

NFPA[®]

1144

**Standard for
Reducing Structure
Ignition Hazards
from Wildland Fire**

2018



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NFPA® 1144

Standard for

Reducing Structure Ignition Hazards from Wildland Fire

2018 Edition

This edition of NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, was prepared by the Technical Committee on Wildland and Rural Fire Protection and acted on by NFPA at its June Association Technical Meeting held June 4–7, 2017, in Boston, MA. It was issued by the Standards Council on August 17, 2017, with an effective date of September 6, 2017, and supersedes all previous editions.

This edition of NFPA 1144 was approved as an American National Standard on September 6, 2017.

Origin and Development of NFPA 1144

The basis for NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, was NFPA 224, *Fire Protection and Prevention for Summer Homes in Forested Areas*, originally created in 1935. That document was developed by the Forest Committee of NFPA and was presented and adopted at the 1935 Annual Meeting of the Association. In 1952, the document was renumbered NFPA 224-T, and in 1953 the title was revised to *Fire Prevention Standards for Homes and Camps in Forested Areas*. The document was designated NFPA 224M, *Recommended Good Practice for Homes and Camps in Forest Areas*, when it was revised in the 1962, 1969, and 1972 editions.

In 1974, NFPA 224M was renamed *Standard for Homes and Camps in Forest Areas*, and was revised in progressively up-to-date editions in both 1979 and 1985. In 1988, the NFPA Forest Committee and the Correlating Committee on Suburban and Rural Fire Protection and Prevention were combined into the Technical Committee for Forest and Rural Fire Protection.

In 1991, NFPA 224, *Standard for Homes and Camps in Forest Areas*, was withdrawn, and the Forest and Rural Technical Committee incorporated parts of the document into the 1991 edition of NFPA 299, *Protecting Life and Property from Wildfire*. Following the tragic wildfires in the United States in 1985, which had resulted in the loss of 44 lives and 1400 homes, the 1991 edition was revised with a new approach to fire protection. Recent wildland/urban interface fires, such as the conflagrations in Oakland, CA (1991), Laguna Beach, CA (1993), and Malibu, CA (1996), had shown that fire fighters often are placed in dangerous situations due to inadequate planning and design of roadways, signs, water supplies, and other infrastructure considerations. Those fires also demonstrated that the growing population of residential areas increasingly is encroaching into wildland areas. The fire season of 2000 resulted in renewed interest in seeking more creative alternative methods to reduce the historical trend of catastrophic fires.

In 2002, NFPA 299 was renumbered NFPA 1144 to bring it into sequence with other Forest and Rural Committee documents. NFPA 1144 was officially adopted by state and local governments and adapted for use by numerous jurisdictions involved in planning Firewise Communities. The 2002 edition clarified numerous requirements in the earlier editions and included a significant revision of the Wildland Fire Risk and Hazard Severity Assessment system in Annex B. The committee tested various assessment system versions in several Firewise Communities workshops, sponsored by the National Wildland/Urban Interface Fire Program, before arriving at the relative values and hazard levels given in the document. The committee increased the severity values for non-rated roofing, inadequate separation of vegetation from structures, and separation of structures from one another.

The 2008 edition, retitled *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, focused on individual structure hazards and excluded subdivision requirements, which were incorporated into the 2008 edition of NFPA 1141, *Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas*. The 2008 edition also required a new spatial approach to assessing and

mitigating wildfire hazards around existing structures and included improved ignition-resistant requirements for new construction.

In the 2013 edition of NFPA 1144, the committee provided additional clarification for the definitions of *combustible*, *noncombustible*, and *ignition-resistant material*. In addition to updating references, new requirements for the maintenance and use of noncombustible roof gutters, downspouts, and connections were included in the document.

