either increasing the allowable height of a building by one (1) story or increasing the allowable area beyond the limits established in Table 506.2, but not both.

The SFM recognizes and supports the benefits of automatic fire sprinkler protection in buildings. The need for a balanced approach to fire protection is also recognized and is the basis for maintaining the current California amendments which permit the use of automatic sprinkler systems for an increase in height or area but not both. During the 2007 Triennial rulemaking California code adoption process, building and fire officials reviewed data from various sources to justify the increased building size of the 2006 IBC over the allowable areas and heights in all three legacy codes. At the time there appeared to be little science behind the table values and formulas, SFM and California code officials involved in the process were not comfortable and could not justify the elimination of redundancy from the code and an over reliance on fire sprinkler systems.

During the SFM Tall Wood Building workgroup it was discussed and recognized that the tables for allowable height, stories and area need to be re-evaluated. The SFM plans to address those comments, concerns, and recommendations for the 2022 Triennial rulemaking code package.

Per California regulations buildings housing Group I-3 occupancies, shall be constructed of Type I-A or Type IB, for this reason, the new Types of mass timber construction are not permitted.

Per Health and Safety Code 13131.5 buildings housing Group R-2.1, shall not be permitted in non-fire resistive construction. For this reason, only Type VI-A is allowed.

During the SFM Tall Wood Building workgroup, representatives from the office of Statewide Health Planning and Development (OSHPD), determined that at this time the proposed Type IV-A, Type IV-B, and Type IV-C as well as HT will not be permitted for Group I-2 and I-2.1 occupancies in California.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (G84-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**SECTION 508  
MIXED USE AND OCCUPANCY**

**Section: 508.3.1.2 (Delete)**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed change deletes new 2018 CBC Section 508.3.1.2. This section establishes additional requirements for when a Group I-2, Condition 2 occupancy is constructed as a nonseparated use. The SFM does not adopt provisions classifying Group I-2 occupancies into conditions. The CBC does not permit the construction of Group I-2 occupancies as nonseparated uses. The CBC Section 508.3.1.2 indicates that a building containing a Group I-2 occupancy may be divided into fire areas. The California Health and Safety Code, Section 13113(a) requires fire sprinkler protection throughout buildings containing a Group I-2 occupancy. Fire sprinkler protection limited to fire areas is not permitted. The new requirements in IBC Section 508.3.1.2 are not applicable to Group I-2 occupancies regulated by the California Building Code. To avoid confusion, the proposed change deletes the provisions of CBC Section 508.3.1.2.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1

**Section: TABLE 508.4 (Automatic Parking Garage Workgroup)**

**Reason:**

Enclosed mechanical-access parking garages are being constructed in the United States on an increasing basis, yet there are no prescriptive code requirements for these occupancies. These occupancies are unique from the traditional open mechanical-access parking garage in that there are no openings, the entire structure is enclosed. These occupancies are more similar to automated high rack storage systems, they have no floors, no stairwells and no above ground level access, except maintenance walkways and ladders. With these being a silent occupancy type, the Building Code does not provide the code official with prescriptive requirements. There are fires involving parked vehicles with the vehicle parked and the ignition system off. If a fire were to occur in an enclosed mechanical-access parking garage, unless the local code authority required additional fire protection during construction, they do not have a point-setter to code requirements. Where these systems have been installed, there is not a consistent fire protection methodology to protecting these structures from a fire.

An enclosed mechanical-access parking garage offers many firefighting challenges; most are constructed in a building shell, without a floor system. The vehicles are parked in a cage/rack system, with no safe elevated access to the interior of the structure. With firefighter safety in mind and to have the ability to use fixed fire suppression to extinguish and/or control these fires, the code proposal is presented.

Footnote c was revised to add a new section number 406.6.4 as a reference.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This proposal is to provide prescriptive language for enclosed mechanical-access parking garages. These code requirements are being currently enforced as part of a performance-based design when approved and constructed. As the designer and builder will have prescriptive requirements, they will not be required to obtain an Alternative Materials and Methods approval for each project. (G39-18)

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM considered the sections that are related to the proposal and modified those sections as appropriate to address the concerns of the committee. This section proposal is a pointer to those other sections.

**[AUTOMATIC PARKING GARAGE 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

202 (New), 406.6.4 (New), 406.6.4.1 (New), 406.6.4.2 (New), 406.6.4.3 (New), 406.6.4.3.1 (New), 406.6.4.4 (New), TABLE 508.4, Table 903.2.11.6

**Section: TABLE 508.4 (I-3 Workgroup)**

**Reason:**

The new R-2.2 occupancy classification was introduced in the 2018 Triennial code cycle and the R-2.2 occupancy needs to be added to Table 508.4. The addition is looked for when designing and enforcing the required separation between the R-2.2 occupancy and others. The addition of the occupancy provides consistency in the code and corrects an error.

**Cost Impact:** There will be no cost increase or decrease.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The R-2.2 was missed from the table. The SFM verified the need for the proposal.

**[I-3 OCCUPANCY 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

310.3.1, 408.1.2.2, 408.3.6, TABLE 408.3.13 (New), 408.13, TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 508.4. 435.16 (Renumbered from 510.10), 1004.5, TABLE 1004.5, TABLE 1020.2, 1227.5, 1227.5.2, 1227.6-1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1, 1227.9.2.2, 1227.10-1227.10.7, 1227.12.1, 1227.22.1.1, 1227.23.1, 1230.1.2, 1230.1.4-1230.10, 1230.1.12, 1230.1.16, 1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8, 1230.2.10, 1231.2.2, 1231.2.3, 1231.2.5131.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.2, 1231.2.3, 1231.2.5131.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8, 1231.3.10, 1231.5, 1231.6-1231.6.7

**Section: 508.4.4.1**

**Reason:**

On this subject of “fire barriers,” the ICC TWB committee determined that additional measures were necessary to address cases where mass timber is serving as a fire barrier or horizontal assembly. Section 508.4 describes the third option for separating mixed occupancies within a building.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (G89-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2

(New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

## SECTION 509 INCIDENTAL USES

### Section: TABLE 509

#### Reason:

This proposal eliminates stationary storage battery systems as incidental use from Table 509. A proposed rewrite of the California Fire Code Section 1206 has added extensive protection features to such installations including detection, suppression, fire separation, and explosion control, along with large scale testing to document the effectiveness of chosen protection levels. With the increased level of protection mandated by the California Fire Code, there is no longer a need to limit such uses to 10% of a floor area as an incidental use.

**Cost Impact:** The code change proposal will decrease the cost of construction. Eliminating the incidental use 10% floor area restriction can reduce the cost of providing energy storage systems in mixed use buildings. (G92-18)

#### Response to Code Advisory Committee (CAC): Approved as Submitted

SFM agrees with the CAC recommendation.

### [ENERGY STORAGE SYSTEMS 2019 INTERVEING PROPOSALS]

#### [Associated Sections in Part 2, California Building Code]:

306.2, TABLE 414.5.1, TABLE 509, 707.4, TABLE 716.1(2), T ABLE 716.1(3), 716.2.5.4.1 (New), 716.3.2.1.1.1 (New), TABLE 903.2.11.6, [Chapter 35] NFPA 68 (New)

### Section: 509.4.1.1 (New)

#### Reason:

Section 509.4 discusses the fire-resistance rated separation that is required for incidental uses within a larger use group. Section 509 also permits, when stated, protection by an automatic sprinkler system without fire barriers, however the construction enclosing the incidental use must resist the passage of smoke in accordance with Section 509.4.2.

The concern is that without any modifications to these provisions regulating separated occupancies and incidental uses, a fire barrier or horizontal assembly could be designed using mass timber that would comply with the fire resistance rating, but which would allow any exposed mass timber to contribute to the fuel load. This can occur in Types IV-B and IV-C construction.

The ICC TWB committee applied professional judgment by choosing to emulate the existing thermal barrier requirements by applying those requirements to these two sections. The intent of this proposal is to have the thermal barrier delay or prevent the ignition of the mass timber, thus delaying or preventing the mass timber's contribution to the fuel load. This will also allow additional time for fire and life safety measures to be executed as well as allow first responders additional time to perform their services.

The ICC TWB committee's intent is that the thermal barrier only needs to cover an exposed wood surface. The thermal barrier is not required in addition to any noncombustible protection that is required in Section 602.4, nor does it add to the fire resistance rating of the mass timber.

Mass timber walls or floors serving as fire barriers for separated uses (Section 508.4) would need to have a thermal barrier on both faces of the assembly.

For Section 509.4 (incidental use separations) the intent is to provide the thermal barrier only on the side where the hazard exists, that is, the side facing the incidental use. For example, if a mass timber floor assembly of the incidental use contains a noncombustible topping this provision would not require the addition of a thermal barrier on mass timber surfaces not facing the incidental use area. In addition, the thermal barrier would not be required if the sprinkler option is exercised.

It should be noted that this proposal is only addressing the contribution of exposed mass timber's face to the fuel load of a fire, and is not recommending any modifications to the fire resistance requirements of Sections 508 or 509 or to the other mass timber provisions.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (G89-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

### **[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

#### **[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4,



3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Item 6. CHAPTER 6  
TYPES OF CONSTRUCTION**

**SECTION 601  
GENERAL**

**Section: 601**

**Reason:**

**Types of Construction**

The ICC TWB committee recognized that tall, mass timber buildings around the world generally fell into three categories: one in which the mass timber was fully protected by noncombustible protection, a second type in which the protection was permitted to be omitted to expose the wood in certain limited amounts of walls or ceilings, and a third type in which the mass timber for the structure was permitted to be unprotected.

The TWB also determined that fire testing was necessary to validate these concepts. At its first meeting, members discussed the nature and intention of fire testing so as to ensure meaningful results for the TWB and, more specifically, for the fire service. Subsequently a test plan was developed. The fire tests consisted of one-bedroom apartments on two levels, with both apartments having a corridor leading to a stairway. The purpose of the tests was to address the contribution of mass timber to a fire, the performance of connections, the performance of joints, and to evaluate conditions for responding fire personnel.

The Fire Work Group then refined the test plan, which was implemented with a series of five, full-scale, multiple-story building tests at the Alcohol, Tobacco and Firearms (ATF) laboratories in Beltsville, MD. The results of those tests, as well as testing conducted by others, helped form the basis upon which the Codes Work Group developed its code change proposals. This code change proposal is one of those developed by the Codes Work Group and approved by the TWB.

To review a [summary of the fire tests](#), please visit:

[awc.org/pdf/codes-standards/fire/WCTE-2018\\_Fire-Tests.pdf](http://awc.org/pdf/codes-standards/fire/WCTE-2018_Fire-Tests.pdf)

To watch summary [videos of the fire tests](#), which are accelerated to run in 3-1/2 minutes each, please visit:

[youtube.com/playlist?list=PL\\_sDiz8JiMlwby77vfpPSPucEhBuEK22P](https://youtube.com/playlist?list=PL_sDiz8JiMlwby77vfpPSPucEhBuEK22P)

Both links were confirmed active on October 10, 2019.

The completely protected type of construction, as noted above, is identified as Type IV-A. The protection is defined by a new section, 722.7, proposed in a separate code change.

Testing has shown that mass timber construction protected with noncombustible protection, primarily multiple layers of 5/8-inch Type X gypsum board, can survive a complete burnout of a residential fuel load without engaging the mass timber in the fire. (See video or report above.) In considering this type of construction and its potential height and/or allowable area, the TWB wanted to make sure that code users realize that the protection specified in the text applies to all building elements. Thus, the text clearly requires protection for the floor surface, all wall and ceiling surfaces, the inside roof surfaces, the underside of floor surfaces, and shafts. In addition, Type IV-A construction is proposed to have the same fire resistance rating requirements as the existing Type I-A construction, which sets forth requirements for 2-hour and 3-hour structural elements. The specified fire resistance rating for Type IV-A construction is conservative in that the fire resistance rating of the structural elements was selected to be able to passively sustain the fuel loads associated with the various occupancies without the benefit of automatic sprinkler protection, and without involving the contribution of the structural members, similar to the strategy employed in the IBC for Type I construction.

Type IV-B allows some exposed wood surfaces of the ceiling, the walls or columns and beams. The amount of exposed surface permitted to be installed, as well as the required separation between unprotected portions, is clearly specified to limit the contribution of the structure in an interior fire. For example, two different walls may share the unprotected area but the two walls must be separated by a distance of 15 feet. Type IV-B has been subjected to the same fire tests under the same conditions as Type IV-A and the results demonstrate that a predictable char layer develops on mass timber in the same fashion as traditional sawn lumber, provided that substantial delamination is avoided. (See video or report above.) It should be noted that, while portions of the mass timber may be unprotected, concealed spaces, shafts and other specified areas are required to be fully protected by noncombustible protection. Type IV-B is provided with the same base fire resistance requirements as the existing Type I-B construction, which sets forth requirements for 2-hour structural elements. Please note that the allowance per IBC Section 403.2.1.1 to reduce I-B construction to 1-hour structural elements is not proposed for Type IV-B construction. Essentially, where a building is permitted to be constructed of I-B construction and has 1-hour protection, that same building will still require 2-hour structural elements for Type IV-B construction.

Type IV-C construction permits fully exposed mass timber. Important caveats are that concealed spaces, shafts, elevator hoistways, and interior exit stairway enclosures are not permitted to be exposed, but instead are required to have noncombustible protection. The IV-C construction is differentiated from traditional Heavy Timber construction in that Type IV-C construction is required to be 2-hour fire rated. While the added fire rating is required, the committee does not propose any additional height, in terms of feet, for Type IV-C buildings; in other words, the height in feet for Type IV-C and Type IV-HT are identical. However, due to the added fire resistance ratings, the committee has proposed added floors for some occupancy groups of Type IV-C construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

## Section: TABLE 601

### Reason:

Tables 601 and 602: Included in the proposal are modification of Tables 601 and 602. This is necessary to set the performance requirement for these new types of construction based upon mass timber. It should be noted that these Fire Resistance Ratings (FRR) are set to have the requirements similar to those of Type I construction. In other words, IV-A has the same FRR as I-A; IV-B has the same FRR as I-B. Because there is no Type I corollary to IV-C, it was set the same as IV-B. The IV-C has to achieve all its fire resistance by the performance of the mass timber itself because no noncombustible protection is required. This is reflected in greatly reduced permitted height, in both feet and stories, in other TWB proposals to Table 504.3, 504.4 and 506.2.

The standards referenced in the code change proposals, DOC PS1, ASTM E1354, ASTM E84 and UL 723, are already referenced in the California Code of Regulations, Title 24.

The referenced standards needed to be incorporated into the code change. The definitions clarify that there are different types of mass timber construction. It is a rational way of addressing protected vs. unprotected construction. This allows the code to keep up with innovations in construction practice that are occurring in the field. This is an opportunity for faster construction with less foundation. All testing was done that should have been done, and more than has ever been done for other construction types.

Table 601 Cross laminated timber was introduced into the 2015 IBC. Section 2304.11.2.2 and table 601 permit 4 inch heavy timber walls that do not have a fire resistance rating to serve as bearing walls in structures that could be as many as 6 stories tall for a group B occupancy building. Generally heavy timber dimensions for vertical elements result in building elements that have a fire resistance rating in the ballpark of 45 minutes to 1 hour or more. CLT walls as thin as 4 inches can support the tributary loads from floors of 5 stories but when a 4-inch-thick CLT wall is fully loaded and exposed without protection, it may an intrinsic structural fire resistance rating of less than 30 minutes. This is not a problem for columns because they tend to grow bigger with a commensurate intrinsic fire resistance as buildings get taller.

This proposal modifies Table 601 to require heavy timber bearing walls supporting more than two floors or a floor and a roof to be of 1-hour fire resistance rating or greater which is appropriate for vertical elements in mid-rise multi-story buildings. If a designer desires to have an exposed CLT bearing wall supporting multiple stories they may need to increase the thickness of the wall to provide 1 hour fire resistance rating. This may be calculated in accordance with Chapter 16 of the National Design Specification as allowed in Section 722.1 or they may need to utilize a tested wall. (G101-18)

Table 601 The exception in footnote c for using heavy timber in roof construction has in the past been applied to all roof elements, including those that may fit within the definition of Primary Structural Frame, which came into the code later. However, some code officials have not permitted the use of footnote c for roof members that fit the definition of primary structural frame, since there is a separate row for primary structural frame in the table. We

believe the correct interpretation is to allow the footnote to apply to all roof construction, including structural members that are part of the primary structural frame. In the 2018 International Building code cycle, a similar phrase, “including protection of primary structural frame members” and the qualifier “in roof construction” was approved for footnote b, which permits roof construction, including roof members that are part of the primary structural frame, to be unprotected when every part of the roof construction is more than 20 feet above the floor below. In a similar manner, this code change will clarify that footnote c is intended to permit all roof construction with a required rating of one hour or less to be heavy timber. (G102-18)

## **SECTION 602 CONSTRUCTION CLASSIFICATION**

### **Section: TABLE 602**

#### **Section: 602.4**

##### **Reason:**

The change from “rating” to “rated” in Section 602.4 is editorial for good grammar. (G109-18)

#### **Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

#### **Section: 602.4.1 (New) – 602.4.4.4 (New)**

##### **Reason:**

Section 602.4.4.1 and 602.4.4.2 This code change corrects a correlation issue that was the result of two conflicting code changes that were both approved in the 2018 International Building Code. The code change eliminated the minimum thickness dimension of the exterior wall assembly for both Cross Laminated Timber (CLT) and Fire Retardant Treated Wood (FRTW) exterior walls, and introduced a minimum thickness for the CLT itself.

