

# NINE-POINT CRITERIA ANALYSIS

BY THE

CALIFORNIA DEPARTMENT OF FORESTRY (CDF) & FIRE PROTECTION

OFFICE OF THE STATE FIRE MARSHAL (SFM)

REGARDING THE CALIFORNIA CODE OF REGULATIONS, TITLE 24  
CALIFORNIA BUILDING CODE (CBC), PART 2

And

THE CALIFORNIA REFERENCED STANDARDS CODE (CRSC), PART 12

REGARDING PHASE II - WILDLAND-URBAN INTERFACE  
FIRE AREAS BUILDING STANDARDS

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Health and Safety Code Subsection 18930(a) requires building standards submitted to the California Building Standards Commission for approval; to be accompanied by an analysis, which will, to the satisfaction of the Commission, justify their approval. The approval of these proposed building standards is justified as follows:

**1) The proposed building standards do not conflict with, overlap, or duplicate other building standards.**

*The building standards as proposed by the SFM, do not conflict with, overlap, or duplicate other building standards. The scope of the SFM's proposed regulations applies to the construction of new structures in any Wildland-Urban Interface Fire Areas.*

*There are no other regulations in the California Code of Regulations, Title 24 that specifically address ignition resistant construction for buildings within Wildland-Urban Interface Fire Areas. The 2001 California Building and Fire Codes do not address the threat of wildland fires and their impact on the built environment.*

**2) The proposed building standards are within the parameters established by enabling legislation, and are not expressly within the exclusive jurisdiction of another agency.**

*The building standards as proposed by the SFM are within the parameters established by the enabling legislation, and are not expressly within the exclusive jurisdiction of another agency. The enabling legislation for these proposed building standards are Government Code Section 51189 and Health and Safety Code Section 13108.5.*

*The Legislature gave very specific authority to the Office of the State Fire Marshal to promulgate building standards for buildings that are constructed in any Wildland-Urban Interface Fire Area to resist the intrusion of flame and burning embers projected during a conflagration or wildfire.*

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### **3) The public interest requires the adoption of the building standards.**

*The public interest requires the adoption of these building standards. The estimated structural damage and destruction, and cost of response from three major federally-declared disasters over the past 12 years (1991 Oakland Hills, 1993 Southern California, 2003 Southern California) was \$10 billion.*

*Wildland-Urban Interface Fires occur every year in California; in 2003 alone, the total number of structures destroyed or damaged was approximately 5,046. It has been determined that 74% of these losses were a result of the “California Fire Siege, 2003” as reported in, “The Story.”*

*Those who lost their homes in past fires are applying for building permits today to build on the same property where their homes were destroyed. It is in the public’s interest that these new building standards become enforceable in these Wildland-Urban Interface Fire Areas as quickly as possible to help mitigate the devastation that California experienced in 2003.*

*There is broad recognition that the adoption of building standards for exterior wildfire exposure protection:*

- 1. Is appropriate public policy,<sup>1234</sup>*
- 2. Will achieve significant reduction in Wildland-Urban Interface fire losses<sup>5</sup> in addition to those already realized as a result of the fire-resistive roofing regulations promulgated by the SFM over the past two decades, and*
- 3. Is required (along with vegetation fuel management) because the majority of California interface fire loss occurs during interface fire disasters or conflagrations as describe above, and other methods of fire loss reduction have not historically been shown to be effective at reducing conflagration losses.<sup>6</sup>*

### **4) The proposed building standards are not unreasonable, arbitrary, unfair, or capricious, in whole or in part.**

*The building standards as proposed by the SFM are not unreasonable, arbitrary, unfair, or capricious, in whole or in part for the following reasons:*

- (a) The building standards as proposed by the SFM are not unreasonable. These standards for Wildland-Urban Interface Fire Areas are mandated by Assembly Bill 1216 as authored by Assemblyman Vargas. Legislative analysis does not indicate*

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<sup>1</sup> GAO. 2005. “Protecting Structures ... during Wildland Fires”

<sup>2</sup> National Association of Counties. 2005 Wildland-Urban Interface Resolution

<sup>3</sup> League of California Cities & CSAC. 2004. “WUI Fires - A Collaborative Plan to Decrease Impacts on Public Health and Safety”

<sup>4</sup> U.S. Congress. 2003. “Healthy Forest Restoration Act”

<sup>5</sup> SFM 2005 “Interface Fire Research and Case Study Summary” WUI Building Standards Information Bulletin