NFPA 1144 presents basic criteria for fire agencies, land use planners, architects, developers, and local government for planning development in areas that might be threatened by wildfire. This standard, when used as part of a cooperative approach among key disciplines, will provide guidance in the design and development of Firewise Communities in or near wildland fire-prone areas. It is hoped that the requirements set forth in this document will, first, help protect the lives of both residents and fire fighters when wildfires strike and, second, reduce property damage.

In the 2018 edition of NFPA 1144, the committee clarifies definitions, including *defensible space*, *fire resistive*, *ignition-resistant material*, *immediate landscaped area*, *noncombustible material*, *slope*, *structure ignition zone*, *water supply*, *wildland/urban interface*, and *intermix*. The technical committee added hydrants, cisterns, and water sources to the map elements. Structural assessment will include an evaluation of the site for conflagration hazards. Significant revisions were made to construction design and materials of the structure and components supported by ASTM testing standards and specific compliance elements found in Chapter 5 and include roof design and materials; vents for attics, subfloors, and walls; all projections, including balconies, carports, decks, and patio covers; enclosed roofs and floors; exterior vertical walls; and exterior openings.

Technical Committee on Wildland and Rural Fire Protection

Rick L. Swan, *Chair*

IAFF Local 2881/CDF Fire Fighters, VA [L]
Rep. International Association of Fire Fighters

Gregory A. Bartlett, Brandon University, Rural Development Institute, Canada [SE]

Randall K. Bradley, Tracy Fire Department/South County Fire Authority, CA [E]

Vernon Champlin, NE Teller County Fire Protection District, CO [E]

Erik W. Christiansen, Exponent, Inc., CA [SE]

David Doudy, City of Farmington Fire Department, NM [U]

Michael J. Gollner, University of Maryland, MD [RT]

Dustin Green, Citrus County Sheriffs Office, FL [U]

Donald J. Griego, State of New Mexico, NM [E]

Bill Hendricks, Safer Building Solutions, CA [M]

Joseph T. Holland, Hoover Treated Wood Products, FL [M]

Kelly Johnston, Wildland Professional Solutions, Canada [SE]

Justice J. Jones, Austin Fire Department, TX [U]

Jeremy A. Keller, Macochee Joint Ambulance District, OH [E]

Wesley M. Keller, Pennsylvania Bureau of Forestry, PA [U]

Robert J. Kowalski, Nationwide Insurance Companies, OH [I]

Kevin P. Kuntz, Verisk Analytics/Insurance Services Office, Inc., NJ [I]

Alexander Maranghides, National Institute of Standards & Technology, MD [RT]

Don Oaks, California Fire Chief's Association, CA [SE]

Phil Ostrander, Oklahoma State Firefighters Association, OK [L]
Rep. National Volunteer Fire Council

Stephen Quarles, Insurance Institute for Business & Home Safety, SC [I]

Amy Ray Solaro, Truckee Meadows Fire Protection District, NV [E]

Clifford C. Roberts, American International Group, Inc. (AIG), FL [I]

Rob Rosovich, FireIce Inc., FL [M]

Ernie Schmidt, 3M Company, MN [M]

Gregory Schreiner, San Diego County Fire Authority, CA [E]

Deborah L. Shaner, Shaner Life Safety, CO [SE]

David P. Tyree, American Wood Council, CO [M]

Chris White, Anchor Point Group, CO [SE]

Alternates

Hubert Biteau, Exponent, Inc., MD [SE]
(Alt. to Erik W. Christiansen)

Nelson P. Bryner, National Institute of Standards & Technology, MD [RT]
(Alt. to Alexander Maranghides)

James P. Gogolski, Hoover Treated Wood Products, OH [M]
(Alt. to Joseph T. Holland)

Vladimir Ignatenko, American International Group, Inc. (AIG), CA [I]
(Alt. to Clifford C. Roberts)

Thomas McGowan, NFPA Staff Liaison

Steve Oaks, Santa Barbara County Fire Department, CA [SE]
(Alt. to Don Oaks)

James D. Pine, San Diego County Fire Authority, CA [E]
(Alt. to Gregory Schreiner)

Dennis A. Richardson, American Wood Council, CA [M]
(Alt. to David P. Tyree)

William J. Watters, Verisk Analytics/Insurance Services Office, Inc., NJ [I]
(Alt. to Kevin P. Kuntz)

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Committee Scope: This committee shall have the primary responsibility for documents on fire protection in wildland, rural, and suburban areas.