Another code change re-introduced the minimum wall assembly thickness into these sections to provide a re-organization of provisions without making any technical changes to the existing requirements. Correlation was made in favor of nullifying the action to require a minimum thickness of CLT, which was not anticipated. The proposal to introduce a minimum thickness to the CLT should be affirmed by approval of this proposal. A minimum thickness for the CLT is a better parameter for structural integrity than an overall thickness of wall, since overall thickness could include exterior sheathing, cladding, and exterior insulation. This proposal will provide the thickness required for the CLT.

In regard to FRTW exterior walls, the thickness of the assembly is not a significant factor, rather the required fire resistance rating is. A minimum thickness for the entire exterior wall assembly is unnecessary. (G110-18)

#### **Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

## Section 602.4.4.2

### Reason:

The code currently does not recognize that heavy timber members could be used as a beam, header, column or other boundary element within a wall of CLT. Glued laminated, SCL, or solid sawn heavy timber elements having the same rating, thickness, and protection as required for the CLT will have no significant difference in fire performance. This is a common sense approach to the current code, but should be made explicit. (G111-18)

### Response to Code Advisory Committee (CAC): Approved as Submitted

SFM agrees with the CAC recommendation.

## Section 602.4.4.4

### Reason:

The option of having protected concealed spaces in Type IV buildings is important to encourage the adaptive re-use of existing heavy timber buildings as well as to provide for the installation of mechanicals in Type IV cross laminated timber (CLT) construction. In addition to the current requirements for all concealed spaces in combustible construction, this change would require additional protection of the concealed spaces with sprinkler coverage, or eliminating all air space with noncombustible insulation, or covering all combustible surfaces with gypsum. These alternatives are the same protection required for concealed spaces in NFPA 13, except they are slightly more restrictive since 5/8-inch Type X gypsum is required in the one case. In addition, because the provisions are taken from NFPA 13, in order to use these provisions, the entire building must be protected by a sprinkler system complying with NFPA 13.

A similar change was recently successful in NFPA 220 and NFPA 5000. This proposal is more conservative in that it requires 5/8-inch Type X gypsum instead of 1/2 -inch gypsum in the alternative for sheathing combustible concealed spaces with gypsum in proposed section 602.4.4.4. (G109-18)

**Background information:** The ICC Board approved the establishment of an ad hoc committee for tall wood buildings in December of 2015. The purpose of the ad hoc committee is to explore the science of tall wood buildings and to investigate the feasibility and take action on developing code changes for tall wood buildings. The committee is comprised of a balance of stakeholders with additional opportunities for interested parties to participate in the four Work Groups established by the ad hoc committee, namely: Code; Fire; Standards/Definitions; and Structural. For more information, be sure to visit the [ICC website](http://iccsafe.org/codes-tech-support/cs/icc-ad-hoc-committee-on-tall-wood-buildings/) iccsafe.org/codes-tech-support/cs/icc-ad-hoc-committee-on-tall-wood-buildings/ (link active and up to date as of 12/27/17). As seen in the “Meeting Minutes and Documents” and “Resource Documents” sections of the committee web page, the ad hoc committee reviewed a substantial amount of information in order to provide technical justification for code proposals.

The TWB believes the package of code change proposal will result in regulations that adequately address the fire and life safety issues of tall mass timber buildings.

California Governor Edmund G. Brown issued Executive Order B-52-18 on May 10, 2018 that became effective immediately. Among other directives, order number 13 charged the State Fire Marshal, the department of Housing and Community Development, the Division of the State Architect, the California Building Standards Commission and the Statewide Health Planning and Development to review the approved Tall Wood Building Proposals of the International Code Council's Ad Hoc Committee on Tall Wood Buildings and shall consider proposing its adoption into the California Building Standards Code in the subsequent intervening code cycle.

To review the [Executive Order B-52-18](#), please visit:

[ca.gov/archive/gov39/wp-content/uploads/2018/05/5.10.18-Forest-EO.pdf](http://ca.gov/archive/gov39/wp-content/uploads/2018/05/5.10.18-Forest-EO.pdf)

The State Fire Marshal initiated a workgroup to evaluate, discuss and make recommendations on the approved ICC Tall Wood Building proposals for adoption to the 2019 Title 24 intervening rulemaking cycle. Invitations were sent out to state agencies, stakeholders, fire service, building officials, interested parties and various industry organizations. The first meeting was held on April 2, 2019 at the State Fire Marshal headquarters at 2251 Harvard Street, Sacramento, CA 95815 from 0900 – 1500. There was a conference line and Skype computer meeting set up to accommodate widespread participation. The workgroup's last meeting was held on August 16, 2019, at which time all comments, presentations from industry, concerns and recommendations to the State Fire Marshal were finalized.

**Cost Impact:** The code change proposals will not increase or decrease the cost of construction. (G108-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]  
[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Item 7. CHAPTER 7**  
**FIRE AND SMOKE PROTECTION FEATURES**  
**SECTION 703**  
**FIRE-RESISTANCE RATINGS AND FIRE TESTS**

**Section: 703.8 (New)**

**Reason:**

The ICC TWB committee determined that the fire resistance rating of mass timber structural elements, embodied in a series of proposals including this one, shall consist of the inherent fire resistance rating of the mass timber and the additional fire resistance rating of the Noncombustible Protection described in new definitions proposals. The ICC TWB committee determined that at least 2/3 of the required fire resistance rating should come from the Noncombustible Protection. The TWB decided to provide both a performance path, as embodied in this proposal, and a prescriptive path, embodied in another proposal for Section 722.7.

This proposal constitutes the performance path for determining the contribution of noncombustible protection for mass timber elements. The proposal outlines a protocol to accomplish this. This proposal should be considered as a companion proposal to the proposals creating new types of mass timber construction in Section 602.4 and the code proposal in Section 722.7. The proposed new Section 602.4 requires the use of noncombustible protection on most mass timber elements in most of the proposed new types of construction.

This proposal, new section 703.8, is created to provide the method by which any material not contained in the prescriptive Table in Section 722.7 may be tested to show the time, in minutes, which it contributes as noncombustible protection. This procedure is representative of the procedure used in the past to determine the protection times for various membranes in Section 722.6 Component Additive Method for wood construction. It is neither new nor ambiguous in its use. Recent testing by AWC confirms the values derived from historic testing. A [report](#) is available at the following link:

[bit.ly/WFC-firetestofGWBonCLT](http://bit.ly/WFC-firetestofGWBonCLT)

This link was confirmed active on October 14, 2019.

This procedure should not be confused with “membrane protection” which is based on temperature rise on the unexposed side of a membrane attached to construction elements. Noncombustible construction is, instead, noncombustible material meeting the requirements of Section 703.5. Its contribution to the fire resistance rating of any building element is determined by this proposed new section. Simply put, it is determined by measuring the fire resistance time, in minutes and determined by structural failure, of a mass timber building element and then conducting a second test measuring the fire resistance time, in minutes and determined by structural failure, of the identical mass timber element with identical load, construction and condition, but with the proposed noncombustible protection applied to it. The difference in time between the two samples is the contribution, in minutes, of the noncombustible protection.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (FS5-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]  
[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Section: 703.9 (New)**

**Reason:**

The International Code Council (ICC) Ad Hoc Committee on Tall Wood Buildings (TWB) was created by the ICC Board to explore the science of tall wood buildings and take action on developing code changes for tall wood buildings. The ICC TWB has created several code change proposals with respect to the concept of tall buildings of mass timber. Mass timber has inherent properties of fire resistance, serving both to provide structural fire resistance and to safeguard against the spread of fire and smoke within a building or the spread of fire between structures.

When mass timber panels are connected, fire tests have demonstrated that it is important for the abutting edges and intersections in the plane of and between the different planes of panels that form a separation to be sealed. The structures tested as part of the fire tests supporting this submittal were constructed with this sealing.

To review a [summary of the fire tests](#), please visit:  
[bit.ly/ATF-firetestreport](http://bit.ly/ATF-firetestreport)

To watch [summary videos of the fire tests](#), which are accelerated to run in 3-1/2 minutes each, please visit:  
[bit.ly/ATF-firetestvideos](http://bit.ly/ATF-firetestvideos)



Both links were confirmed active on October 14, 2019

The United States Cross Laminated Timber (CLT) manual recommends a bead of construction adhesive. Construction adhesive or another sealant can be used to prevent air flow. When a wall or horizontal assembly serves as the separation between two atmospheres, a fire creates differential pressure where heated gasses raise the pressure and work to drive fire and hot gasses through the structure. Voids that are not properly sealed can serve as a conduit for air movement during a fire, so abutting edges and intersections are recommended to be sealed.

The exception provides clarity that sealants and adhesives are not required where voids are a part of a tested fire assembly, when such assembly is tested without the use of sealants and adhesives in the void space.

Periodic special inspections during construction are required to make sure the appropriate sealant or adhesive is used and to establish inspections to verify for ongoing quality control.

The proposal adds a special inspection requirement to address sealants and adhesives that are a part of the required design. There is a need to ensure that the details of construction are adhered to, and the special inspection is a means to ensure that these construction details are adequately emphasized during the construction process.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (FS6-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

## SECTION 707 FIRE BARRIERS

### Section: 707.4

#### Reason:

Battery storage systems, now referred to as Energy Storage Systems, have historically been separated from other portions of an occupancy by one or two hour fire-resistance-rated construction as an Incidental Use. The enclosure protects the general occupancy areas from an event involving the Incidental Use.

One of the hazards of an energy storage system is thermal runaway leading to a fire event. These fire events can be significant and last several hours. The systems are required to be designed to prevent thermal runaway internally, however, thermal runaway can be induced in some case by an exterior event such as a damaging impact or from a fire exposure. Though the code now requires fire suppression of the space occupied by the energy storage system, the remainder of the occupancy may not be protected and the current code language allows the use of fire-protection rated glazing material in door and window openings.

Fire-protection-rated glazing is intended to stop spread of flame and smoke, but not radiant heat. The radiant heat flow through the glazing is significant, enough to cause a fire on the other side of the fire-resistance-rated separation assembly, and, specific to this issue, induce thermal runaway of the energy storage system. (See the included [Intertek test report](#) and heat transmittal through ceramic fire-protection-rated glazing with a revision date of May 13, 2016.)

[dropbox.com/sh/n8h65nht5dcruq5/AAAZxIS4ioKu\\_eTXz1GqjwQ3a?dl=0](https://dropbox.com/sh/n8h65nht5dcruq5/AAAZxIS4ioKu_eTXz1GqjwQ3a?dl=0)

A large part of the new requirements in the International Fire Code targeting energy storage systems and in the currently in cycle NFPA 855 Energy Storage Systems Standard is protecting the energy storage system from exposure hazards to the system. This proposal builds on that part of the protection to the systems by prohibiting the use of fire protection- rated glazing in one hour assemblies that are used to enclose energy storage systems.

**Cost Impact:** The code change proposal will increase the cost of construction. (FS26-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

#### **[ENERGY STORAGE SYSTEMS 2019 INTERVEING PROPOSALS]**

##### **[Associated Sections in Part 2, California Building Code]:**

306.2, TABLE 414.5.1, TABLE 509, 707.4, TABLE 716.1(2), T ABLE 716.1(3),  
716.2.5.4.1 (New), 716.3.2.1.1.1 (New), TABLE 903.2.11.6, [Chapter 35] NFPA 68  
(New)

## SECTION 709 SMOKE BARRIERS

### Section: 709.5

#### Reason:

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed change restores CBC requirements for fire rated smoke barrier doors installed across corridors, eliminates confusion regarding requirements for the installation of smoke barrier doors, provides consistent requirements for both swinging doors and horizontal sliding doors and coordinates requirements with similar provisions included in CBC Section 909.5.3, Exception 3. The proposed change preserves exceptions prohibiting a center mullion and permitting the installation of protective plates on swinging doors installed across corridors.

The proposed change requires smoke barrier doors in Group I-2, I-2.1, R-2.1 and ambulatory care facilities, where installed across corridors, shall be in accordance with Section 716. CBC Section 716 requires that smoke barrier doors have a minimum fire protection rating of 20 minutes and shall be tested in accordance with NFPA 252 or UL 10C. CBC Section 709.5, Exceptions 1 and 2 contain criteria for cross-corridor doors that fail to meet CBC Section 716. The proposed change deletes the provisions in 709.5, Exceptions 1 and 2 that describe requirements for doors that do not comply with CBC Section 716.

The IBC has incrementally removed requirements for fire protection rated opening protection and positive latching for doors installed across corridors in Group I-2 smoke barriers. As an unintended consequence, the IBC modifications also eliminate requirements for fire resistance rated doors and positive latching swinging doors across corridors in smoke barriers in Group I-2.1 and R-2.1 occupancies despite that the IBC does not recognize or regulate these occupancy groups. It has never been the intent of the SFM to permit doors in smoke barriers installed across corridors not be fire protection rated or that such doors not be positive latching. The 1985 Triennial Edition of the State Building Code and subsequent editions of the CBC through the 2001 CBC required smoke barrier doors in Group I-2 smoke barriers be fire protection rated and have positive latching.

Requiring fire protection rated opposite-swinging doors in accordance with CBC Section 716 is consistent with the requirement in Section 709.5, Exception 2 that requires horizontal sliding doors be fire protection rated in accordance with CBC Section 716. The CBC contains no requirement for the substantial construction of swinging smoke barrier doors installed across corridors. The change restores a standard for swinging smoke barrier doors consistent with the requirement for horizontal sliding doors used for the same purpose.

CBC Section 709.5, Exception 1 includes a confusing stipulation permitting positive latching to be omitted where permitted by the door manufacturer's listing, however;

elsewhere in Exception 1 a door is not required to be listed. The omission of positive latching on smoke barrier doors relies on the opening and closing force of doors to maintain a smoke seal. Relying on closing and opening force to keep smoke barrier doors closed affords a potential for a conflict with accessibility requirements regulating the opening force of accessible doors. Regardless, the provisions of Section 709.5, Exception 1 permitting the omission of positive latching are in conflict with CBC Section 909.5.3, Exception 3 which requires positive latching. The proposed change restores requirements for the positive latching of such doors.

A review of actual field conditions determined that it has been the actual practice of construction to install opposite swinging rated doors of labeled substantial construction. Positive latching at smoke barrier corridor door openings is a requirement of CBC Section 909.5.3, Exception 3. The proposed change coordinates requirements in the California Building Code and reflects actual construction practice.

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSLS]**

**[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1

**SECTION 716  
OPENING PROTECTIVES**

**Sections: TABLE 716.1(2), TABLE 716.1(3), 716.2.5.4.1 (New), 716.3.2.1.1.1 (New)**

**Section: TABLE 716.1(2) – 716.3.2.1.1.1 (New)**

**Reason:**

Battery storage systems, now referred to as Energy Storage Systems, have historically been separated from other portions of an occupancy by one or two-hour fire-resistance-rated construction as an Incidental Use. The enclosure protects the general occupancy areas from an event involving the Incidental Use.

One of the hazards of an energy storage system is thermal runaway leading to a fire event. These fire events can be significant and last several hours. The systems are required to be designed to prevent thermal runaway internally, however, thermal runaway can be induced in some case by an exterior event such as a damaging impact or from a fire exposure. Though the code now requires fire suppression of the space occupied by the energy storage system, the remainder of the occupancy may not be protected and the current code language allows the use of fire protection rated glazing material in door and window openings.

Fire protection rated glazing is intended to stop spread of flame and smoke, but not radiant heat. The radiant heat flow through the glazing is significant, enough to cause a fire on the other side of the fire-resistance-rated separation assembly, and, specific to this issue, induce thermal runaway of the energy storage system. (See the included [Intertek test report](#) and heat transmittal through ceramic fire protection rated glazing with a revision date of May 13, 2016.)

dropbox.com/sh/n8h65nht5dcruq5/AAAZxIS4ioKu\_eTXz1GqjwQ3a?dl=0

A large part of the new requirements in the International Fire Code targeting energy storage systems and in the current cycle of NFPA 855 Energy Storage Systems Standard is protecting the energy storage system from exposure hazards to the system. This proposal builds on that part of the protection to the systems by prohibiting the use of fire protection rated glazing in one hour assemblies that are used to enclose energy storage systems.