<sup>6</sup> SFM 2005 “California Interface Conflagrations – The Interface Fire Disaster Story” WUI Building Standards Information Bulletin

*that the Assembly members enacted an unreasonable law but rather one that proved unknowingly timely in light of the California Fire Siege, 2003.*

- (b) The building standards as proposed by the SFM are not arbitrary. These standards serve a specific purpose. That purpose is to provide building standards that clearly specify the materials and construction methods for new roofs, roofing assemblies, roof coverings, attic and eave vents in any Wildland-Urban Interface Fire Area that are designed to resist the intrusion of flame and burning embers projected during a conflagration or wildfire.*
- (c) The building standards as proposed by the SFM are not unfair or capricious, in whole or in part. People who choose to live in any Wildland-Urban Interface Fire Area of the state must share in the responsibility of protecting California's natural resources as well as their own preservation.*
- (d) The proposed SFM standards were developed by CDF experts, building and fire officials, other state agencies and building industry concerns. Although the proposed regulations focus on performance based criteria, prescriptive measures are also included providing the owner, developer, designer or builder a wide range of building material options and construction methods within a broader range of costs.*
- (e) The SFM is proposing a phased regulatory plan that provides a "systems approach" to the mitigation of wildfires in any Wildland-Urban Interface Fire Areas. The SFM and CDF worked with interested parties and stakeholders to reach consensus on the Phase 2 regulations.*
- (f) The SFM and CDF did reach consensus on the intent of the Phase 2 regulations that are designed to address the materials and construction methods for new exterior openings, standards of quality and decking.*
- (g) Phase 2 regulations will not become effective until January 1, 2008. This delayed effective date will give the enforcing agency and the public time to prepare and plan for these regulations accordingly.*
- (h) The proposed Standards for Part 12 are not unreasonable. The SFM is proposing standards, which have been developed by fire researchers to test material and construction assembly response to wildfire exposure. Existing national tests, standards, and recommendations such as ASTM E-119 are designed for building fires and exposures, which do not reasonably represent wildfire exposure.*

**5) The cost to the public is reasonable, based on the overall benefit to be derived from the building standards.**

*The cost to the public is reasonable based on the overall benefit.*

➤ See Appendix 2, page 67 of “The Story.” Appendix 2 provides summaries of cost for suppression, firefighters as well as the tragic loss of lives for each fire. These summaries clearly indicate the need for new, forward thinking for prevention measures outside of the conventional home construction methods. These measures and these regulations are only geared towards those limited number of homes and structures built in Wildland-Urban Interface Fire Areas.

*It is estimated that these regulations may affect approximately 11% of the single-family home construction in California. Persons that elect to live in Wildland-Urban Interface Fire Areas must be made and become responsible for their impact upon California’s natural resources, neighbors and their community.*

**6) The proposed building standards are not unnecessarily ambiguous or vague, in whole or in part.**

*The SFM proposed regulations are not unnecessarily ambiguous or vague, in whole or in part.*

*The SFM proposed regulations were carefully drafted to avoid vague and ambiguous language in their scope and application. These regulations are outside of conventional construction methodologies because they have a strong element or emphasis on fire prevention that is not typically incorporated into the enforcement duties of a building official. Therefore these regulations must be as clear and easy to enforce by the building official as possible. Phase 2 will acquaint the building official in a less hurried fashion so that when Phase 2 is implemented they will have exceeded their learning curve.*

*These proposed building standards for buildings in are a systematic approach that includes requirements for materials and construction methods for buildings in Wildland-Urban Interface Fire Areas. Used in conjunction with well established vegetation management principles these building standards will be the cornerstone of future standards and methodologies that will rebuild and make safe the communities in Wildland-Urban Interface Fire Areas.*

*The statistical modeling of structure loss and survival on the 1990 Santa Barbara Paint fire revealed that brush clearance alone only accounted for 11% of the variation seen in the structure survival patterns. When brush clearance was combined in the statistical model with building construction (in this case roof type) and the effect of defensive actions was accounted for, the model accounted for 59% of the variability in structure loss.*

*See attached 2004 Community Wildfire Protection Plan Workshop handout “Wildland-Urban Interface Ignition Resistant Building Construction Recommendations.”*

*The SFM proposed regulations are not without cause. The SFM is responding to the Legislature’s mandate for the development of regulations for new structures in any Wildland-Urban Interface Fire Areas. The development of these regulations is supported by Governor Schwarzenegger’s Blue Ribbon Commission report following the California Fire Siege, 2003. See the following attachments*

◆ “Governor’s Blue Ribbon Commission Report”- findings regarding building standards in Wildland-Urban Interface Fire Area as follows:

- Page 13 – Finding 3 – Currently appropriate minimum building standards are not mandated nor consistently enforced in all communities in WUI Fire Areas,
- Page 47 – Finding 1 - The protection of life and property from wildfire cannot simply rely on the availability of firefighting resources,
- Page 22 - The Governor’s recommendation – The State Fire Marshal is to continue the research towards the development of but is not limited to, fire test protocols for vents, radiant heat and improvement of ignition resistant construction techniques.