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NFPA 1144

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A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex D. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced publications can be found in Chapter 2 and Annex D.

Chapter 1 Administration

1.1* Scope. This standard provides a methodology for assessing wildland fire ignition hazards around existing structures, residential developments, and subdivisions and improved property or planned property improvement that will be located in a wildland/urban interface area, and provides minimum requirements for new construction to reduce the potential of structure ignition from wildland fires.

1.2 Purpose.

1.2.1* This standard shall be used to assess fuel sources in the structure ignition zone for their potential to ignite structures and to identify possible mitigation measures to reduce the possibility of structure ignition.

1.2.2 The standard provides minimum standards for design, construction, and landscaping for structures in the wildland/urban interface.

1.3 Application.

1.3.1 The standard shall apply to all existing structures, residential developments, and subdivisions and improved property or planned property improvement that will be located in a wildland/urban interface area, including commercial, ranch and farm structures, manufactured homes, and structures in recreational vehicle parks.

1.3.2 This standard shall not be construed as prohibiting any design, construction, or landscaping activity that will provide fire protection or hazard reduction at least equivalent to that required by this standard and that which has been set forth by the authority having jurisdiction (AHJ).

1.4 Equivalency.

1.4.1* This standard shall not be used to lessen or negate general fire protection requirements or procedures addressed in other standards.

1.4.2 The authority having jurisdiction shall use recognized fire protection standards and measures as necessary to meet local conditions.

1.4.3 Where extremely high hazard conditions exist, the authority having jurisdiction shall determine equivalent requirements that provide a level of protection no less than would be afforded by full compliance with this standard.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 58, *Liquefied Petroleum Gas Code*, 2017 edition.

NFPA 703, *Standard for Fire-Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials*, 2018 edition.

NFPA 1141, *Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas*, 2017 edition.

NFPA 5000®, *Building Construction and Safety Code*®, 2015 edition.

2.3 Other Publications.

2.3.1 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM D2898, *Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing*, 2010.

ASTM D3909/D3909M, *Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced With Mineral Granules*, 2014.

ASTM D6662, *Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards*, 2013.

ASTM D7032, *Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite and Plastic Lumber Deck Boards, Stair Treads, Guards, and Handrails*, 2015.

ASTM E84, *Standard Test Methods for Surface Burning Characteristics of Building Materials*, 2016.

ASTM E108, *Standard Test Methods for Fire Tests of Roof Coverings*, 2011.

ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, 2016a.

ASTM E136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C*, 2016.

ASTM E2652, *Standard Test Method for Behavior of Materials in a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750°C*, 2016.

ASTM E2768, *Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)*, 2011.

ASTM E2886, *Test Method for Evaluating the Ability of Exterior Vents to Resist the Entry of Embers and Direct Flame Impingement*, 2014.

ASTM E2957, *Standard Test Method for Resistance to Wildfire Penetration of Eaves, Soffits and Other Projections*, 2015.

N 2.3.2 UL Publications. Underwriters Laboratories, 333 Pfingsten Rd, Northbrook, IL 60062.

UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*, 2013.

UL 790, *Standard for Standard Test Methods for Fire Tests of Roof Coverings*, 2014.

2.3.3 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

2.4 References for Extracts in Mandatory Sections.

NFPA 5000®, *Building Construction and Safety Code*®, 2015 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evalua-

tion of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.4 Shall. Indicates a mandatory requirement.