**Cost Impact:** The code change proposal will increase the cost of construction. (FS26-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[ENERGY STORAGE SYSTEMS 2019 INTERVEING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

306.2, TABLE 414.5.1, TABLE 509, 707.4, TABLE 716.1(2), TABLE 716.1(3), 716.2.5.4.1 (New), 716.3.2.1.1.1 (New), TABLE 903.2.11.6, [Chapter 35] NFPA 68 (New)

**SECTION 718  
CONCEALED SPACES**

**Section: 718.2.1**

**Reason:**

The purpose of this code change proposal is to recognize that mass timber as a suitable fireblocking material. The current list of acceptable materials lists “nominal lumber”, therefore since mass timber (e.g. Sawn, glued-laminated, and cross laminated timbers) are of greater mass the correlation from single nominal lumber to mass timber was determined to be of equal or greater blocking resistance to reduce the ability of fire, smoke and gasses from moving to different part of the building through combustible concealed spaces.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (FS73-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**SECTION 722  
CALCULATED FIRE RESISTANCE**

**Sections: 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New)**

**Section: 722.7 (New) – 722.7.2.2 (New)**

**Reason:**

Typically, mass timber elements will be large due to structural requirements. In addition, Cross Laminated Timber panels typically are utilized in odd number laminations. This typically results in excess capacity which means better fire endurance. Thus, mass timber elements are conservative in their fire resistance rating. Furthermore, the ICC TWB committee decided to provide both a prescriptive path, as embodied in this proposal, and a performance path, embodied in another proposal.

This proposal outlines a method to calculate the fire resistance rating of a protected wood element by adding the fire resistance rating of the unprotected wood member together with the protection time provided by the noncombustible protection applied to the exposed wood.

This proposal should be considered as a companion proposal to the proposals creating new types of mass timber construction in Section 602.4 and the code proposal for Section 703.8 outlining a testing protocol to determine the contribution of noncombustible protection.

This code proposal allows the user to select a prescriptive solution utilizing Type X gypsum wall board, which is deemed to comply with the basic requirements of this section and those of the proposed Section 602.4. Since this is a prescriptive solution, conditions of use such as attachment, finishing and edge treatment when bordering exposed mass timber areas, are also included in this section.

A proposal in Section 703.8 both forms the performance path for this determination and is the basis by which the contribution of the Noncombustible Protection to the fire resistance rating is determined. Testing of beams, columns, walls and ceiling panels has been used to establish the values found in table 722.7.1(b) for 1/2-inch Type X and 5/8-inch Type X gypsum board as well.

Recent testing by American Wood Council confirms the values derived from historic testing. A [report](#) is available at the following link:  
[//bit.ly/WFC-firetestofGWBonCLT](http://bit.ly/WFC-firetestofGWBonCLT)

This link was confirmed active on October 14, 2019

Tests proposed in Section 703.8 may be used in the future to justify additional materials added to this table and should not be confused with “membrane protection” which is based on temperature rise on the unexposed side of a membrane attached to construction elements. Noncombustible construction is, instead, noncombustible material meeting the requirements of Section 703.5. Its contribution to the fire resistance rating of any building element is determined by this proposed new section. Simply put, it is determined by measuring the fire resistance time in minutes to the point of structural failure of a mass timber building element and then conducting a second test measuring the fire resistance time in minutes taken to the same point of structural failure. Each test is to be conducted with identical mass timber element with identical load, construction and condition, but with the proposed noncombustible protection applied to the second assembly. The difference in time between the two samples is the contribution, in minutes, of the noncombustible protection.

The referenced standards, ASTM C645 and ASTM C1002, are currently referenced in the 2019 California Code of Regulations Title 24.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (FS81-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4

(New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Item 8. CHAPTER 7A [SFM]  
MATERIALS AND CONSTRUCTION METHODS  
FOR EXTERIOR WILDFIRE EXPOSURE**

**SECTION 705A  
ROOFING**

**Section: 705A.1**

**Reason:**

The proposal from the State Fire Marshal Wildland Urban Interface (WUI) workgroup is to require Class A roof assemblies. Currently Class A, B or C roofs are installed depending on the level of fire hazard severity that is designated by the adopted Fire Hazard Severity Zone maps. The change affects areas that are designated as moderate or high fire severity zones. The very high fire severity zone already requires a Class A roof. It must also be noted the many of the local jurisdictions already have local ordinances that require a Class A roof in all wildland areas identified. In these jurisdictions, these regulations will have no change.

When the regulations for roofing requirements were created over a decade ago the cost was a significant issue that allowed the use of Class B and C roofing material in moderate and high fire severity zones within the wildland urban interface areas. Now with the increased production of Class A rated roof assemblies the cost is no longer a controlling factor and there is little to no cost difference for the change.

Reports from the 2017 and 2018 fire data recognize that not only the designated very high fire severity zone areas require a higher level of protection, but all designated areas will benefit from the installation of a Class A rated roof assembly.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 705A.2**

**Reason:**

705A.2 section is slightly confusing as currently written and is being proposed to make the regulation more understandable and clear. Note, that it is not the air space that is to have the layer of cap sheet, but the roof covering assembly. Also, the roof covering assembly is what needs to resist the intrusion of flames and embers and not the air space. Thus, changes are being made for clarification and to require both the cap sheet and the firestopping.



The use of the nonperforated cap sheet alone has been found not to be sufficient to prevent the intrusion of embers and for that reason the recommendation is to do both, namely use the cap sheet and firestop the opening.

The exception to use mineral wool board or other non-combustible material is intended to give an option to the designers and builders to achieve the same outcome based on the insulation and fire resistance it provides. These materials could be applied over a standard underlayment thus, protecting it and there would be no need for the cap sheet.

Mudded hip and ridge caps refer to a tile roof but there are other examples where roofs have an airspace under the roof covering such as corrugated steel or standing seam or other metal roofing on wood strips. In any case an acceptable option could be to put one or more layers of mineral wool board between the roofing (with airspace) and over the roof underlayment which is over the solid wood roof deck, purlins, girts or battens.

With one or more continuous layers of mineral wool there is no need for the cap sheet and ventilation can be encouraged through the airspace from the roof edge up through the hips and ridge which serves to improve the performance of the space under the roof along with the continuous insulation board to draw moisture through and out of the roof system.

Having the continuous mineral insulation encourages movement of moisture by moving the dew point outside of the wood in cold climates while adding an extra measure of fire resistance insulating the underlying decking from transmitted heat from the exposed noncombustible roofing. It is possible with the mineral wool there is no need for mudded hip and ridge caps if the mineral board is continuous under the roofing protecting the deck or other underlying wood construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

## **SECTION 706A**

### **VENTS**

**Sections: 706A.2, 706A.2.1 (New), 706A.3**

**Reason:**

It is important to ensure that vents fully protect against penetration of embers and of flames. This applies both to sections 706A.2 and 706A.3.

**Section: 706A.2**

**Reason:**

706A.2 Testing and data indicate that protecting openings with noncombustible materials with 1/8th inch or 1/16th inch openings, does not ensure that flames or small embers will not penetrate that opening. Reports from industry show that openings protected while complying with the requirements associated with standard ASTM E2886, will provide that assurance. Note: that it is essential that the fire test criteria for ASTM E2886 are included in the code proposal because they are not included as requirements in the standard.

Two options are being provided: vents listed by the California State Fire Marshal as Wildland Flame and Ember Resistant (WUI) vents and Wildland Urban Interface vents listed to ASTM E2886. In both cases, the vents must comply with the same three requirements.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 706A.2.1 (New)**

**Reason:**

Section 706A.2.1 was added to ensure that all openings are covered by the requirements of 706A.2.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 706A.3**

**Reason:**

706A.3 is correlated to require the same criteria of section 706A.2 because the scope of ASTM E2886 is broad enough that it applies to all types of vents.

The first section of the scope reads as follows: "1.1 This fire-test-response standard prescribes two individual methods to evaluate the ability of a gable end, crawl space (foundation) and other vents that mount on a vertical wall or in the under-eave area to resist the entry through the vent opening of embers and flame. The ability of such vents to completely exclude entry of flames or embers is not evaluated.

Roof ridge and off-ridge (field) vents are excluded from this standard. Acceptance criteria are not provided in this standard."

It was determined by the State Fire Marshal WUI work group that the exceptions in the current existing code language were not exceptions but requirements. The arrangement of the exceptions was to renumber and provide two exceptions. The first exception provides the authority having jurisdiction to approves special conditions or technology that meets the intent of preventing the intrusion of flame and embers. The second exception is for vents serving a fully sprinklered attic and located more than 12 feet in distance from other combustibles. The exception also includes the exterior wall covering and underside of the eave be protected with noncombustible or ignition resistant materials. The exception meets the intent because of the additional protection of an automatic fire suppression system.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**SECTION 709A  
DECKING**

### Section: 709A.1.1 (New)

#### Reason:

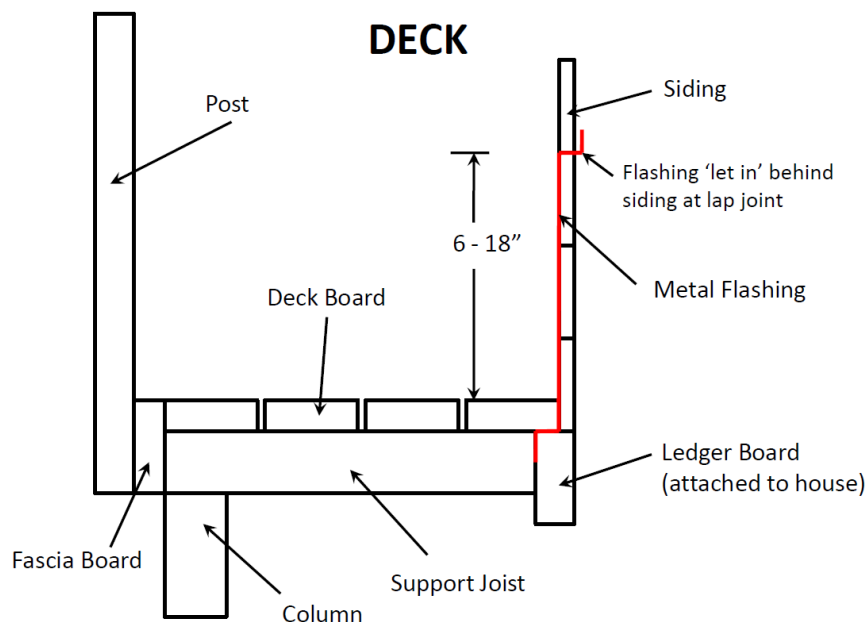
It has been shown that applying metal flashing to the intersection of the wall and the deck will protect the wall from flame spread along the deck, at a small additional cost.

For further information, NFPA 1144 (Standard for Reducing Structure Ignition Hazards from Wildland Fire) contains the following wording:

Section 5.6.4 A minimum of 6 in. (150 mm) noncombustible vertical separation between a horizontal surface and siding shall be maintained.

The examples 1 and 2 are show for reference only on to how one may achieve compliance with the code proposal. The code was written as a generic regulation to leave it up to the designer, architect or owner to create a desirable look to meet the intent, which is to prevent the accumulation of debris at the base of the intersection of the exterior wall and deck surface.

#### Example 1



### Section: 709A.3

#### Reason:

The proposal is editorial and simply does two things:

1. Replaces the non-mandatory term "may" by the mandatory phrase "shall be permitted to". This creates clarity for the code user.

2. Replaces the term “flame spread rating” by the term “flame spread index”, which is the term used in the ASTM E84 standard. Correlation with the standard language ensures clarity for the code user.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[WILDLAND URBAN INTERFACE 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

705A.1, 705A.2, 706A.2, 706A.2.1 (New), 706A.3, 709A.1, 709A.1.1 (New), 709A.3, 1505.1.1, 1505.1.2, 1505.1.3

**Item 9. CHAPTER 9**

**FIRE PROTECTION AND LIFE SAFETY SYSTEMS**

**SECTION 903**

**AUTOMATIC SPRINKLER SYSTEMS**

**Section: 903.2.10.2 (New)**

**Reason:**

Section 903.2.10.2 is added to prescriptively require a performance-based designed sprinkler system. With the projected fire load in these occupancies and the inability to get water to the seat of the fire, a prescriptively designed sprinkler system is not anticipated to provide the required water for fire suppression.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation. The section was added after the CAC to correlate with Part 9, per the direction of CAC.

**Section: TABLE 903.2.11.6 (Automatic Parking Garage Workgroup)**

**Reason:**

Enclosed mechanical-access parking garages are being constructed in the United States on an increasing basis, yet there are no prescriptive code requirements for these occupancies. These occupancies are unique from the traditional open mechanical-access parking garage in that there are no openings, the entire structure is enclosed. These occupancies are more similar to automated high rack storage systems, they have no floors, no stairwells and no above ground level access, except maintenance walkways and ladders. With these being a silent occupancy type, the Building or Fire Code does not provide the code official with prescriptive requirements. There are fires involving parked vehicles with the vehicle parked and the ignition system off. If a fire were to occur in an enclosed mechanical-access parking garage, unless the local code authority required additional fire protection during construction, they do not have a point-setter to code requirements. Where these systems have been installed, there is not a consistent fire protection methodology to protecting these structures from a fire.

An enclosed mechanical-access parking garage offers many firefighting challenges; most are constructed in a building shell, without a floor system. The vehicles are parked in a cage or rack system, with no safe elevated access to the interior of the structure. With firefighter safety in mind and to have the ability to use fixed fire suppression to extinguish and or control these fires, the code proposal is presented.

The added section 406.6.4 reference to the table gives the code user a pointer to the additional suppression requirements.

**Cost Impact:** The code change proposal will decrease the cost of construction. This proposal is to provide prescriptive language for enclosed mechanical-access parking garages. These code requirements are being currently enforced as part of a performance-based design when approved and constructed. As the designer and builder will have prescriptive requirements, they will not be required to obtain an Alternative Materials and Methods approval for each project. (G39-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[AUTOMATIC PARKING GARAGE 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

202 (New), 406.6.4 (New), 406.6.4.1 (New), 406.6.4.2 (New), 406.6.4.3 (New), 406.6.4.3.1 (New), 406.6.4.4 (New), TABLE 508.4, Table 903.2.11.6

**Section: TABLE 903.2.11.6 (Energy Storage Workgroup)**

**Reason:**

The proposal adds a reference to the appropriate section in the California Fire Code for stationary and mobile energy storage systems.

Section 1206.10 covers two types of mobile ESS installations/operations, charging and storage of the mobile ESS at its home facility when it is not deployed to an event or facility, and deployment of the mobile ESS for temporary energy storage applications, such as providing power at an electric vehicle event. Mobile ESS charging and storage locations are treated the same as a stationary indoor or outdoor installation in accordance with Section 1206.7 or 1206.8, but can include temporary electrical and fire suppression system connections. This provides an acceptable level of protection based on the exposures at the facility, and prevents parties from using an ESS on wheels as a permanent ESS with less than effective protection.

To summarize this proposal, developed by a large industry and code official work group, more effectively protects ESS installations based on knowledge gained since last code cycle. It provides protection customized for the types of installations that are being deployed today, instead of using the “one size fits all” type of protection.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. Some of the requirements in this proposal have the potential to increase the cost of providing ESS installations. However, some of the provisions in this proposal better address risks and owner/user needs in dedicated use (utility) buildings and outdoor remote installations, and will probably decrease the cost of those installations as compared to installations using the current existing requirements. (F203-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[ENERGY STORAGE SYSTEMS 2019 INTERVEING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

306.2, TABLE 414.5.1, TABLE 509, 707.4, TABLE 716.1(2), T ABLE 716.1(3), 716.2.5.4.1 (New), 716.3.2.1.1.1 (New), TABLE 903.2.11.6, [Chapter 35] NFPA 68 (New)

**Section: TABLE 903.2.11.6 (Puzzle Room Workgroup)**

**Reason:**

The proposal is editorial and correlates the change to the definition. It corrects the code reference section number.

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[PUZZLE ROOM 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

Table of Contents, 202, Title 411, 411.1, 411.2, 411.3, 411.4, 411.5, 411.6, 411.6.1, 411.7, TABLE 903.2.11.6, 907.2.11, 907.2.11.2, 907.2.11.3, TABLE 1017.2, INDEX

**Section: 903.3.1.1.1**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed changes provide additional provisions identifying when the omission of sprinkler protection is permitted. The proposed changes eliminate provisions prohibiting the omission of sprinkler protection in Group I-2, I-2.1 and I-3 occupancies. The proposed changes relocate provisions related to fire sprinkler protection for solar photovoltaic power systems to a separate new CBC section. The changes also include editorial changes.