**7) The applicable national specifications, published standards, and model codes have been incorporated therein as provided in this part, where appropriate.**

*National standards for building protection from exposure fires and fire resistance do not reasonably represent wildfire exposure and are not appropriate for wildfire protection. The purpose of NFPA 80A – Recommended Practice for Protection of Buildings from Exterior Fire Exposures, is to provide a building exterior reasonable protection from an external building fire, not wildfire. NFPA 80A does not address exposure by burning embers common in wildfires.*

*ASTM E-119 – Standard Test Method for Fire Tests of Building Construction and Materials, is used to determine the fire resistance of a construction assembly such as a wall. The test assembly is exposed to a standard temperature curve for the time period for which a fire resistance rating is desired (i.e., one, two, three, or four hours) to simulate room fire exposure inside a building. Actual wildfires expose primarily the exterior of the building and often without fire protection response available. Wildfires typically have a much shorter duration of exposure than interior room fires and have been measured under extreme conditions to last for only 50 to 70 seconds. Because the large flames of wildfires depend on consumption of the fine and live fuels, intense burning is limited to a duration of “...less than a few minutes”.<sup>7 8</sup> This provides the scientific foundation for use of ignition resistant building construction rather than fire-resistive construction to achieve exterior wildfire exposure protection for buildings.<sup>9 10</sup>*

*ASTM E-84 – Standard Test Method for Surface Burning Characteristics of Building Materials has been incorporated (along with the extended 30-minute designation as UBC Standard 8-1) as the method to assess the spread of flame on the surface of materials and is used to define ignition resistant materials. UBC Standard 23-4 – Fire-retardant-treated Wood Tests on Durability and Hygroscopic Properties has also been incorporated for weathering durability of ignition resistant materials.*

<sup>7</sup> Cohen, Jack D. 2000. “Preventing Disaster: Home Ignitability in the Wildland-Urban Interface.” J. of Forestry, vol. 98 no.3 pp.15-21.

<sup>8</sup> Cohen, Jack D. 2004.

<sup>9</sup> SFM 2005 “Ignition Resistant Building Construction.” WUI Building Standards Information Bulletin

<sup>10</sup> Warrington Fire Research. 2002. “Literature Review of Bushfire Construction...”

*Applicable national standards include the International Code Council (ICC), Urban Wildland Interface Code (2002ed.) and the NFPA 1144 Standard for Protection of Life and Property from Wildfire (2002 ed.). Portions of these standards were used as a model for the SFM's proposed regulations. However, these standards contain substantial provisions that are outside the scope of the SFM to regulate, and/or overlap or duplicate existing requirements by the SFM & CDF (e.g. access roads, water supplies for fire protection, fuel modification areas, wildfire hazard assessment, etc.). In addition the building design and construction sections of these two models rely heavily on the use of one-hour and two-hour fire-resistive construction. The SFM concluded adequate exterior wildfire exposure protection could be achieved through a science-based application of ignition resistant building construction with less fiscal and design impact on California building construction than adoption of these model codes would have.*

*Due to copyright concerns and the fact that neither national standard provided the needed level of detailed information for California's Wildland-Urban Interface Fire Areas, the SFM gleaned information from many reports and data sets on this subject from nationally recognized testing labs, scientist, Fire Protection Engineers and many others when developing these proposed regulations.*

**8) The format of the proposed building standards is consistent with that adopted by the Commission.**

*The SFM has endeavored to maintain the format of these proposed building standards to be consistent with that adopted by the Commission. The presentation of these proposed regulations to the Commission and to the public is in the same format as that of the 2001 California Building Code as published by the International Conference of Building Officials (ICBO), which to the SFM's understanding is the adopted format of the Commission.*

**9) The proposed building standards, if they promote fire and panic safety as determined by the State Fire Marshal, have the written approval of the State Fire Marshal.**

*The SFM has determined that these proposed building standards, will promote fire and panic safety in new structures built in any Wildland-Urban Interface Fire Areas.*