3.2.5 Standard. An NFPA Standard, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and that is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions are not to be considered a part of the requirements of a standard and shall be located in an appendix, annex, footnote, informational note, or other means as permitted in the NFPA Manuals of Style. When used in a generic sense, such as in the phrase "standards development process" or "standards development activities," the term "standards" includes all NFPA Standards, including Codes, Standards, Recommended Practices, and Guides.

3.3 General Definitions.

3.3.1 Accessory Structure. Any structure used incidentally to another structure.

3.3.2 Alternative. A system, condition, arrangement, material, or equipment submitted to the authority having jurisdiction as a substitute for a requirement in a standard.

3.3.3 Building. A structure, usually enclosed by walls and a roof, constructed to provide support or shelter for an intended occupancy.

3.3.4 Combustible. A combustible material is any material that, in the form in which it is used and under the conditions anticipated, will ignite and burn or will add appreciable heat to an ambient fire.

N 3.3.5 Defensible Space. The selection, location, grouping, and maintenance of vegetation on the property in such a manner that the opportunity for fire to burn directly to a structure is minimized.

3.3.6 Evacuation. The temporary movement of people and their possessions from locations threatened by wildland fire.

3.3.7 Fire Hazard. A fuel complex, defined by kind, arrangement, volume, condition, and location, that determines the ease of ignition and/or resistance to fire control.

3.3.8 Fire Resistive. Ignition-resistant construction methods using building materials and design features that reduce the vulnerabilities of buildings to ignite from wind-blown embers (firebrands) and other wildfire exposures.

3.3.9 Fuel Modification. Any manipulation or removal of fuels to reduce the likelihood of ignition or the resistance to fire control.

3.3.10* Fuels. All combustible materials within the wildland/urban interface or intermix, including, but not limited to, vegetation and structures.

3.3.11 Ground Fuels. All combustible materials such as grass, duff, loose surface litter, tree or shrub roots, rotting wood, leaves, peat, or sawdust that typically support combustion.

Δ 3.3.12* Heavy Timber Construction. Type IV (2HH) construction as defined in NFPA 5000.

3.3.13 Ignition-Resistant Material. A type of building material that resists ignition or sustained flaming combustion.

3.3.14* Immediate Landscaped Area. The area of the structure ignition zone extending at least 30 ft (9 m) from the foundation of the structure, including the footprint on decks and all extensions, and the area in which the vegetation has been modified for reduced combustibility or aesthetic purposes, such as lawns and gardens.

3.3.15 Improved Property. A piece of land or real estate upon which a structure has been placed, a marketable crop is growing (including timber), or other property improvement has been made.

3.3.16 Mitigation. Action that moderates the severity of a fire hazard or risk.

3.3.17 Noncombustible Material. See 5.2.1.

3.3.18 Occupancy. The purpose for which a building or portion thereof is used or intended to be used.

3.3.19 Risk. The measure of the probability and severity of adverse effects that result from an exposure to a wildland fire (direct flames, radiant heat, or firebrands).

3.3.20 Slope. Upward or downward incline or slant, that is calculated by dividing the vertical rise (or fall) of a surface for a given horizontal distance, calculated as rise divided by run.

3.3.21 Structure. That which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

3.3.22* Structure Assessment. An evaluation to determine the structure's potential to be ignited by an approaching wildland fire.

3.3.23* Structure Ignition Zone. The area around a specific structure and associated accessory structures, including all vegetation that contains potential ignition sources and fuels.

3.3.24 Water Supply. A source of water for fire suppression activities.

3.3.25 Wildland Fire. An unplanned and uncontrolled fire spreading through vegetative fuels, including any structures or other improvements thereon.

3.3.26* Wildland/Urban Interface. An area where wildland fuels abut structures, with a clear line of demarcation between residential, business, and public structures and wildland fuels.

3.3.27 Wildland/Urban Intermix. An area where structures are scattered and intermingled with wildland fuels.

Chapter 4 Assessing Wildland Fire Hazards in the Structure Ignition Zone

4.1 General.

4.1.1* In cases in which the AHJ determines that existing improved property is, or a planned property improvement will be, located in a wildland/urban interface or intermix area, the AHJ shall perform, or cause to be performed, a wildland fire hazard assessment of each structure ignition zone in the development to determine relative risk, the extent of wildland fire hazard, and applicable mitigation measures.