The proposed changes to CBC Section 903.3.1.1.1 delete language that exempts Group I-2, I-2.1 and I-3 occupancies from the enumerated items of this section that permit automatic fire detection systems to replace the requirement for automatic sprinkler protection. These proposed changes acknowledge that the potential for damage or failure of elevator operation caused by fire sprinkler activations is of a greater concern than the omission of sprinkler protection.

The proposed changes require that CBC Section 903.3.1.1.1, Item 1 require the approval of the fire code official. This is consistent with other items in Section 903.3.1.1.1. It is also of greater concern because such omissions could include Group I-2, I-2.1 or I-3 occupancies. Regardless of the occupancy group, it is inappropriate to permit the omission of fire sprinkler protection without fire code official approval.

The proposed changes to CBC Section 903.3.1.1.1 amend Item 3 to indicate that fire service access elevator requirements that omit fire sprinkler protection are also located in CBC Section 3007. The proposed change to CBC Section 903.3.1.1.1 amends Item 4 to also include hoistways. This is consistent with the provisions of the referenced CBC Section 3008 that permit the omission of fire sprinkler protection in hoistways. These SFM proposed changes coordinate CBC Section 903.3.1.1.1 with CBC Sections 3007 and 3008.

There are no proposed changes to CBC Section 903.3.1.1.1, Item 2, however; due to other SFM proposed changes, this item applies to Group I-2, I-2.1 and I-3 occupancies.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The proposal was modified to address the committee members concerns about authority. Changing the language from the “fire official” to “authority having jurisdiction” provides the clarity and flexibility the committee was looking for.

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSLS]**

**[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1

**Section: 903.3.1.2.3**

**Addendum reason:**

The proposal is to delete item 4 because Group R-4, Condition 2 is not relevant in California. It is not a recognized occupancy group; therefore, it is confusing to the code user. The language was missed in the adoption of the 2018 International Fire and Building Codes. The proposal is to correct that oversight.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**SECTION 904  
ALTERNATIVE AUTOMATIC  
FIRE-EXTINGUISHING SYSTEMS**

**Section: 904.13**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

In Section 904.13, Item 2, the SFM proposed change deletes Group I-2.1 from the provisions regulating domestic cooking facilities installed in accordance with CBC Section 407.2.6. Section 407.2.6 is specific to nursing homes. Group I-2.1 occupancies are not regulated by Section 407.2.6.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1

**SECTION 905  
STANDPIPE SYSTEMS**

**Section: 905.4**

**Reason:**

The State Fire Marshal (SFM) proposed modifications to item 6 of the above section relating to standpipe hose connection location determination in the 2009 Triennial Code Rulemaking Cycle. California Fire Department's do not maintain different hose lengths in standpipe packs and may not have the proper length of hose for a sprinklered building. Adding the "path of travel" requirement provides better guidance to the design professional to measure such distances using a radius and not ignoring the existence of walls.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM verified the deletion of model code language is a printer error and was an existing California amendment that was not brought forward.

**SECTION 907  
FIRE ALARM AND DETECTION SYSTEMS**

**Section: 907.2.6.2.2 [WITHDRAWN]**

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1



**Sections: 907.2.10.2.1 (New), 907.2.10.2.1.1 (New), 907.2.10.2.2, 907.2.10.2.3, 907.2.10.2.4, 907.2.10.2.5 (New), 907.2.10.2.6 (New)**

**Section: 907.2.10.2.1 (New) – 907.2.10.2.6 (New)**

**Reason:**

The code proposal is to coordinate the fire alarm regulations in the California Fire Code and California Building Code. The special occupancy fire and life safety system requirements can easily be missed when the codes do not correlate. The renumbering and addition of the section for fire alarm creates a cohesive application of the code.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM has verified that these sections have been missed in the printing in the building code. Additional study will be done for the 2022 Triennial rulemaking when all sections in the building and fire code can be coordinated to eliminate conflicts where they may exist.

**Section: 907.2.10.2.6 (New)**

**Reason:**

This section is being added to comply with Health and Safety Code section 13131.5. The 2018 International Fire and Building Code proposal F196-16 removed the requirements for a manual fire alarm in Group R-4 facilities. The proponent's reason is to allow for group homes with residents capable of self-preservation to have an appropriate level of safety. A manual fire alarm system and an automatic smoke detection system for a facility with 16 or fewer residents is not warranted. These systems are required in apartment buildings with 16 or more apartments. Not only does that apartment building have significantly more residents, it consists of separate units. A Group R-4 facility is where the residents are effectively working together similar to a single-family home.

**Health and Safety Code Section 13131.5 for reference:**

HEALTH AND SAFETY CODE - HSC  
DIVISION 12. FIRES AND FIRE PROTECTION [13000 - 14960]  
*(Division 12 enacted by Stats. 1939, Ch. 60.)*

PART 2. FIRE PROTECTION [13100 - 13263]  
*(Part 2 enacted by Stats. 1939, Ch. 60.)*

CHAPTER 1. State Fire Marshal [13100 - 13159.10]  
*(Chapter 1 enacted by Stats. 1939, Ch. 60.)*

ARTICLE 1. General [13100 - 13135]  
*(Heading of Article 1 added by Stats. 1945, Ch. 1173.)*

**13131.5**

(a) All of the following building standards shall apply to any single-story building housing non-ambulatory persons which is operated as a residential care facility for the elderly and licensed to care for more than six persons:

(1) The entire building shall have installed a State Fire Marshal approved fully automatic fire extinguishing system, designed and installed in accordance with Section 2-3801(d) of Chapter 2-38 of Part 2 of Title 24 of the California Code of Regulations.

(2) The entire building shall have installed a State Fire Marshal approved and listed manual fire alarm system.

(3) The entire building shall be of at least Type V one-hour fire resistive construction, as described in Chapter 2-22 of Part 2 of Title 24 of the California Code of Regulations.

(4) A building with individual floor areas over 6,000 square feet per floor shall have an approved smoke barrier dividing the floor approximately in half, unless there is direct exiting available from each dwelling unit.

(b) All of the following building standards shall apply to any two-story building housing non-ambulatory persons on a second floor, which is operated as a residential care facility for the elderly and licensed to care for more than six persons:

(1) The entire building shall have installed a State Fire Marshal approved fully automatic fire extinguishing system, designed and installed in accordance with Section 2-3801(d) of Chapter 2-38 of Part 2 of Title 24 of the California Code of Regulations.

(2) The entire building shall have installed a State Fire Marshal approved and listed automatic fire alarm system.

(3) The entire building shall be of at least Type V one-hour fire resistive construction, as described in Chapter 2-22 of Part 2 of Title 24 of the California Code of Regulations.

(4) A building with individual floor areas over 6,000 square feet per floor shall have an approved smoke barrier dividing the floor approximately in half, without regard to whether direct exiting is available from each dwelling unit.

(5) The entire building shall have at least two sets of enclosed stairways.

(c) All of the following building standards shall apply to any multistory building housing non-ambulatory persons on the third, fourth, or fifth floor, which is operated as a residential care facility for the elderly and licensed to care for more than six persons:

(1) The entire building, unless otherwise exempt pursuant to subdivision (d) of Section 13113, shall have installed a State Fire Marshal approved fully automatic fire extinguishing system, designed and installed in accordance with Section 2-3801(d) of Chapter 2-38 of Part 2 of Title 24 of the California Code of Regulations.

(2) The entire building shall have installed a State Fire Marshal approved and listed automatic fire alarm system.

(3) The entire building shall be of Type II fire resistive construction, as described in Chapter 2-19 of Part 2 of Title 24 of the California Code of Regulations.

(4) A building with individual floor areas over 6,000 square feet per floor shall have an approved smoke barrier dividing the floor approximately in half, without regard to whether direct exiting is available from each dwelling unit.

(5) The entire building shall have at least two sets of enclosed stairways.

(d) All of the following building standards shall apply to any multistory building housing non-ambulatory persons on floors above the fifth floor, which is operated as a residential care facility for the elderly and licensed to care for more than six persons:

(1) The entire building, unless otherwise exempt pursuant to subdivision (d) of Section 13113, shall have installed a State Fire Marshal approved fully automatic fire extinguishing system, designed and installed in accordance with Section 2-3801(d) of Chapter 2-38 of Part 2 of Title 24 of the California Code of Regulations.

(2) The entire building shall have installed a State Fire Marshal approved and listed automatic fire alarm system.

(3) The entire building shall be Type I fire resistive construction, as described in Chapter 2-18 of Part 2 of Title 24 of the California Code of Regulations.

(4) A building with individual floor areas over 6,000 square feet per floor shall have an approved smoke barrier dividing the floor approximately in half, without regard to whether direct exiting is available from each dwelling unit.

(5) The entire building shall have at least two sets of enclosed stairways.

(e) This section and the regulations adopted by the State Fire Marshal pursuant to subdivision (f) shall apply uniformly throughout the state and no city, county, city and county, or district shall adopt any ordinance, rule, or regulation which is inconsistent with this section or with the regulations adopted by the State Fire Marshal pursuant to subdivision (f).

(f) The State Fire Marshal shall adopt regulations establishing a reasonable fee, not to exceed the actual costs of inspection to the agency conducting the inspection, for the final inspection of any facility which is subject to the standards established pursuant to this section.

(g) This section shall be enforced in accordance with the division of authority prescribed in Section 13146.

*(Added by Stats. 1990, Ch. 436, Sec. 1.)*

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM has verified that these sections have been missed in the printing in the building code. Additional study will be done for the 2022 Triennial rulemaking when all sections in the building and fire code can be coordinated to eliminate conflicts where they may exist.

**Sections: 907.2.11, 907.2.11.2, 907.2.11.3**

**Reason:**

Puzzle rooms are a new business model where people are placed in a room and asked either to find a way out of the room or to find their way to the next room in the puzzle. The rooms are typically small and might otherwise be classified as a B occupancy under the current code. Each of these are designed in a way to provide a unique experience for the customer. This unique design incorporates many possible features to disorient the occupants and or disguise the exit route. Such a design is contrary to the foundations of code specified exiting provisions.

This proposal seeks to establish criteria for puzzle rooms by incorporating them into the special amusement section. Since part of the appeal of this business model is that each experience is different, there is no way to prescriptively handle every situation. The language is generic but gives guidance on providing reliable exiting in an emergency.

The proposal is to correlate related sections in the code to the new proposed definition of special amusement area. The proposal removes the word “building” from the definition and adds the word “area”.

**Response to Code Advisory Committee (CAC): Section 907.2.11 Further Study, Sections 907.2.11.2, 907.2.11.3 Approved as Submitted**

SFM agrees with the CAC recommendation. The SFM has modified the proposal to address the committee member comments to address the need for protection of the entire egress system.

**[PUZZLE ROOM 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

Table of Contents, 202, Title 411, 411.1, 411.2, 411.3, 411.4, 411.5, 411.6, 411.6.1, 411.7, TABLE 903.2.11.6, 907.2.11, 907.2.11.2, 907.2.11.3, 1017.2, INDEX

**Section: 907.2.22**

**Addendum reason:**

To summarize this proposal, developed by a large industry and code official work group, more effectively protects Energy Storage System (ESS) installations based on knowledge gained since last code cycle. It provides protection customized for the types of installations that are being deployed today, instead of using the “one size fits all” type of protection. The code change was derived from the International Code Council Proposal F203-18.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation. New item added at CAC in an addendum.

**Section: 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New)**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed modifications coordinate the CBC section regulating the installation of smoke detectors associated with special locking devices with CFC requirements, corrects references and omissions and includes editorial corrections, reinstates a requirement permitting only automatic smoke detectors and identifies requirements for smoke detectors associated with the installation of controlled egress doors permitted elsewhere in the CBC.

The proposed changes to CBC Section 907.3.2 include requirements for both delayed egress locks and controlled egress doors. The proposed change to the title accurately identifies the scope of the section. The proposed changes include editorial revisions that amend the titles of the subsections to clearly indicate subsections that are applicable to delayed egress locks and subsections that are applicable to controlled egress doors. The proposed changes include editorial revisions to requirements for delayed egress locks installed in Group R-4 and Group A courthouse occupancies. The proposed changes include new provisions for the installation of smoke detectors required by CBC Section 1010.1.9.7 when controlled egress doors are installed. This proposed change specifies the location of necessary smoke detectors when they are required by CBC Section 1010.1.9.7. The proposed amendment reinstates the CFC requirement that an acceptable automatic detection system shall be only a smoke detection system. The IFC requirement permitting a heat detection system was placed into the text of the 2018 IFC without noting this change. The proposed change is consistent with CFC Sections 907.3.2.1, 907.3.2.2, 907.3.2.3 and 907.3.2.4.

The proposed change does not establish a new requirement. The proposed change indicates where smoke detectors associated with controlled egress doors required by CBC Section 1010.1.9.7 must be located. This direction is necessary to avoid inadequate or unnecessarily excessive efforts of compliance.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1

**SECTION 909  
SMOKE CONTROL SYSTEMS**

### **Section: 909.5.3**

#### **Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed change restores CBC requirements for fire rated smoke barrier doors installed across corridors, eliminates confusion regarding requirements for the installation of smoke barrier doors, and coordinates requirements with similar provisions included in CBC Section 709.5, Exceptions 1 and 2. The proposed change preserves exceptions prohibiting a center mullion.

The proposed change requires smoke barrier doors in Group I-2, I-2.1, R-2.1 and ambulatory care facilities, where installed across corridors, shall be in accordance with Section 716. CBC Section 716 requires that smoke barrier doors have a minimum fire protection rating of 20 minutes and shall be tested in accordance with NFPA 252 or UL 10C. CBC Section 909.5.3, Exceptions 3 and 4 contain criteria for cross-corridor doors that fail to meet CBC Section 716. The proposed change deletes the provisions in 909.5.3, Exceptions 3 and 4 that describe requirements for doors that do not comply with CBC Section 716.

The IBC has incrementally removed requirements for fire protection rated opening protection, however requirements for positive latching of doors installed across corridors in smoke barriers openings are still a requirement in CBC Section 909.5.3, Exception 3. As an unintended consequence, the IBC modifications also eliminate requirements for fire resistance rated doors across corridors in smoke barriers in Group I-2.1, R-2.1 and R-2.2 occupancies despite that the IBC does not recognize or regulate these occupancy groups. It has never been the intent of the SFM/OSHPD to permit doors in smoke barriers installed across corridors not be fire protection rated. The 1985 Triennial Edition of the State Building Code and subsequent editions of the CBC through the 2001 CBC required smoke barrier doors in Group I-2 smoke barriers be fire protection rated and have positive latching.

Requiring fire protection rated smoke barrier doors in accordance with CBC Section 716 is consistent with the requirement in Section 709.5, Exception 2 that requires horizontal sliding doors be fire protection rated in accordance with CBC Section 716. The CBC contains no requirement for the substantial construction of swinging smoke barrier doors installed across corridors. The change restores a standard for swinging smoke barrier doors consistent with the CBC Section 709.5, Exception 2 requirement for horizontal sliding doors used for the same purpose and coordinates the requirements of Section 709.5, Exception 2 and Section 909.5.3, Exception 4.

A review of actual field conditions determined that it has been the actual practice of construction to install fire rated smoke barrier doors of labeled substantial construction at smoke barrier corridor openings. The proposed change reinstates the requirement in the California Building Code and reflects actual construction practice.

#### **Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSLS]**

**[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1

**SECTION 911  
FIRE COMMAND CENTER**

**Section: 911.1.2**

**Reason:**

The current California fire Code requires the Fire Command Center (FCC) to have 1-hour separation from the rest of the building which means all the life safety equipment located in this room are only provided with 1-hour protection from a fire outside this room.

Since all the life safety and emergency systems required in new high-rise buildings employing partial evacuation or relocation of occupants require 2 Hour survivability for the pathways feeding these systems. It is extremely important to also protect the FCC with 2-hour fire resistant construction. It is not adequate to protect the rest of the life safety and emergency system pathways without protecting the main equipment and the emergency responder / firefighters using the FCC during fire emergencies. This proposal adds the satisfactory protection of the contents and operators that are required to be in this space.

**Cost Impact:** The code change proposal will increase the cost of construction slightly. Most jurisdictions and owners are already practicing creating a 2-hour separation due to the liability of the contents within the room.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Item 10. CHAPTER 10**

**MEANS OF EGRESS**

**SECTION 1004  
OCCUPANT LOAD**

**Sections: 1004.5, TABLE 1004.5**

**Reason:**

The State Fire Marshal's I-3 occupancy work group is proposing 3 additional exceptions to section 1004.5, areas without fixed seating. The functions of institutional occupancies are not a one size fit all approach for an understanding of fire and life safety. The exceptions proposed point to applicable sections in Chapter 12 for unique institutional conditions that

warrant different occupant load factors.

