INITIAL STATEMENT OF REASONS

FOR

PROPOSED BUILDING STANDARDS

OF THE

OFFICE OF THE STATE FIRE MARSHAL

REGARDING THE 2010 CALIFORNIA RESIDENTIAL CODE

CALIFORNIA CODE OF REGULATIONS TITLE 24, PART 2.5

2010 ANNUAL RULEMAKING CYCLE

The Administrative Procedure Act requires that an Initial Statement of Reasons be available to the public upon request when rulemaking action is being undertaken. The following are the reasons for proposing this particular rulemaking action:

STATEMENT OF SPECIFIC PURPOSE AND RATIONALE
(Government Code Section 11346.2)

The specific purpose of this rulemaking effort by the Office of the State Fire Marshal (SFM) is to act in accordance with Health and Safety Code section 18928, which requires all proposed regulations to specifically comply with this section in regards to the adoption by reference with amendments to a model code within one year after its publication.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies addressed in the 2009 International Residential Code and published as the 2010 California Residential Code.

The general purpose of this proposed action is principally intended to update the 2010 California Residential Code (California Code of Regulations, Title 24, Part 2.5) based upon updated information or recent actions of the SFM. This proposed action:

- Repeal certain amendments to the 2009 International Residential Code and/or California Building Standards not addressed by the model code that are no longer necessary nor justified pursuant with Health and Safety Code 18930(a)(7).
- Adopt and implement additional necessary amendments to the 2010 California Residential Code that address inadequacies of the 2009 International Residential Code as they pertain to California laws.
- Codify non-substantive editorial and formatting amendments to the 2010 California Residential Code.

The specific purpose and rationale of each adoption, amendment, or repeal is as follows:

[Item No. 1. Antifreeze solutions in residential fire sprinkler systems – permanent emergency rulemaking]

Chapter 44
Referenced Standards
NFPA 13
NFPA 13D
NFPA 13R
The SFM proposes to make permanent the emergency regulations approved by the California Building Standards Commission October 19, 2010. The above sections amended as part of that emergency rulemaking and have no further modification proposed in this rulemaking to make permanent. This Rulemaking is submitted accordance with Government Code Section 11346.1(e).

The following information is evidence that the amendments to Title 24, Part 2, California Building Code (CBC), Part 2.5 California Residential Code (CRC) and Part 9 California Fire Code (CFC) – NFPA 13, 13D and 13R reference standards as proposed by the Office of the State Fire Marshal (OSFM) are necessary for the immediate preservation of the public peace, health and safety or general welfare of the public relating to the design and construction of Group R occupancies and other dwelling unit applications where automatic fire sprinkler systems utilizing antifreeze solutions.

At the August meeting of the National Fire Protection Association (NFPA) Standards Council meeting held in Boston, Massachusetts a final decision was made to issue the tentative interim agreements (TIA) 1000, 995, and 994 on NFPA 13, NFPA 13R and NFPA 13D, respectively to the use of antifreeze solutions within all NFPA 13D applications and within the dwelling unit portions of NFPA 13 and NFPA 13R sprinkler systems. The issuance of the TIAs was based on a detailed research project conducted by in the NFPA Research Foundation in conjunction with Underwriters Laboratories, Inc. The use of antifreeze additives to new residential fire sprinkler systems is estimated to only affect less than 5 percent of the total state-wide residential fire sprinkler installations.

The SFM concurs with the NFPA recommendations in part and is proposing to make permanent the modifications contained in this proposed rulemaking for installation of residential fire sprinklers in areas prone to prolong freezing conditions while maintaining the highest level of public safety through the installation of residential fire sprinklers. This rulemaking maintains the requirement that only pre-mixed antifreeze solutions in concentrations not to exceed 40% propylene glycol and concentrations of glycerin not exceeding 50% in residential occupancies and other dwelling units be permitted for the protection of sprinkler pipe in freezing conditions where no other alternative to freeze protection is available. The research did not test the performance of diethylene glycol-water or ethylene glycol-water mixtures. As no performance information is available through the research study, the SFM proposes prohibiting their use within dwelling unit portions of the sprinkler system.

The SFM proposes where necessary to ensure that the regulations of the California Building Standards Code, establish and or maintain minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in accordance with Health and Safety Code 13100.1 that foster, promote and develop ways and means of protecting life and property against fire and panic.

Background

Automatic fire sprinkler systems with antifreeze solutions have more than 60 years of successful use in commercial applications and an equally successful experience since they have been in use in residential applications. Most fire fatalities occur in the home, and when home sprinklers are present, the risk of dying in a home fire decreases by 83%. The Office of the State Fire Marshal supports and urges the expanded use of residential sprinkler systems as the most effective way to prevent fire injury and death in the home and other residential occupancies. While OSFM emphasizes that residential sprinkler systems are and remain reliable and effective, a recent fire incident involving a sprinkler system that contained a **high** concentration antifreeze solution has raised concerns about the combustibility of antifreeze solutions in residential sprinkler systems. The incident involved a grease fire in a kitchen where a sprinkler system with a reported 71.2% concentration of antifreeze deployed. The fire resulted in a single fatality and serious injury to another person. (Recently, NFPA received a report of another incident, this time in a living room, which may have been exacerbated by the presence of an antifreeze solution.) Following the first incident, NFPA

initiated a research project with the Fire Protection Research Foundation (Foundation) and an initial set of fire tests was also conducted by Underwriters Laboratories. Based on information learned from these efforts, NFPA issued an interim safety alert and recommendations in July 2010 and began additional research to gain further information on antifreeze solution performance under various fire scenarios. The Foundation has completed this additional research in a report entitled "Antifreeze Solutions in Home Fire Sprinkler Systems: Phase II Research Interim Report" (2010), and NFPA is providing updated safety information and guidance based on the test results.