4.1.2* The structure assessment shall, at a minimum, include the following:

- (1) Identification and documentation of the wildland fire hazards in the ignition zone(s) for each structure within wildland fire hazard areas, according to the elements and conditions in Section 4.2
- (2) Determination of mitigation measures for vegetation, other combustibles, and the structure, including the periodic maintenance associated with such measures
- (3) Establishment of priorities relative to mitigating the risks from wildland fire
- (4) Evaluation of the site for conflagration hazards associated with the property to provide information for fire operations strategies should the site or surrounding properties become involved with fire

4.1.3 The wildland fire hazard assessment shall be the basis for recommended mitigation measures relative to the vegetation, other combustibles, and structures on the site.

4.2* Structure Assessment Elements and Conditions. As a minimum, the structure assessment shall cover elements and conditions indicated in 4.2.1 through 4.2.5.

4.2.1 Overview of the Surrounding Environment. The structure assessment shall document the conditions of 4.2.1.1 through 4.2.1.5 in the assessment of the surrounding environment, as they will place the structure in the most risk from ignition by a wildland fire.

4.2.1.1* The structure assessment shall document the location of the structure in relation to predominant topographical features, such as flat open areas, ridges, saddles, steep slopes, natural chimneys like steep narrow draws, or small canyons, that will increase the ignition potential of the structure.

4.2.1.2* The structure assessment shall document local weather conditions, including wind, relative humidity, temperature, and fine fuel moisture content.

4.2.1.3* The structure assessment shall document nearby structures using the same criteria as the primary structure.

4.2.1.4* The structure assessment shall document any neighboring properties that could impact the ignition zone of the property being assessed.

4.2.1.5* The structure assessment shall document the structure's location on the slope relative to the structure's potential exposure to heat from a wildland fire.

4.2.2 From Chimney to Eaves. The structure assessment shall document the conditions of 4.2.2.1 through 4.2.2.6 to observe construction and vegetation as they place the structure in the most risk from ignition by a wildland fire.

4.2.2.1* The structure assessment shall document the type and construction of roofing materials.

4.2.2.2* The structure assessment shall document the condition of roofing materials and assemblies.

4.2.2.3* The structure assessment shall document all skylights in roof assemblies.

4.2.2.4* The structure assessment shall document the potential of roof gutters and areas where exterior walls meet roof or deck surfaces to collect litter on surfaces or in crevices.

4.2.2.5* The structure assessment shall document the construction materials of gutters, downspouts, and connectors.

4.2.2.6* The structure assessment shall document the materials and construction used in eaves of roof overhangs.

4.2.3 From Top of Exterior Wall to Foundation. The structure assessment shall document the conditions of 4.2.3.1 through 4.2.3.6 to observe construction and vegetation as they place the structure in the most risk from ignition by a wildland fire.

4.2.3.1* The structure assessment shall document the materials and construction used in exterior walls and exterior siding.

4.2.3.2 The structure assessment shall document the materials used for gutter downspouts and connectors on exterior walls.

4.2.3.3* The structure assessment shall document the materials used in windows and other openings in vertical surfaces.

4.2.3.4* The structure assessment shall document the location, size, and screening of ventilation openings.

4.2.3.5* The structure assessment shall document all attached accessory structures as part of the primary structure.

4.2.3.6* The structure assessment shall document areas next to or under a structure where combustible materials that present a source of flame exposure to the structure might collect.

4.2.4* From Foundation to the Immediate Landscaped Area. The structure assessment shall document the conditions of 4.2.4.1 through 4.2.4.5 to observe construction and vegetation, as they place the structure in the most risk from ignition by a wildland fire.