In many cases of the numbers are minimums, i.e. a safety cell must be at least 64 sf min and will end up about 70 sf, which does not mean there are two occupants. Holding cells for example need to be a minimum of 40 sf at 10 sf per inmate minimum, but in reality, it is the bench that defines the occupant load (18" min per inmate). If it is an ADA holding cell, we would add 1 occupant for the wheelchair spot.

There are other minimum areas for offices, exam rooms, etc. but those are nuanced because only one needs to meet those minimum sizes. Additional rooms might be provided which are under the minimums.

The State Fire Marshal is proposing to adopt the sections 1227, 1230 and 1231, for construction and plan review compliance, even though the Board of Community Corrections will also enforce the regulations. This will allow designers to observe the requirements in the early phases of review and design. This will lead to less change orders when a space is found to not meet the requirements of another State agency. The adoption of these sections is within the authority of the State Fire Marshal's office as they pertain to fire and life safety of the building housing inmates of various degree in asylums, jails, prisons or institutions per Health and Safety Code 13143.

A footnote pointer to the new proposed Table 408.3.13 to be added to Table 1004.5. Table 408.13 is proposed to clarify the occupancy load factor to be used during the review of I-3 facilities, which include housing pods, refuge areas, safe dispersal areas as well as holding cells, and bench seating. Chapter 10, Table 1004.5 does not clearly list any occupant load factor for these functions of space that are unique to the I-3 facilities regulated by Chapter 4. This code change proposal is to address the need for a concise location for evaluating the exiting requirements based on occupant load factor for I-3 functions of space, which are scattered throughout the regulations in Chapter 4. The table format is a tool to bring all the different section requirements in one place for code user ease. By using a standard occupant load factor, the code user can then easily and consistently determine which condition is required to be met. The intent of the proposal is to give the code user a tool for calculating the number of required exits within a detention facility that may not otherwise be clear. A footnote reference is added to Table 1004.5 to point to Table 408.3.13 for these special functions of space.

**Cost Impact:** This may be decrease in construction, due to the compliance early in the design phase.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[I-3 OCCUPANCY 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

310.3.1, 408.1.2.2, 408.3.6, TABLE 408.3.13 (New), 408.13, TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 508.4. 435.16 (Renumbered from 510.10), 1004.5, TABLE 1004.5, TABLE 1020.2, 1227.5, 1227.5.2, 1227.6-1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1, 1227.9.2.2, 1227.10-1227.10.7, 1227.12.1,



1227.22.1.1, 1227.23.1, 1230.1.2, 1230.1.4-1230.10, 1230.1.12, 1230.1.16,  
1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8, 1230.2.10, 1231.2.2, 1231.2.3,  
1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.2, 1231.2.3,  
1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8,  
1231.3.10, 1231.5, 1231.6-1231.6.7

## **SECTION 1010 DOORS, GATES AND TURNSTILES**

### **Section: 1010.1.9.7**

#### **Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed amendments identify the intent of the SFM/OSHPD to permit the locking of egress doors in a Group I-2 occupancy only when required to restrain or contain psychiatric or mental health patients. The proposed amendment also specifies that smoke detectors are required when the locking of doors is permitted.

The proposed change does not establish a new requirement. The proposed change provides additional clarification that controlled egress doors are permitted only for restraint or containment of psychiatric and mental health patients. The terms psychiatric and mental health appear elsewhere in the CBC and for clarification, both terms are used in the proposed change. The proposed change deletes CBC 1010.1.9.7, Exception 2. Exception 2 references egress control systems used to reduce the risk of child abduction. In a Group I-2 occupancy, the SFM permits restraint only for psychiatric and mental health patients therefore exception 2 is not applicable. Permitting only smoke detectors and not heat detectors is consistent with previous editions of the CBC and 2019 CFC Sections 907.3.2.1, 907.3.2.2, 907.3.2.3 and 907.3.2.4.

#### **Addendum reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed amendments identify the intent of the SFM/OSHPD to permit the locking of egress doors in a Group I-2 occupancy only when required to restrain or contain psychiatric or mental health patients. The proposed amendment also specifies that smoke detectors are required when the locking of doors is permitted.

The proposed change does not establish a new requirement. The proposed change provides additional clarification that controlled egress doors are permitted only for restraint or containment of psychiatric and mental health patients. The terms psychiatric and mental health appear elsewhere in the CBC and for clarification, both terms are used in the proposed change. The proposed change deletes CBC 1010.1.9.7, Exception 2. Exception 2 references egress control systems used to reduce the risk of child abduction. In a Group I-2 occupancy, the SFM permits restraint only for psychiatric and mental health patients

therefore exception 2 is not applicable. Permitting only smoke detectors and not heat detectors is consistent with previous editions of the CBC and 2019 CFC Sections 907.3.2.1, 907.3.2.2, 907.3.2.3 and 907.3.2.4.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSLS]**

**[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1

**Section: 1010.1.9.8**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

The proposed amendment restores a California Building Code requirement modified by the International Building Code.

The proposed amendment deletes a heat detection system from the IBC provisions related to fire protection systems required for protecting occupancies when delayed egress locking systems are installed. The proposed amendment reinstates the CBC requirement that an acceptable automatic detection system shall be only a smoke detection system. The IBC requirement permitting a heat detection system was placed into the text of the 2018 IBC without noting this change. The SFM proposed change is consistent with CBC Section 1010.1.9.8.1, Item 2.2.2 which references a smoke detection system and CFC Sections 907.3.2.1, 907.3.2.2, 907.3.2.3 and 907.3.2.4 which require smoke detectors.

The proposed amendment does not represent a change in requirements as other provisions in the CFC requires smoke detection systems.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Section: 1010.1.9.8.1**

**Reason:**

The State Fire Marshal (SFM) with cooperation with Office of Statewide Health Planning Department (OSHPD) developed a series of code change proposals for fire and life safety regulations for I-2, I-2.1 and R-2.1 occupancies.

**Response to Code Advisory Committee (CAC):** Per the comments at the CAC hearings a California amendment was missed in publication for the California Building Code (CBC). The proposal is to correlate the CBC and the California Fire Code, Part 9.

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]**

404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2 (Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1

**SECTION 1017  
EXIT ACCESS TRAVEL DISTANCE**

**Section: TABLE 1017.2**

**Reason:**

The proposal is to correlate and correct section number for special amusement areas. Reference pointer and important for code users to find additional requirements for design and enforcement.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[PUZZLE ROOM 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

Table of Contents, 202, Title 411, 411.1, 411.2, 411.3, 411.4, 411.5, 411.6, 411.6.1, 411.7, TABLE 903.2.11.6, 907.2.11, 907.2.11.2, 907.2.11.3, TABLE 1017.2, INDEX

**SECTION 1020  
CORRIDORS**

**Section: TABLE 1020.2**

**Reason:**

The purpose of the proposal is to clarify that the 96-inch-wide corridor dimension was only required for bed movement. The problem is the regulation is over restrictive for areas where bed movement is not being used. This amendment as currently published conflicts with the 1991 Federal Americans with Disabilities Act (ADA) regarding the term non-ambulatory.

The amendment to the table proposed to be repealed is inconsistent with corridor requirements for I-2 occupancies, national standards, and Federal Law; the intent was for the requirements is to be the same and comply with Federal Law.

The benefit is to provide for reasonable corridor width where bed movement is not required.

**Cost Impact:** Construction cost may decrease, based on better utilization of space and increased efficiency. Up to 5 percent operational cost savings and up to 2 percent construction costs for correctional facilities without bed movement.

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[I-3 OCCUPANCY 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

310.3.1, 408.1.2.2, 408.3.6, TABLE 408.3.13 (New), 408.13, TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 508.4. 435.16 (Renumbered from 510.10), 1004.5, TABLE 1004.5, TABLE 1020.2, 1227.5, 1227.5.2, 1227.6-1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1, 1227.9.2.2, 1227.10-1227.10.7, 1227.12.1, 1227.22.1.1, 1227.23.1, 1230.1.2, 1230.1.4-1230.10, 1230.1.12, 1230.1.16, 1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8, 1230.2.10, 1231.2.2, 1231.2.3, 1231.2.5131.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.2, 1231.2.3, 1231.2.5131.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8, 1231.3.10, 1231.5, 1231.6-1231.6.7

**Section: 1020.5**

**Reason:**

This proposal provide clarification on the regulations. When you have a pressurized room, there will be incidental air movement. It is not the intent of the regulations to prohibit any air movement, but to prohibit the corridor use as a supply or return air plenum. The exception provides the clarity for designing L occupancy laboratories.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[L OCCUPANCY WORK GROUP 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

453.4.4, 453.4.7.2, 1020.5, 3001.6

**SECTION 1026  
HORIZONTAL EXITS**

**Section: 1026.4.1**

**Reason:**

The proposed change coordinates California Building Code requirements with reformatting of the 2018 International Building Code, Section 1026.4.1. The proposed change corrects errors to be consistent with occupancies that are unique to California, as well as update code reference sections.

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[Office of Statewide Health Planning Department (OSHPD) 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]  
404.6, 407, 407.1.1, 407.4.4.3, 407.4.4.5, 407.9, 407.11, 407.12 (New), 508.3.1.2  
(Delete), 709.5, 903.3.1.1.1, 904.13, 907.2.6.2.2, 907.3.2, 907.3.2.1, 907.3.2.2,  
907.3.2.3, 907.3.2.4, 907.3.2.5 (New), 909.5.3, 1010.1.9.7, 1010.1.9.8, 1026.4.1**

## **SECTION 1030 EMERGENCY ESCAPE AND RESCUE**

### **Section: 1030.1**

#### **Reason:**

The clarification of where the requirements for emergency escape and rescue openings are required was added in the 2018 International Building Code. California has an existing amendment that requires emergency escape and rescue openings in all Group R occupancies. The California amendment was mistakenly dropped in publication. The proposal is to re-instate the requirement for all Group R occupancies in California.

The provision for Emergency Escape and Rescue windows in residential occupancies was first introduced into the Uniform Building Code in 1964. At that time, there was no requirement for either smoke detection or automatic sprinkler protection within residential occupancies. Currently, the California Building Code includes provisions for smoke detection in all residential occupancies, and automatic sprinkler protection in multi-family residential occupancies. Smoke detection provides demonstrated lifesaving advantages in the event of a fire. Automatic sprinkler systems with residential or quick response sprinklers limit fire growth and spread, combined with the requirement for occupant notification of a sprinkler system water flow condition also affords life safety advantages.

Furthermore, the California Building Code continues to be more restrictive than the International Building Code language by requiring one-hour fire-resistance rated corridor construction in all Group R occupancies having an occupant load greater than 10. This protection affords additional life safety advantages. Although the International Building Code language, recognizes the advantages afforded by these systems, California has historically continued to require the escape and rescue windows in all residential occupancies.

Item 6.3 is duplicated in item 7 and not needed.

#### **Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

## **Item 11. CHAPTER 12 INTERIOR ENVIRONMENT**

**State Fire Marshal is proposing to adopt the following sections:**

**1227.5, 1227.5.2, 1227.6 thru 1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1,  
1227.9.2.2, 1227.10 thru 1227.10.7, 1227.12.1, 1227.22.1.1, 1227.23.1, 1230.1.2,  
1230.1.4 thru 1230.10, 1230.1.12, 1230.1.16, 1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8,**

**1230.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8, 1231.3.10, 1231.5, 1231.6-1231.6.7**

**Reason:**

The State Fire Marshal's I-3 occupancy work group is proposing to adopt fire and life safety regulations contained in Chapter 12 for unique institutional conditions.

The adoption of these sections will safeguard construction and plan review compliance, even though the Board of Community Corrections will also enforce the regulations. This will allow designers to observe the requirements in the early phases of review and design. It will also aid enforcement of these regulations in plan review. This will lead to less change orders when a space is found to not meet the requirements of another State agency. The adoption of these sections is within the authority of the State Fire Marshal's office as they pertain to fire and life safety of the building housing inmates of various degree in asylums, jails, prisons or institutions per Health and Safety Code 13143.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**SECTION 1230 [BSCC]  
MINIMUM STANDARDS FOR JUVENILE FACILITIES**

**Section: 1230.2.10**

**Reason:**

The editorial change to 1230.2.10 is to correlate with the proposed change in 408.13

**Cost Impact:** The code change will not increase or decrease the cost of construction as the regulations are existing.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[I-3 OCCUPANCY 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

310.3.1, 408.1.2.2, 408.3.6, TABLE 408.3.13 (New), 408.13, TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 508.4. 435.16 (Renumbered from 510.10), 1004.5, TABLE 1004.5, TABLE 1020.2, 1227.5, 1227.5.2, 1227.6-1227.6.3, 1227.7.4, 1227.8.1, 1227.9.1, 1227.9.1.1, 1227.9.2.2, 1227.10-1227.10.7, 1227.12.1, 1227.22.1.1, 1227.23.1, 1230.1.2, 1230.1.4-1230.10, 1230.1.12, 1230.1.16, 1230.1.23, 1230.1.26, 1230.2.7, 1230.2.8, 1230.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.2, 1231.2.3, 1231.2.5, 1231.2.6, 1231.2.7, 1231.2.8, 1231.2.9, 1231.2.10, 1231.2.24, 1231.3.8, 1231.3.10, 1231.5, 1231.6-1231.6.7

**Item 12. CHAPTER 15  
ROOF ASSEMBLIES AND ROOFTOP STRUCTURES**

**SECTION 1505  
FIRE CLASSIFICATION**

**Section: 1505.1.1, 1505.1.2**

**Reason:**

The proposal from the State Fire Marshal Wildland Urban Interface (WUI) workgroup is to require Class A roof assemblies. Currently Class A, B or C roofs are installed depending on the level of fire hazard severity that is designated by the adopted Fire Hazard Severity Zone maps. The change affects areas that are designated as moderate or high fire severity zones. The very high fire severity zone already requires a Class A roof. It must also be noted the many of the local jurisdictions already have local ordinances that require a Class A roof in all wildland areas identified. In these jurisdictions, these regulations will have no change.

When the regulations for roofing requirements were created over a decade ago the cost was a significant issue that allowed the use of Class B and C roofing material in moderate and high fire severity zones within the wildland urban interface areas. Now with the increased production of Class A rated roof assemblies the cost is no longer a controlling factor and there is little to no cost difference for the change.

Reports from the 2017 and 2018 fire data recognize that not only the designated very high fire severity zone areas require a higher level of protection, but all designated areas will benefit from the installation of a Class A rated roof assembly.

**Section: 1505.1.3**

**Reason:**

The section number have been renumber. The existing Language remains unchanged.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[WILDLAND URBAN INTERFACE 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

705A.1, 705A.2, 706A.2, 706A.2.1 (New), 706A.3, 709A.1, 709A.1.1 (New), 709A.3, 1505.1.1, 1505.1.2, 1505.1.3

**Notation:**

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13113, 13113.5, 13114, 13143, 13132, 13132.7, 13132, 13133, 13135, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18928, 18949.2, 25500-25545, Government Code Section 51189, Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13143.1, 13143.9, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201-4204

**Item 13. CHAPTER 17**  
**SPECIAL INSPECTIONS AND TESTS**

**State Fire Marshal is proposing to adopt the following sections:  
1705.5.3, TABLE 1705.5.3, 1705.14, 1705.15, 1705.20**

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**SECTION 1705**  
**REQUIRED SPECIAL INSPECTIONS AND TESTS**

**Section: 1705.5.3 (New), TABLE 1705.5.3**

**Reason:**

This proposal adds special inspection provisions to Section 1705 for mass timber. This new and unique type of construction requires a level of inspection consistent with other large buildings and unique applications where milestone inspections by the jurisdictional inspectors are not rigorous enough to ensure a level of quality control or quality assurance of the construction process. The proposed special inspections are similar to what is required for other prefabricated systems such as pre-cast concrete and structural steel. Special Inspection is the monitoring of materials, installation, fabrication, erection and placement of components and connections that require special expertise that are critical to the integrity of the building structure. The special inspectors are required to ensure compliance with the approved construction documents and referenced standards. The program allows jurisdictions to have access to highly specialized and trained inspectors. Some special inspection activities require construction activities to be continuously inspected; which would be logistically difficult for a typical building inspection program. Special inspection is a vital part of the compliance path for successful and compliant building projects constructed under the California Building Code.

**Specific elements**

The specific elements requiring special inspection are:

1. Periodic inspection of the connection of mass timber elements to wood foundation elements. These connections are critical to transfer loads from the mass timber elements to the piles, particularly for lateral loading. The connections to concrete foundations are addressed in Table 1705.3, Item #3.
  