- **Key findings of fire tests**
  - Both the 40% propylene glycol and 50% glycerin solutions demonstrated similar performance to that of water alone for fire control throughout the series of tests.
  - Antifreeze solutions with concentrations of propylene glycol exceeding 40% and concentrations of glycerin exceeding 50% have the potential to ignite when discharged through automatic sprinklers.
  - Based on the results of this research, antifreeze solutions of propylene glycol exceeding 40% and glycerin exceeding 50% are not appropriate for use in residential fire sprinkler systems.
  - Consideration should be given to reducing the acceptable concentrations of these antifreeze solutions by an appropriate safety factor.

Though the NFPA Standards Council issued tentative interim amendments (TIA) to NFPA 13, *Standard for the Installation of Sprinkler Systems*; NFPA 13D, *Standard for Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*; and NFPA 13R, *Standard for Installation of Sprinkler Systems in Residential Occupancies Up To and Including Four Stories in Height* banning the use of antifreeze in sprinkler systems in new construction of residences, the Standards Council continued to recognize the use of antifreeze in existing protected structures based on the report released by the research group.

Based on the detailed evaluation of the NFPA research report, pre-mixed antifreeze solutions in concentration not to exceed 40% propylene glycol and concentration of glycerin not exceeding 50% and research showed that these concentrations performed in the same manner as water. The research did not test the performance of diethylene glycol-water or ethylene glycol-water mixtures. As no performance information is available through the study, the SFM proposes prohibiting their use within dwelling unit portions of the sprinkler system. The use of antifreeze solutions is one measure for the protection of residential sprinkler pipe in freezing conditions, shall only be used as a last method for protection, consideration given to recorded prolonged temperatures, and approved by the authority having jurisdiction.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2009 International Residential Code and published as the 2010 California Residential Code pursuant to Health and Safety Code Section 13108, 13113, 13114, 13131.5, 13143, 17921, and 18949.2.

[Item No. 2. Statutory modification and/or correction of existing regulation]

R202 Definitions
Bedridden Person
For the specific purpose and rationale for each section containing California regulation, modification, amendment or repeal see the Initial Statement of Reasons for Part 2 California Building Code (CBC) Item No. 5. The SFM is correlating amendments for Part 2.5 California Building Code (CRC) which are derived from the amendments proposed to the CBC relating to elevators.

R325.3.2
For the specific purpose and rationale for each section containing California regulation, modification, amendment or repeal see the Initial Statement of Reasons for Part 2 California Building Code (CBC) Item No. 5. The SFM is correlating amendments for Part 2.5 California Building Code (CRC) which are derived from the amendments proposed to the CBC relating to elevators.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2009 International Residential Code and published as the 2010 California Residential Code pursuant to Health and Safety Code Section 13108, 13113, 13114, 13131.5, 13143, 17921, and 18949.2.

[Item No. 3. Modifications that have no change in regulatory effect or repeal of amendments that are no longer necessary]

R325.5.2.2
The SFM is making editorial modification to correct the appropriate section reference for alarm notification provisions contained in the CBC. There is no change in regulatory effect.

Appendix M
The SFM is removing the chapter heading as it has no application, the provisions for home day care are contained in Section R325. There is no change in regulatory effect.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2009 International Residential Code and published as the 2010 California Residential Code pursuant to Health and Safety Code Section 13108, 13113, 13114, 13131.5, 13143, 17921, and 18949.2.

[Item No. 4. Editorial modification correcting code references to the appropriate California Code]

R101.2, R102.7, R104.11, R110.2
The SFM is amending the above sections to correctly reference the appropriate California Code edition. There is no change in regulatory effect.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2009 International Residential Code and published as the 2010 California Residential Code pursuant to Health and Safety Code Section 13108, 13113, 13114, 13131.5, 13143, 17921, and 18949.2.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:
(Government Code Section 11346.2(b)(2)

The SFM did not rely on any technical, theoretical, and empirical study, report, or similar documents outside of the 2009 IRC in proposing that CBSC adopt said model code as a reference standard for the placement of SFM's existing regulatory amendments of the 2010 CRC.

CONSIDERATION OF REASONABLE ALTERNATIVES
(Government Code Section 11346.2(b)(3)(A)

The SFM has determined that no alternative considered would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected private persons than the

proposed adoption by reference with SFM amendments. Therefore, there are no alternatives available to the SFM regarding the proposed adoption of an electrical code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.
(Government Code Section 11346.2(b)(3)(B)

The SFM has determined that no alternative available would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected private persons than the proposed adoption by reference with SFM amendments. Therefore, no alternatives have been identified or that have otherwise been identified and brought to the attention of the SFM that would lessen any adverse impact on small business.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.
(Government Code Section 11346.2(B)(4)

The SFM has made a determination that this proposed action will not have a significant adverse economic impact on business. Health and Safety Code Section 18928 requires the SFM, when proposing the adoption of a model code, national standard, or specification shall reference the most recent edition of the applicable model code, national standard, or specification. Therefore, there are no other facts, evidence, documents, testimony, or other evidence on which the SFM relies to support this rulemaking.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS
(Government Code Section 113465.2(b)(5)

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