4.2.4.1* The structure assessment shall document all vegetative fuels and other combustible materials adjacent to and within 30 ft (9 m) of the structure for their potential to contribute to the intensity and spread of wildland fire.

4.2.4.2* The structure assessment shall document the presence and location of all heat and flame sources within 30 ft (9 m) of the primary structure.

4.2.4.3* The structure assessment shall document all projections attached to the primary structure.

4.2.4.4* The structure assessment shall document detached structures within 30 ft (9 m) of the primary structure that might be ignited by flames, radiant heat, or firebrands from wildland fires.

4.2.4.5* The structure assessment shall document vehicle parking areas within 30 ft (9 m) of any surface of the structure.

4.2.5 From the Immediate Landscaped Area to the Extent of the Structure Ignition Zone. The structure assessment shall document the conditions of 4.2.5.1 through 4.2.5.8 to observe construction and vegetation, as they place the structure in the most risk from ignition by a wildland fire.

4.2.5.1* The structure assessment shall document vegetation within the area between the outer edge of the immediate landscaped area and the extent of the structure ignition zone as potential fuel that can convey the fire to the structure.

4.2.5.2* The structure assessment shall document the species and location of trees and the separation of tree crowns within

the area between the outer edge of the immediate landscaped area and the extent of the structure ignition zone.

4.2.5.3* The structure assessment shall document the presence and location of all heat and flame sources within the area between the outer edge of the immediate landscaped area and the extent of the structure ignition zone.

4.2.5.4* The structure assessment shall document detached structures within the area between the outer edge of the immediate landscaped area and the extent of the structure ignition zone that might be ignited by flames, radiant heat, or firebrands from wildland fires.

4.2.5.5* The structure assessment shall document vehicle parking areas within the area between the outer edges of the immediate landscaped area and the extent of the structure ignition zone.

4.2.5.6* The structure assessment shall document all projections attached to the primary structure that extend beyond the immediate landscaped area.

4.2.5.7 The structure assessment shall document all other factors that can affect the risk of ignition or the spread of wildland fire on improved property within the structure ignition zone, including the risk of structure fires spreading to vegetation.

4.2.5.8 Any structure that fails to comply with the requirements of Chapter 5 shall be deemed to increase the risk of the spread of wildland fire to improved property and the risk of fires on improved property spreading to wildland fuels.

4.3 Development of Wildland Fire Hazard Mitigation Plan.

4.3.1 From the information gathered in each structure assessment, the AHJ shall require or cause to be developed a wildland fire hazard mitigation plan and schedule to address the wildland fire hazards identified in the specific structure ignition zone assessment.

4.3.2 The AHJ shall work with applicable agencies and organizations to resolve any conflicts between recommended wildland fire hazard mitigation measures and mitigation measures or objectives of other hazards.

4.3.3* This plan shall include, but not be limited to, the following:

- (1) Specific mitigation recommendations based on the hazard assessment to reduce the ignition potential around and including the structure
- (2) Construction modification or retrofit necessary to reduce the identified hazards as a minimum or to comply with the provisions of Chapter 5
- (3) Fuel modification recommendations as specified in Chapter 6
- (4) A hazard mitigation implementation and maintenance schedule approved by the AHJ

4.3.4* The history of wildland fire in the area under assessment shall be considered in determining required hazard mitigation plan.

4.3.5* The AHJ shall approve the mitigating measures relative to access, water supply, and construction based upon the structure assessment established in 4.1.2.

4.3.6 From the information gathered in each structure assessment, the AHJ shall require or cause to be developed a wildland fire hazard severity map of each residential development area addressed.

4.3.7 The map shall include, but not be limited to, the following data elements:

- (1) Lot designations
- (2) Structure locations on each lot
- (3) Locations of wildland fire evacuation centers or safety zones
- (4) Hazard severity for each lot
- (5) Overlapping ignition zones
- (6) Location of fire hydrants, cisterns, or other water sources for fire fighting

4.4 Mitigation Implementation and Enforcement.

4.4.1 The AHJ shall require the property owner to develop and comply with the approved wildland fire hazard mitigation plan and schedule according to 4.3.1.