2. Periodic inspection of erection of mass timber elements. Similar to pre-cast concrete (Table 1705.3, Item #10), tall wood buildings utilizing prefabricated



elements needs to have verification that the correct elements are placed in the right location in accordance with the design drawings.

### 3. Inspection of specialized connections.

Connections between mass timber products that utilized threaded, bolted, or concealed connections are considered periodic in a similar manner that concrete special inspections are required in Table 1705.3. The strength of many connection designs is predicated on specific screw lengths and installation angles. Bolted connections require specific diameters, and for lag bolts, specific lengths. Concealed connectors, many of which are proprietary, must be installed correctly for structural performance. Most of these cannot be verified by the jurisdictional inspector, so special inspections are required.

Adhesive anchorage installed in horizontal or upwardly inclined positions resisting tension loads shall be continuously inspected, again similar to Table 1705.3, Item 4a. This is required because of issues with creep of the adhesives under long-term tension loading discussed in previous code change cycles. However, once again similar to the requirements for precast concrete, all other adhesive anchors need only be inspected periodically (ref. Table 1705.3, Item 4b).

If there are other unusual items not covered in the proposed table, the existing text in Section 1705.1.1 gives the building official the authority to require special inspections for those unusual items. The same section also says the building official can require special inspections where manufacturers' installation instructions prescribe requirements not contained in the code. For example, field-glued mass timber beam or panel splices, while currently rare in North America, may become more prevalent in the future. This is not an item that is covered in the proposed Table 1705.5. While the AHC-TWB is not aware of any of those types of splices that are not currently proprietary, Section 1705.1.1 would allow the building official to require special inspections for either proprietary or nonproprietary field-glued splices. Note that many design engineers will also specify the need for special inspections for unusual conditions in their structural notes in the construction documents, or in the statement of special inspections (see Sections 1704.2.3 and 1704.3).

No changes are being proposed to address fabrication of mass timber structural elements. Mass timber structural assembled in a fabricator shop should be addressed by sections 1704.2.5 and 1704.2.5.1 of the current codes regarding fabrication.

Buildings of mass timber over 6-stories involve new challenges in the construction of tall buildings, and contractors and inspectors have little or no experience working with these systems of wood material for tall buildings. Due to the importance of connections in the successful fire performance of mass timber systems, and the lack of long term experience for involved parties constructing these taller buildings, a level of inspection beyond that commonly required of other construction methods is warranted. This is consistent with the intent of Section 1705.1.1 where special inspections are intended for unusual design applications of materials included in the code, or where adherence to manufacturer's instructions for materials and systems are not specified in the code is required.

Requiring special inspection of these connections for fire resistance is also similar to the requirements in Section 1705.14, where sprayed fire resistant materials must undergo special inspections and tests to document acceptance. These requirements for mass timber are similar in nature to these special inspections. This proposal adds Section 2304.10.1 to specify how the fire resistance rating of connections for the Types IV-A, IV-B and IV-C construction is to be determined.

**Cost Impact:** The code change proposal will increase the cost of construction. Since all the code proposals related to Mass Timber products are to address new types of building construction, in theory this will not increase the cost of construction, but rather provides design options not currently provided for in the code. The ICC TWB committee took great care to not change the requirements of the pre-existing construction types, and our changes do not increase the cost of construction using those pre-existing construction types. However, based on a typically residential or office building of typical floor plates an estimate of Special Inspection costs would range from \$1,000 to \$2,000 per floor. Another approach to the cost of special inspection is a percentage of total construction costs; for typical pre-fabricated construction elements, the cost of special inspection can range between 0.15% to 0.30%, depending on labor cost and complexities of the construction in the building. These estimates are based on responses to surveys of special inspection agencies in the Seattle and Las Vegas areas. (S100-19)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**The State Fire is proposing to not adopt the following sections:  
1705.11.1, 1705.11.2, 1705.12.2, 1705.13.3**

**Sections: 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3**

**Reason:**

The State Fire Marshal is proposing the code changes as a complete code package for the early adoption of the International Code Council's Tall Wood Building committee.

The primary purpose of this proposal is to clarify the intent of the exceptions from special inspection of wood diaphragms and shear walls in high-seismic and high wind areas. The original exception was intended to apply to buildings of light-frame construction where wood studs or joists are sheathed with a variety of structural sheathing materials (e.g. oriented-strand board, plywood, or gypsum board) to form the diaphragm, and where the capacity of shear walls, panels, and diaphragms for resisting wind and seismic loads is defined in the American Wood Council's Special Design Provisions for Wind and Seismic (AWC SDPWS). The exceptions should apply to shear walls, shear panels and diaphragms constructed with traditional 2x dimensional lumber or equivalent products (e.g. I-joists or LVL's) and structural sheathing, or nail-laminated or dowel laminated diaphragms with sheathing, but not to lateral force-resisting systems relying solely on mass timber products for lateral resistance. In evaluating special inspection requirements for mass timber buildings, the ICC Ad-Hoc Committee on Tall Wood Buildings did not feel the exception should apply unless a mass timber building relied on a separate layer of wood structural panel sheathing or other sheathing to provide lateral load resistance.

However, since this issue is not specific to tall mass timber buildings, the TWB determined that proposing changes to the exception was out of its scope, and referred the issue to the ICC Building Code Advisory Committee for review and modification as needed.

Similar exceptions to those for special inspection of wood diaphragms and wood shear walls on wood buildings are provided for wood structural panel or steel sheet diaphragms on cold-formed steel buildings. The same clarifications that the fastener spacing is the specified fastener spacing based on the structural engineer's design and tabulated diaphragm and shear wall capacities in the material design standards and that the fastening in question is that at panel edges (or sheet edges for diaphragms and shear walls sheathed with steel sheet) are made for the corresponding wind and seismic special inspections for cold-formed steel buildings.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. The code change does not change the application of the two exceptions to diaphragms and shear walls using sheathing materials currently permitted by the code via the reference to the American Wood Council Special Design Provisions for Wind and Seismic. Thus, there is no cost increase for light-frame buildings that currently qualify for the exception. Mass timber buildings not already permitted under existing limits on Type IV construction must go through an alternate means and methods process to gain approval. The work of the AHC-TWB to gain code recognition for tall wood buildings will reduce the cost of construction for such buildings as they will not require special approval procedures. The corresponding clarifications for cold-formed steel buildings do not change the intended application of those exceptions. (S105-19)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

### **[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

#### **[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

### **Section: 1705.14**

#### **Reason:**

The installation of Sprayed Fire Resistant Material (SFRM) fireproofing takes place early in the project when there is clear access to the beams, columns, trusses and horizontal assemblies. This installation to the manufacturers installation instructions and the listing needs to take place before the installation of the mechanical, electrical, plumbing (MEP) and ceilings takes place. SFRM fireproofing application does not take place while the MEP or ceiling contractors are working. It's not efficient.

This proposal aims to clarify that the fireproofing inspection takes place while the SFRM fireproofing application takes place rather than after. It is much costlier to repair any areas that are not in compliance with the listing if the MEP and ceilings contractors have mobilized.

The State Fire Marshal is proposing to adopt this section as it relates to the fire and life safety of the building. The SFM already currently adopts the section by reference in Chapter 1.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This proposal makes the code reflect the way that SFRM Fireproofing is inspected currently. If the inspection is to take place after the SFRM contractor has demobilized, cost of construction will increase. (S14-18, S15-18 and S16-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

### **Section: 1705.15**

#### **Reason:**

The special inspection of fireproofing needs to take place before the mechanical, electrical and plumbing, sprinkler, suspension systems and ceilings are 'roughed in' or installed. This proposal is to clarify in the code when the inspection is to take place, which is both as the fireproofing is installed and visually after the rough in takes place.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This proposal clarifies that inspection of fireproofing takes place as it currently does now meaning no increase in cost. (S19-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

### **Section: 1705.20**

#### **Reason:**

The code change proposal adds a special inspection requirement to address sealants and adhesives that are a part of the required design of mass timber. There is a need to ensure that the details of construction are adhered to, and the special inspection is seen as a means to ensure that these construction details are adequately emphasized during the construction process.

**Cost Impact:** The net effect code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (FS6-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Item 14. CHAPTER 23**

**WOOD**

**SECTION 2304**

**GENERAL CONSTRUCTION REQUIREMENTS**

**Section: 2304.10.1.2 (New)**

**Reason:**

California Building Code Sections 704.2 and 704.3 require connections of columns and other primary structural members to be protected with materials that have the required fire-resistance rating. This proposed change provides two options for demonstrating compliance with this requirement for connections in Types IV-A, IV-B and IV-C construction: a testing option and a calculation option.

Types IV-A, IV-B and IV-C construction utilize mass timber elements that have inherent fire resistance. The new provisions which added these construction types have explicit fire-resistance ratings and protection requirements. Option 1 allows connections that are part of a successful ASTM E119 fire resistance test to be considered acceptable evidence of meeting the requirements of Sections 704.2 and 704.3.

Some connections used in Types IV-A, IV-B and IV-C construction are not part of the mass timber element or assembly testing. For those connections, an engineering analysis is

required. Analysis procedures have been developed that allow the protection of these connections to be designed based on test results of E119 fire tests from protection configurations using the wood member outside of the connection, additional wood cover, and/or gypsum board. The analysis procedures must demonstrate that the protection will limit the temperature rise at any portion of the connection, including the metal connector, the connection fasteners, and portions of the wood member that are necessary for the structural design of the connection. The average temperature rise limit of 250°F (139°C) and maximum temperature rise limit of 325°F (181°C) represent the fire separation and thermal protection requirements for wall and floor assemblies tested per ASTM E119 and ensure that the connection retains most of its initial strength throughout the fire-resistance rating time. Please note the Celsius values in parentheses are for temperature rise calculated as the difference between the final temperature and the initial temperature, not a direct conversion of a Fahrenheit temperature.

California Building Code section 722 permits structural fire-resistance ratings of wood members to be determined using Chapter 16 of the National Design Specification® (NDS®) for Wood Construction. Where a wood connection is required to be fire-resistance rated, NDS Section 16.3 requires all components of the wood connection, including the steel connector, the connection fasteners, and the wood needed in the structural design of the connection, to be protected for the required fire-resistance rating time. NDS permits the connection to be protected by wood, gypsum board or other approved materials. American Wood Council's publication Technical Report 10: Calculating the Fire Resistance of Wood Members and Assemblies (<https://www.awc.org/codesstandards/publications/tr10>), which is referenced in the NDS Commentary to Chapter 16, has been specifically updated to provide guidance on and examples of connection designs meeting the requirements of IBC 704 and NDS 16.3.

The ICC Ad Hoc Committee for Tall Wood Buildings (AHC-TWB) was created by the ICC Board of Directors to explore the building science of tall wood buildings with the scope to investigate the feasibility of and act on developing code changes for these buildings. Members of the AHC-TWB were appointed by the ICC Board of Directors. Since its creation in January 2016, the AHC-TWB has held 8 open meetings and numerous Work Group conference calls. Four Work Groups were established to address over 80 issues and concerns and review over 60 code proposals for consideration by the AHC-TWB. Members of the Work Groups included AHC-TWB members and other interested parties. Related documentation and reports are posted on the AHC-TWB website at <https://www.iccsafe.org/codes-tech-support/cs/icc-ad-hoc-committee-on-tall-wood-buildings/>.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. Since all the code proposals related to Mass Timber products are to address new types of building construction, in theory this will not increase the cost of construction, but rather provides design options not currently provided for in the code. The TWB committee took great care to not change the requirements of the pre-existing construction types, and our changes do not increase the cost of construction using those pre-existing construction types. (S170-19)

**Response to Code Advisory Committee (CAC): Approved as Submitted**  
SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Section: 2304.11.3, 2304.11.4**

**Reason:**

The proposal is a correlation with the code change proposal of 604.4.4.4.

The option of having protected concealed spaces in Type IV buildings is important to encourage the adaptive re-use of existing heavy timber buildings as well as to provide for the installation of mechanicals in Type IV cross laminated timber (CLT) construction. In addition to the current requirements for all concealed spaces in combustible construction, this change would require additional protection of the concealed spaces with sprinkler coverage, or eliminating all air space with noncombustible insulation, or covering all combustible surfaces with gypsum. These alternatives are the same protection required for concealed spaces in NFPA 13, except they are slightly more restrictive since 5/8-inch Type X gypsum is required in the one case. In addition, because the provisions are taken from NFPA 13, in order to use these provisions, the entire building must be protected by a sprinkler system complying with NFPA 13.

A similar change was recently successful in NFPA 220 and NFPA 5000. This proposal is more conservative in that it requires 5/8-inch Type X gypsum instead of 1/2 -inch gypsum in the alternative for sheathing combustible concealed spaces with gypsum in proposed section 602.4.4.4.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. The code change provides the option of having protected concealed spaces in Type IV HT buildings, therefore does not increase the cost of construction. (G109-18)

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Item 15. CHAPTER 30  
ELEVATORS AND CONVEYING SYSTEMS**

**SECTION 3001  
GENERAL**

**Section: 3001.6**

**Reason:**

The code change proposal is editorial; the code sections pointers are corrected to correlate with the California Fire Code.

The State Fire Marshal L-occupancy work group is proposing California Fire Code changes is to provide safety in a confined space in an elevator for the transport of hazardous materials. The high risk of cryogenics in an elevator can lead to asphyxiation and extraordinary health hazard. The hazardous materials must be transported to alternate floor levels. The benefit of this proposal is to provide a safe means of transport of hazardous materials in elevators.

**Cost Impact:** The cost of construction may increase depending on the type and amount of hazardous materials. This is a design option, small businesses that choose this option may have a cost increase.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[L OCCUPANCY WORK GROUP 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

453.4.4, 453.4.7.2, 1020.5, 3001.6



## SECTION 3002 HOISTWAY ENCLOSURES

**Sections: 3002.4a, 3002.4.1a, 3002.4.2a, 3002.4.3a, 3002.4.4a, 3002.4.5a, 3002.4.6a, 3002.4.7a, 3002.5, 3002.6, 3002.6.1 (New), 3002.9, 3002.11 (New)**

**Sections: 3002.4a – 3002.11 (New)**

**Reason:**

Registered design professionals should identify the medical emergency service elevator(s) on the construction documents for building and fire official review and approval.

The medical emergency service elevator(s) should be sized to accommodate two firefighters or emergency medical technicians in addition to the ambulance gurney or stretcher. The space requirement for emergency personnel is based upon National Institute for Occupational Safety and Health (NIOSH) anthropometric data for the 95<sup>th</sup> percentile male waist dimension for a suited firefighter. The space is circular to allow the firefighter to turn sideways (rotate 90 degrees) if needed.

The prescriptive dimensions for the elevator car have been deleted. The elevator industry can supply many different car configurations that will meet these gurney/stretcher accessibility requirements.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. There are many elevator systems for designers to utilize to meet the regulations. There may be a cost savings due to the requirement to clearly identify the elevator system in the plan review phase of construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Sections: 3002.5**

**Reason:**

Buildings in California have become increasingly taller. With tall buildings comes mid-rise and high-rise banks of elevators. The hoistways of these elevator banks typically include a very long (vertical) blind section where there are no normal landing entrances. Emergency doors in these blind sections of the hoistway provide firefighter access in order to evacuate passengers from stalled elevators. The required distance between emergency doors was calculated to ensure that a firefighters' extension ladder placed on top of the disabled car could reach the floor at the access door.

The design of emergency doors has also been improved in recent years. Each emergency door opening is protected by a separate hinged self-closing barrier that is installed horizontally across the entrance on the hoistway side at a height of 1,070 mm (42 in.). The barrier cannot swing into the hoistway. The increased heights of California buildings coupled with the improvements in emergency door design make it feasible to incorporate emergency doors in new building designs.

**Cost Impact:** The code change will not increase or decrease the cost of construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Sections: 3002.6.1**

**Reason:**

The goal of the code proposal is to help developers, general contractors and elevator companies coordinate and identify possible code violations early in the design phase by clearly pointing to the correct requirements for a permanent and approved means of access to elevator equipment. In addition, this will help to avoid cumbersome revisions to a finished design, and help to avoid unexpected delays and costs to construction and completion schedules.