4.4.2 No permit associated with construction shall be issued if the provisions of this standard are not addressed.

4.4.3 No permit associated with occupancy shall be issued until the provisions of this standard are satisfied.

Chapter 5 Building Design, Location, and Construction

5.1 Construction in Wildland Areas.

5.1.1 General.

5.1.1.1 All new construction in wildland/urban interface areas shall be designed, located, and constructed to comply with this standard, NFPA 1141, and the local building code.

5.1.1.2 In case of conflicts among this standard, NFPA 1141, and the local building code, the more stringent fire protection requirements shall be utilized to mitigate the ignition potential and combustibility of structures exposed to potential wildland fire.

5.1.2 Construction Documents. The AHJ shall be provided with plans and specifications for each project regulated by this standard.

5.1.2.1 Construction documents shall clearly indicate the methods, materials, and processes employed to meet the requirements of this standard and the location of each structure or feature drawn to scale.

5.1.2.2 Construction documents shall include a vicinity map that provides details regarding the vicinity within 300 ft (91 m) of property lines, including other structures, slope, vegetation, fuel breaks, water supply systems, and access roads.

5.1.3 Location.

5.1.3.1* Separation distances between primary and accessory structures on each lot and structures on adjacent lots shall not be less than 30 ft (9 m).

5.1.3.2* Buildings located closer than 30 ft (9 m) to a vegetated slope shall require special mitigation measures as determined by the AHJ.

5.1.3.3* The AHJ shall be permitted to require a noncombustible wall or barrier where sufficient space is unavailable

between the structure and undisturbed native vegetation or slopes.

5.1.3.4 Vegetation shall be modified to mitigate hazardous conditions within 30 ft (9 m) of the foundations prior to the start of construction.

5.1.3.5* All slash from vegetation modification and construction debris shall be treated or removed prior to or immediately upon completion of construction.

5.2 Construction Design and Materials.

5.2.1* Noncombustible building materials shall be materials that comply with any one of the following:

- (1)* The building material, in the form in which it is used, and under the conditions anticipated, will not ignite, burn, support combustion, or release combustible vapors when subjected to fire or heat.
- (2) The building material is reported as passing ASTM E136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C*.
- (3) The building material is reported as complying with the pass/fail criteria of ASTM E136 when tested in accordance with the test method and procedure in ASTM E2652, *Standard Test Method for Behavior of Materials in a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750°C*.

5.2.2 Ignition-resistant building materials shall maintain their fire performance and their mechanical performance under conditions of use.

N 5.2.2.1 Material shall be tested on all sides with the extended ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials* (UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*), test. Panel products shall be permitted to test only the front and back faces and shall be tested with a ripped or cut longitudinal gap of 1/8 in. (3.2 mm). Materials that, when tested in accordance with the test procedures set forth in ASTM E84 or UL 723 for a test period of 30 minutes, or with ASTM E2768, *Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)*, shall comply with 5.2.2.2 through 5.2.2.5.

N 5.2.2.2 Flame Spread. Material shall exhibit a flame spread index not exceeding 25 and shall not show evidence of progressive combustion following the extended 30-minute test.

N 5.2.2.3 Flame Front. Material shall exhibit a flame front that does not progress more than 10½ ft (3.2 m) beyond the centerline of the burner at any time during the extended 30-minute test.

N 5.2.2.4 Weathering. Ignition-resistant building materials shall maintain their performance in accordance with 5.2.2 under conditions of use. Materials shall meet the performance requirements for weathering (including exposure to temperature, moisture, and ultraviolet radiation) contained in the following standards, as applicable to the materials and the conditions of use:

- (1) Method A in ASTM D2898, *Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing*, for fire-retardant-treated wood, wood-plastic composite, and plastic lumber materials