The State Fire Marshal's (SFM) elevator work group developed the code change proposal to comply with the intent of the California Labor Code section 7300 (b). The use of unsafe or defective conveyances imposes a substantial probability of serious and preventable injury to employees and the public. The prevention of these injuries and protection of employees and the public from unsafe conditions is in the best interest of the people of this state. The doors and panels identified in this proposed code change expose elevator and building personnel to unnecessary shearing and crushing hazards. For this reason, the work group is recommending that the hoistway access doors and panels be prohibited in the specific locations where an elevator worker may be seriously injured. The code change proposal addresses elevator safety concerns and meets the intent of the California Labor Code.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. The practice of prohibiting access is commonly done and the code change is to provide clarity for the designers.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Sections: 3002.9**

**Reason:**

The California Code of Regulations, Title 8 –Elevator Safety Orders do not allow sump pump equipment in the pit. The pit exposes plumbers, electricians, and authorized personnel to shearing, crushing, and other hazards that have led to many fatalities. These workers are not adequately trained to access an elevator pit and should not be unnecessarily exposed to these hazards. This code change creates consistency and correlates with CCR Title 8 regulations.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Sections: 3002.11**

**Reason:**

Some elevator installations require very deep pits. These pits must be accessed through a separate pit access door. A permanent stairway is required for safe and convenient access to the pit access door. The elevator pit contains equipment which must be accessed for inspection, maintenance, repair, and replacement by elevator personnel and other authorized building personnel (e.g., electricians). Firefighters, first responders, and medical personnel may also require access to the pit to rescue injured workers.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**[ELEVATOR WORK GROUP 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

3002.4a, 3002.4.1a, 3002.4.2a, 3002.4.3a, 3002.4.4a, 3002.4.5a, 3002.4.6a, 3002.4.7a, 3002.5, 3002.6, 3002.6.1 (New), 3002.9, 3002.11 (New), 3003.1, 3003.1.4, 3003.1.5 (New), 3003.4 (New), 3003.4.1 (New), 3003.4.2 (New), 3003.4.3 (New), 3003.4.4 (New), 3005.1, 3005.2, 3005.3, 3005.4, 3005.4.1, 3007.1, 3008.1, 3008.1.1, 3008.1.2, 3008.1.3, 3008.1.4, [Chapter 35] ASME 17.1/CSA B44, [NFPA 13-16] 8.15.5.1, 8.15.5.2, 8.15.5.3, 8.15.5.7.1, 8.15.5.7.2

**SECTION 3003  
EMERGENCY OPERATIONS**

**Sections: 3003.1**

**Reason:**

The code change is to account for new subsection 3003.1.5 Emergency Hoistway Venting. The change is editorial and updates a code reference section.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Sections: 3003.1.4**

**Reason:**

This proposal amends the standby power provision to be consistent with proposed code revisions to section 3005.2. This creates correlation and consistence in the code.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction.

## **Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

### **Sections: 3003.1.5**

#### **Reason:**

This proposal creates a new standby power provision for Emergency Hoistway Venting. This is needed in case the elevators are on standby power and need venting. This prevents a passenger from exposure to smoke and hot gases in the hoistway. This will not impact the building owner; it is a measured approach to provide a reasonable level of safety for the passengers that may be in the hoistway where there may be smoke and hot gasses present.

This was removed in the 2015 International Building Code. Stack effect, loss of conditioned air, energy cost and compliance with energy standards. The removal did not address the safety issues of the passengers. This proposal addresses the issues that were part of the removal and consider not to be a burden to any of the energy cost saving concerns.

**Cost Impact:** The code change proposal will not increase the cost of construction and will not reduce the energy savings. The price of the human safety is difficult to measure. The liability cost savings for passenger safety will be a potential savings.

#### **Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM considered the committee concerns and evaluated the SFM elevator work group reason. The SFM elevator work group was made up of elevator industry, fire officials, building officials and other design professionals. The proposal was agreed on by consensus by the work group. The SFM is proposing the code change as submitted.

### **[ELEVATOR WORK GROUP 2019 INTERVENING PROPOSALS]**

#### **[Related Sections in Part 2, California Building Code]:**

3002.4a, 3002.4.1a, 3002.4.2a, 3002.4.3a, 3002.4.4a, 3002.4.5a, 3002.4.6a, 3002.4.7a, 3002.5, 3002.6, 3002.6.1 (New), 3002.9, 3002.11 (New), 3003.1, 3003.1.4, 3003.1.5 (New), 3003.4 (New), 3003.4.1 (New), 3003.4.2 (New), 3003.4.3 (New), 3003.4.4 (New), 3005.1, 3005.2, 3005.3, 3005.4, 3005.4.1, 3007.1, 3008.1, 3008.1.1, 3008.1.2, 3008.1.3, 3008.1.4, [Chapter 35] ASME 17.1/CSA B44, [NFPA 13-16] 8.15.5.1, 8.15.5.2, 8.15.5.3, 8.15.5.7.1, 8.15.5.7.2

**Sections: 3003.4 (New), 3003.4.1 (New), 3003.4.2 (New), 3003.4.3 (New), 3003.4.4 (New)**

**Sections: 3003.4 (New) – 3003.4.4 (New)**

#### **Reason:**

This proposal creates a new section 3003.4 Emergency Hoistway Venting. Emergency hoistway venting is required in hoistways containing driving-machine motors and associated electrical equipment. The purpose of this emergency hoistway vent is to

remove smoke and hot gasses related to elevator equipment overheating and/or failure, and to protect passengers that may be trapped in elevator cars.

The vent is normally closed for the following reasons:

- To prevent the hoistway stack effect.
- To prevent loss of conditioned air.
- To not conflict with hoistway pressurization where provided.

The vent opens automatically when the fire alarm initiating device at the top of the hoistway is activated in response to smoke associated with elevator equipment installed in the hoistway.

**Cost Impact:** The code change proposal will not increase the cost of construction and will not reduce the energy savings.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM considered the committee concerns and evaluated the SFM elevator work group reason. The SFM elevator work group was made up of elevator industry, fire officials, building officials and other design professionals. The proposal was agreed on by consensus by the work group. The SFM is proposing the code change as submitted.

**[ELEVATOR WORK GROUP 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

3002.4a, 3002.4.1a, 3002.4.2a, 3002.4.3a, 3002.4.4a, 3002.4.5a, 3002.4.6a, 3002.4.7a, 3002.5, 3002.6, 3002.6.1 (New), 3002.9, 3002.11 (New), 3003.1, 3003.1.4, 3003.1.5 (New), 3003.4 (New), 3003.4.1 (New), 3003.4.2 (New), 3003.4.3 (New), 3003.4.4 (New), 3005.1, 3005.2, 3005.3, 3005.4, 3005.4.1, 3007.1, 3008.1, 3008.1.1, 3008.1.2, 3008.1.3, 3008.1.4, [Chapter 35] ASME 17.1/CSA B44, [NFPA 13-16] 8.15.5.1, 8.15.5.2, 8.15.5.3, 8.15.5.7.1, 8.15.5.7.2

**SECTION 3005  
MACHINE ROOMS**

**Sections: 3005.1**

**Reason:**

Machine rooms and other related spaces should be provided with a permanent means of access. Portable ladders and other temporary means should not be allowed for access to these spaces. Increases safety for the elevator workers, technicians, and first responders. The term permanent enables regulators to enforce a safer condition for means of access, to ensure that cost of construction is stabilized and the owner is not faced with costly changes at the end of project.

**Cost Impact:** The code change proposal may decrease the cost of construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Sections: 3005.2**

**Reason:**

Section 3005.2 is contained within the MACHINE ROOMS section of the IBC. This proposal changes the heading from “Venting” to “Temperature and Humidity Control”. The purpose of this section is to protect elevator equipment that is sensitive to temperature and humidity from overheating. The provisions apply to all rooms and spaces where electrical equipment is installed.

**Cost Impact:** The code change will not increase or decrease the cost of construction.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation.

**Sections: 3005.4.1 (Repeal)**

**Reason:**

Delete Section 3005.4.1 from California Building Code completely since it is already covered in NFPA 13 standard and California Code of Regulations Title 8 – Elevator Safety Orders. This section has the same requirements in NFPA 13-2016 Section 8.15.5.3 and there is no need to repeat this requirement in the California Building Code.

**Response to Code Advisory Committee (CAC): Approved as Submitted**

SFM agrees with the CAC recommendation. After further study SFM withdrew the replacement of the proposal for a Dedicated Control Room.

**SECTION 3007  
FIRE SERVICE ACCESS ELEVATOR**

**Sections: 3007.1**

**Reason:**

1. The requirement for Fire Service Access Elevators (FSAE) to serve all floors was in the Code for three code cycles (2010, 2013, 2016 California Building Code) and many existing buildings are already provided with FSAEs serving all floors based on these codes. (San Francisco has about 100 buildings with FSAEs serving all floors). Changing this requirement for new buildings will create inconsistencies between buildings and emergency operation issues for responding firefighters using these elevators.
2. There are buildings with occupied floors below grade which will not have Fire Service Access Elevators (FSAE) access by the new regulations (example – Rincon Tower San Francisco, CA). This will significantly reduce firefighting ability to fight fires in lower floors and rescue occupants from lower floors without FSAE access.
3. Reduced ability to rescue disabled persons or people with mobility impairment
4. Eliminating a very important tool for firefighters to gain safe access to lower floors

and eliminating a safe staging location for firefighters to perform their emergency operation (enclosed protected lobby).

5. The largest CA jurisdictions, Los Angeles and San Francisco Fire Departments (in the process) have already modified their local codes to delete the new 2019 California Building Code language.
6. Many other Fire Service people throughout the US are against the 2018 International Building Code change. It reduces firefighters and building occupants safety.

Figure 1 an example for a high-rise building in San Francisco, CA with occupied floors below grade. The current 2019 California Building Code language will not have Fire Service Access Elevators.

*Figure 1*



**Cost Impact:** The code change proposal will not increase or decrease the cost of construction since the two largest California cities are already requiring the proposed regulations.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM addressed the committee member concerns by modifying the proposal and including the exception for parking garages.

**SECTION 3008  
OCCUPANT EVACUATION ELEVATORS**

**Sections: 3008.1, 3008.1.1**

**Reason:**

1. The standards for the evaluation of the evacuation of building occupants are not robust enough for California, which is prone to earthquakes. Having all passenger elevators used as Occupant Evacuation Elevators (OEE) provides the maximum opportunity for building occupants, especially those persons with disabilities or mobility impairment to use elevators for evacuation during emergencies.
2. Following September 11, 2001, the Building Code adopted provisions to allow elevators to serve as an additional form of egress and to assist emergency personnel during emergencies. It was never intended for Occupant Evacuation Elevators (OEE) to be installed in lieu of a required additional stairwell. In California, where the state is prone to earthquakes, which could shut down an elevator's operation, there is concern that removing the additional stairwell and reducing the number of OEEs could increase risk to a building's occupants, especially persons with disabilities or mobility impairments and hinder rescue personnel's efforts during emergencies.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction since the two largest California cities are already requiring the proposed regulations.

**Sections: 3008.1.2 [WITHDRAWN]**

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The SFM addressed the committee members concerns and withdrew the proposal to delete the additional stair requirements. The renumbering of the section numbers was also withdrawn.

**[ELEVATOR WORK GROUP 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

3002.4a, 3002.4.1a, 3002.4.2a, 3002.4.3a, 3002.4.4a, 3002.4.5a, 3002.4.6a, 3002.4.7a, 3002.5, 3002.6, 3002.6.1 (New), 3002.9, 3002.11 (New), 3003.1, 3003.1.4, 3003.1.5 (New), 3003.4 (New), 3003.4.1 (New), 3003.4.2 (New), 3003.4.3 (New), 3003.4.4 (New), 3005.1, 3005.2, 3005.3, 3005.4, 3005.4.1, 3007.1, 3008.1, 3008.1.1, 3008.1.2, 3008.1.3, 3008.1.4, [Chapter 35] ASME 17.1/CSA B44, [NFPA 13-16] 8.15.5.1, 8.15.5.2, 8.15.5.3, 8.15.5.7.1, 8.15.5.7.2

**Item 16. CHAPTER 31  
SPECIAL CONSTRUCTION**

**SECTION 3102  
MEMBRANE STRUCTURES**

**Sections: 3102.3, 3102.6.1.1**

**Reason:**

This code change will result in consistency with the purpose and scope which was to leave intact the current Type IV heavy timber (HT) provisions. The HT category was created to



differentiate the three (3) new categories of “mass timber”, where HT represents the long established heavy timber category that has been in the ICC family of codes, and the predecessor legacy codes, for decades.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (G146-18)

**Response to Code Advisory Committee (CAC): Approve as Submitted**  
SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**Item 17. CHAPTER 35  
REFERENCED STANDARDS**

**APA**

**Section: ANSI/APA PRG 320-18**

**Reason:**

The SFM proposes to adopt a new California amendment (standard). The 2018 version of the ANSI/APA standard is referenced in amendments for section 602.4. Section 602.4 recognizes mass timber as part of Type IV construction and the ANSI/APA standard is referenced specifically for labelling of cross-laminated timber in SFM’s amendment and in current section 2304.1.4 (uses 2017 standard). Although the standard has been updated to a 2019 edition, SFM proposes the reference to the 2018 standard for the 2019 CBC.

**Per Code Advisory Committee (CAC) meeting on March 17 and 18, 2020:**

No action was taken by the CAC regarding this item. During the CAC meeting, public comment was provided by Dennis Richardson, American Wood Council (AWC) that the International Code Council (ICC) adopted the updated ANSI/APA PRG 320-18 standard to incorporate heat resistant adhesive into Cross-Laminated Timber (CLT) which is critical for

use in tall wood buildings. The CAC asked that consideration be given to this comment.

**Response to Code Advisory Committee (CAC): No action was taken by CAC.**

SFM agrees with the public comment, and reviewed it post-CAC meeting. SFM concludes it is necessary to adopt ANSI/APA PRG 320-18 into the current rulemaking, in order to support other proposed provisions for CLT. SFM concurs with the comment and proposes a new amendment to propose adoption of the ANSI/APA PRG 320-18 standard into Chapter 35 – Referenced Standards.

**ASME**

**Section: ASTM/A17.1**

**Reason:**

ASME A17.3 is not applicable in California for the installation of elevators, escalators and moving walks per the California Code of Regulations, Title 8 Elevator Safety Orders. The applicable code standard for new and existing elevators in California is the California Code of Regulations, Title 8, Division I, Chapter 4, Subchapter 6, Elevator Safety Orders.

The following links are available access the [California Code of Regulations online](#).

[dir.ca.gov/samples/search/query.htm](http://dir.ca.gov/samples/search/query.htm)

[//govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=IC6D37580D45111DEA95CA4428EC25FA0&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](http://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=IC6D37580D45111DEA95CA4428EC25FA0&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**[ELEVATOR WORK GROUP 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

3002.4a, 3002.4.1a, 3002.4.2a, 3002.4.3a, 3002.4.4a, 3002.4.5a, 3002.4.6a, 3002.4.7a, 3002.5, 3002.6, 3002.6.1 (New), 3002.9, 3002.11 (New), 3003.1, 3003.1.4, 3003.1.5 (New), 3003.4 (New), 3003.4.1 (New), 3003.4.2 (New), 3003.4.3 (New), 3003.4.4 (New), 3005.4.1, 3007.1, 3008.1, 3008.1.1, 3008.1.2, 3008.1.3, 3008.1.4, [Chapter 35] ASME 17.1/CSA B44, [NFPA 13-16] 8.15.5.1, 8.15.5.2, 8.15.5.3, 8.15.5.7.1, 8.15.5.7.2

**ASTM**

**Section: D3498-03(2011)**

**Reason:**

The International Code Council (ICC) Ad Hoc Committee on Tall Wood Buildings (TWB) was created by the ICC Board to explore the science of tall wood buildings and take action on developing code changes for tall wood buildings. The ICC TWB has created several

code change proposals with respect to the concept of tall buildings of mass timber. Mass timber has inherent properties of fire resistance, serving both to provide structural fire resistance and to safeguard against the spread of fire and smoke within a building or the spread of fire between structures.

The inclusion of the ASTM standard in the new proposed section 703.9 requires the adoption of an edition for the code user. The proposal for adoption is to correlate with the requirements for the standard as referenced.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (FS6-18)

**Response to Code Advisory Committee (CAC): Approve as Submitted**  
SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]  
[Associated Sections in Part 2, California Building Code]:**

110.3.12 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5 (New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

**CSA**

**Section: ASME A17.1**

**Reason:**

ASME A17.3 is not applicable in California for the installation of elevators, escalators and moving walks per the California Code of Regulations, Title 8 Elevator Safety Orders. The applicable code standard for new and existing elevators in California is the California Code of Regulations, Title 8, Division I, Chapter 4, Subchapter 6, Elevator Safety Orders.

The following links are available access the [California Code of Regulations online](#).

[dir.ca.gov/samples/search/query.htm](http://dir.ca.gov/samples/search/query.htm)

[//govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=IC6D37580D45111DEA95CA4428EC25FA0&originationContext=documenttoc&transitionTyp](http://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=IC6D37580D45111DEA95CA4428EC25FA0&originationContext=documenttoc&transitionTyp)

e=Default&contextData=(sc.Default)

**Response to Code Advisory Committee (CAC): Approve as Submitted**  
SFM agrees with the CAC recommendation.

**[ELEVATOR WORK GROUP 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

3002.4a, 3002.4.1a, 3002.4.2a, 3002.4.3a, 3002.4.4a, 3002.4.5a, 3002.4.6a,  
3002.4.7a, 3002.5, 3002.6, 3002.6.1 (New), 3002.9, 3002.11 (New), 3003.1,  
3003.1.4, 3003.1.5 (New), 3003.4 (New), 3003.4.1 (New), 3003.4.2 (New), 3003.4.3  
(New), 3003.4.4 (New), 3005.4.1, 3007.1, 3008.1, 3008.1.1, 3008.1.2, 3008.1.3,  
3008.1.4, [Chapter 35] ASME 17.1/CSA B44, [NFPA 13-16] 8.15.5.1, 8.15.5.2,  
8.15.5.3, 8.15.5.7.1, 8.15.5.7.2

**NFPA**

**Section: NFPA 13-16**

**Sections 8.15.5.1, 8.15.5.2, 8.15.5.3, 8.15.5.7.1, 8.15.5.7.2**

**Reason:**

This section has the same requirements as in NFPA 13-2016 Section 8.15.5.3 and there is no need to repeat this requirement in California Fire Code or Building Code.

The requirement for top of hoistway smoke detection for all machine room-less (MRL) elevators is included in California Code of Regulation (CCR) Title 8, Elevator Safety Orders based on ASME A17.1-2013.

(FOR REFERENCE from CCR Title 8)

**2.27.3.2 Phase I Emergency Recall Operation by Fire Alarm Initiating Devices**

2.27.3.2.1 In jurisdictions not enforcing the NBCC, smoke detectors or other automatic fire detectors in environments not suitable for smoke detectors (fire alarm initiating devices) used to initiate Phase I Emergency Recall Operation shall be installed in conformance with the requirements of NFPA 72, and shall be located at each elevator lobby served by the elevator in the associated elevator machine room, machinery space containing a motor controller or driving machine, control space, or control room.

(c) in the elevator hoistway, when sprinklers are located in those hoistways

NOTE [2.27.3.2.1(b)]: A machinery space containing a motor controller or driving machine located in the elevator hoistway, or a control space located in the elevator hoistway requires a fire alarm initiating device regardless of the presence of sprinklers.

Sprinklers should not be removed from hydraulic elevator machine rooms. These rooms are accessible, the machine rooms contain combustible materials (hydraulic oils, etc.) There is no negative impact having sprinklers in hydraulic machine rooms with associated shunt trip function since firefighters typically don't use hydraulic elevators (serving max 5-6 stories). This will eliminate the conflict with NFPA 13 requiring sprinkler in hydraulic

machine rooms, it will eliminate inconsistencies between California jurisdictions and will eliminate potential retroactive enforcement issues. The California elevator division supports the sprinkler protection in hydraulic machine rooms only. This has been the common practice for a long time with no negative impact or safety concerns.

**Response to Code Advisory Committee (CAC): Approve as Submitted (Sections 8.15.5.1, 8.15.5.2, 8.15.5.3)** SFM agrees with the CAC recommendation.

**Section 8.15.5.7.1 [PROPOSAL WITHDRAWN]**  
**Section 8.15.5.7.2 [PROPOSAL WITHDRAWN]**

**Response to Code Advisory Committee (CAC): Further Study (Section 8.15.5.7.1, 8.15.5.7.2)** SFM agrees with the CAC recommendation. The SFM has withdrawn the proposals for NFPA 13 sections 8.15.5.7.1 and 8.15.5.7.2.

**[ELEVATOR WORK GROUP 2019 INTERVENING PROPOSALS]**

**[Related Sections in Part 2, California Building Code]:**

3002.4a, 3002.4.1a, 3002.4.2a, 3002.4.3a, 3002.4.4a, 3002.4.5a, 3002.4.6a, 3002.4.7a, 3002.5, 3002.6, 3002.6.1 (New), 3002.9, 3002.11 (New), 3003.1, 3003.1.4, 3003.1.5 (New), 3003.4 (New), 3003.4.1 (New), 3003.4.2 (New), 3003.4.3 (New), 3003.4.4 (New), 3005.1, 3005.2, 3005.3, 3005.4, 3005.4.1, 3007.1, 3008.1, 3008.1.1, 3008.1.2, 3008.1.3, 3008.1.4, [Chapter 35] ASME 17.1/CSA B44, [NFPA 13-16] 8.15.5.1, 8.15.5.2, 8.15.5.3, 8.15.5.7.1, 8.15.5.7.2

**Section: 45-15**

**Addendum reason:**

The adoption of NFPA 45 2015 Edition was an oversight as it was intended to correspond with model code language for higher education laboratories. The State Fire Marshal (SFM) proposed to remove the entire model code language for the higher education laboratories in the 2018 Triennial Rulemaking Cycle.

2018 Triennial Rationale: The State Fire Marshal is proposing to remove Chapter 38 in its entirety until it can be evaluated for its allowance of hazardous material in high-rises and how this affects the Group L occupancy. California currently has the Group L occupancies that addresses the issues of laboratories in high-rises and it does not restrict the occupancy to higher education. The adoption of chapter 38 can create conflict in the regulations and terminology for Group L and Higher Education Laboratories. The fire service has voiced concern on how these new regulations will affect the state. The OSFM will create a taskforce to evaluate the impact of the regulations and to make recommendations to the Office of the State Fire Marshal. The reference section 428.3.7 is also being deleted, because the entire section was repealed in the 2019 Triennial Rulemaking. Section 428 currently does not appear in the California Building Code.

**Response to Code Advisory Committee (CAC): Approve as Submitted**  
SFM agrees with the CAC recommendation.

**Section: NFPA 68-13**

**Reason:**

The proposed adoption of the standard NFPA 68 is to correlate to the California Fire Code sections for energy storage systems that refer to it for compliance. The benefit is to create consistence in the codes.

**Response to Code Advisory Committee (CAC): Further Study**

SFM agrees with the CAC recommendation. The need for the adoption of NFPA 68 correlates with the proposal to bring in the new advanced code requirements that were approved at the 2021 ICC code hearings.

**[ENERGY STORAGE SYSTEMS 2019 INTERVEING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

306.2, TABLE 414.5.1, TABLE 509, 707.4, TABLE 716.1(2), T ABLE 716.1(3), 716.2.5.4.1 (New), 716.3.2.1.1.1 (New), TABLE 903.2.11.6, [Chapter 35] NFPA 68 (New)

**Item 18. APPENDIX D**

**FIRE DISTRICTS**

**SECTION D102**

**BUILDING RESTRICTIONS**

**Section: D102.2.5**

**Reason:**

This code change proposal will result in consistency with the purpose and scope which was to leave intact the current Type IV heavy timber provisions. The HT category was created to differentiate the three (3) new categories of “mass timber”, where HT represents the long established heavy timber category that has been in the ICC family of codes, and the predecessor legacy codes for decades.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This section provides information that was not previously set forth in the code, and does not change the requirements of current code, thus there is no cost impact when compared with present requirements. (G152-18)

**Response to Code Advisory Committee (CAC): Approve as Submitted**

SFM agrees with the CAC recommendation.

**[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

110.3.5 (New), 202, 403.3.2, TABLE 504.3, TABLE 504.4, TABLE 506.2, 508.4.4.1, 509.4.1.1 (New), TABLE 601, TABLE 602, 602.4, 602.4.1 (New), 602.4.1.1 (New), 602.4.1.2 (New), 602.4.1.2.1 (New), 602.4.1.3 (New), 602.4.1.4 (New), 602.4.1.5

(New), 602.4.1.6 (New), 602.4.2, 602.4.2.1 (New), 602.4.2.2 (New), 602.4.2.2.1 (New), 602.4.2.2.2 (New), 602.4.2.2.3 (New), 602.4.2.2.4 (New), 602.4.2.3 (New), 602.4.2.4 (New), 602.4.2.5 (New), 602.4.2.6 (New), 602.4.3, 602.4.3.1 (New), 602.4.3.2 (New), 602.4.3.3 (New), 602.4.3.4 (New), 602.4.3.5 (New), 602.4.3.6 (New), 602.4.4 (New), 602.4.4.1, 602.4.4.2, 602.4.4.3, 602.4.4 (New), 703.8 (New), 703.9 (New), 718.2.1, 722.7 (New), 722.7.1 (New), TABLE 722.7.1 (1) (New), TABLE 722.7.1 (2) (New), 722.7.2 (New), 722.7.2.1 (New), 722.7.2.2 (New), 1705.5.3 (New), TABLE 1705.5.3 (New), 1705.11.1, 1705.11.2, 1705.12.2, 1705.12.3, 1705.20 (New), 2304.10.1.2 (New), 2304.11.3, 2304.11.4, 3102.3, 3102.6.1.1, (Chapter 35) ASTM D3498-03 (2011) (New), D102.2.5

## Item 19. INDEX

### **Revise the following index sections to correlate with the changes made for special amusement areas.**

Group-specific provisions, EXIT SIGNS, FIRE ALARM AND SMOKE DETECTION SYSTEMS, MEANS OF EGRESS, PUBLIC ADDRESS SYSTEM (see EMERGENCY COMMUNICATIONS), RECREATIONAL FACILITIES, SMOKE DETECTORS, SPRINKLER SYSTEM, REQUIRED, TRAVEL DISTANCE

#### **Reason:**

Puzzle rooms are a new business model where people are placed in a room and asked either to find a way out of the room or to find their way to the next room in the puzzle. The rooms are typically small and might otherwise be classified as a B occupancy under the current code. Each of these are designed in a way to provide a unique experience for the customer. This unique design incorporates several possible features to disorient the occupants and/or disguise the exit route. Such a design is contrary to the foundations of code specified exiting provisions. This proposal seeks to establish criteria for puzzle rooms by incorporating them into the special amusement section. Since part of the appeal of this business model is that each experience is different, there is no way to prescriptively handle every situation. The language is generic but gives guidance on providing reliable exiting in an emergency. While researching this proposal, it was recognized that the special amusement building section needed some updating.

**Cost Impact:** The code change proposal will increase the cost of construction. Many of these rooms may be classified currently as a B occupancy as they are not specifically called out in the code. As such, there are very little requirements for fire alarm or sprinkler systems. Depending on the size and configuration of the room(s), this provision would increase the cost of construction. (G48-18)

#### **Code Advisory Committee (CAC): NONE- EDITORIAL**

SFM agrees with the CAC recommendation. The inclusion of the index corrections is editorial; they are based on the actions within the proposed text language. The California Building Standards Commission Staff coordinate and correlate index sections in the printing of the supplemental pages upon approval from the Commission Board Members. The addition of the index reflects amendment activity. Not a regulatory item.

**[PUZZLE ROOM 2019 INTERVENING PROPOSALS]**

**[Associated Sections in Part 2, California Building Code]:**

Table of Contents, 202, Title 411, 411.1, 411.2, 411.3, 411.4, 411.5, 411.6, 411.6.1, 411.7, TABLE 903.2.11.6, 907.2.11, 907.2.11.2, 907.2.11.3, TABLE 1017.2, INDEX

**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 State Fire Marshal (SFM) used the justification that was provided through the International Code Council (ICC) rulemaking process.

**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 proposals have prescriptive regulations that recognized national testing standards. Alternates were considered and included where appropriate where the level of safety needed to be maintained.

**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 reasonable alternative considered by the SFM or that has otherwise been identified and brought to the attention of the SFM would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law.

**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 reasonable alternative considered by SFM or that has otherwise been identified and brought to the attention of the SFM would be more effective



in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected on small business than the proposed action, or would be more cost-effective to affected small business and equally effective in implementing the statutory policy or other provisions of law.

### **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 impact to business is described in the Economic and Fiscal Impact Statement.

### **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 State Fire Marshal has assessed whether or not and to what extent this proposal will affect the following:

- A.** The creation or elimination of jobs within the State of California.  
The Tall Wood Building (TWB) proposals will create the opportunity for the increased use of mass timber. The use of mass timber can deliver significant cost savings. The cost of the materials is the same or higher. The time of construction at the site can be reduced by 20% and the on-site skilled labor is reduced. The regulations may create an increase in the demand for specialists, designers, and engineers in mass timber. They may also increase the demand for workers in manufacturing plants of mass timber if they are built in California.
- B.** The creation of new businesses or the elimination of existing businesses within the State of California.  
The Tall Wood Building proposals will create the opportunity for the increased use of mass timber. The use of mass timber can deliver significant cost savings. The cost of the materials is the same or higher. The time of construction at the site can be reduced by 20% and the on-site skilled labor is reduced. This may increase the mass timber manufactures, designers, and construction firms in California.
- C.** The expansion of businesses currently doing business within the State of California.  
The Tall Wood Building proposals will create the opportunity for the increased use of mass timber. This may create the increased use of wood products. Inversely, this may create a reduction in the traditional use of concrete and steel in construction.  
This is new to the industry and the expanded use of mass timber is unknown and difficult to calculate for the 18-month effective period of analysis. The manufacturing of the product is currently done in other states. According to the Beck Group, as of 2018 there are five certified manufactures of Cross Laminated Timber (CLT) in the North America. This will provide the incentive to produce CLT in California, but it is unlikely to occur within the 18-month time frame. The

proposals may create the opportunity for manufacturing to move into the state, but to what extent is unknown.

- D.** The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

The SFM worked with various stakeholders to propose regulations that provide an acceptable level of fire and life safety. These proposals include standards for the protection from wildland fires; safety for the use and movement of hazardous materials; safe egress; protections for fire service personnel; worker and public safety in elevators.

### **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.

#### Tall Wood Building (TWB)

The Tall Wood Building (TWB) proposed regulations do not mandate the use of the three new Type IV construction categories. The proposal only recognizes their use as a design option. Therefore, there is no cost increase to industry.

The use of mass timber possibly will deliver significant cost savings to construction due to the cost of materials, the period of project construction timelines and a possible reduction by 20% by on-site skilled labor.

#### Wildland Urban Interface workgroup (WUI)

The SFM Wildland Urban Interface workgroup (WUI) proposed regulations estimate an increase of approximately \$1,150 per structures that are built in the fire severity zone. The regulations have no fiscal impact for other structures.

The WUI proposal will require a cap sheet under roof assemblies that contain an airspace. The cost of the 72-pound cap sheet sells for an average of \$21.00 to \$25.00 per 100-foot roll. The cap sheet which is used to achieve a "Class A" assembly for several different roofing materials. Taking the high cost of \$25.00 a roll, this comes out to \$0.25 per square foot.

Installation of the cap sheet material would add about \$10.00 per roll or \$0.10 per foot cost. Total installation would be \$0.35 per foot or \$35.00 per square foot. A 1,500-square foot, one-story house would cost \$525.

The WUI workgroup proposal will require vents to be listed to ASTM E2886 for new structures that are built in the areas that have been identified as a Fire Severity Zone.

The cost for the vents would be \$20 to \$25 per vent. This would add an additional cost of approximately \$600 for a 2,000-square foot structure. This can vary based on the design of the structure's exterior venting.

The WUI workgroup proposal would require flashing installed at the wall and deck intersection; covering six inches above the deck on the wall. The cost of flashing is approximately .80 cents a foot. A 20-foot deck would add an additional \$16 in materials.

### SFM Elevator Workgroup

The SFM elevator workgroup proposal will require venting for smoke, temperature and humidity control. The requirements for venting were previously in the 2012 model code, but were removed in the 2015 edition. There is a cost for the installation of venting. The cost is absorbed or neutral because the equipment manufacture listing requires the temperature and humidity standards to be met for their warranty.

The cost of forecasting for the venting at the beginning of construction is more cost effective than having to add the venting later to meet the equipment standards. This is also more effective than voiding the manufacturer's warranty. The workgroup found the overall cost neutral because of the offsetting factors.

The SFM elevator workgroup proposal for medical emergency elevators will allow different elevators to meet the requirements. The costs are unknown, because they are based on a designer's ability to utilize different elevator systems to meet the specific building design and function.

### Escape rooms

The escape room regulations were approved for the ICC 2021 edition of model codes. The proposal is to adopt these regulations in California early before the triennial adoption. The ICC proposals did identify that there could be an increase in the cost of construction.

The main cost will be standalone special amusement areas that exceed the 1,000 square feet that intentionally confound the egress path. The regulations will provide a fire protection system and detection system. The code does allow temporary systems and alternate means to address the life safety issues upon approval of the fire official. The cost can vary greatly based on the size and the circumstances. It may add an additional cost that is minimum to several thousand dollars.

## **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 there are no comparable federal regulations or statues addressing the fire and life safety requirements as presented in this notice.