

ICC 605
Standard for Residential Construction in
Regions with Wildfire Hazard

Public Comment Draft #1

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PREFACE

❖ Commentary language is provided in the document using the Heavy Four Balloon-Spoked Asterisk (U+2724), Times News Roman size 11 font.

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CHAPTER 1
ADMINISTRATION AND APPLICATION

SECTION 101
GENERAL

101.1 Scope. The provisions of this standard specify methodologies of wildfire-resistant design and construction based on defensible space conditions for new and existing one- and two-family dwellings and townhouses not more than three stories above grade plane in height exposed to the hazard of wildfire.

This standard applies to construction, alteration, inspection, maintenance and repair of detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height, their accessory structures, and the lot they are contained within, that are constructed in or relocated into areas exposed to the hazard of wildfire as defined by authorities having jurisdiction.

For the purposes of this standard, accessory dwelling units and tiny houses shall meet the provisions for one- or two-family dwellings.

101.2 Objectives.

101.2.1 Wildfire mitigation. The standard is intended to assist with mitigating the effect of wildfires by establishing minimum standards for construction and maintenance of buildings and parcels subject to wildfire hazard.

101.2.2 Vegetation management. This standard is intended to create an effective defensible space with requirements for vegetation management.

101.3 Limitations.

101.3.1 Fire hazard severity. Where this standard describes provisions based on fire hazard severity, fire hazard severity shall be determined by the authority having jurisdiction. Appendix A of this standard offers examples for determining fire hazard severity.

101.3.2 Wildfire mapping. Mapping of wildfire hazard areas is not within the scope of this standard.

101.3.3 Classification of vegetation. This standard does not classify vegetative fuels or species that may exhibit reduced combustibility.

101.4 Maintenance. Buildings, structures, landscape materials, vegetation, defensible space or other devices or safeguards required by this standard shall be maintained as specified in this standard. The owner or the owner's authorized agent shall be responsible for the maintenance of buildings, structures, landscape materials and vegetation.

101.5 Alternative means and methods. A large number of alternatives are available to a designer for providing fire-resistant designs and construction details. The provisions given are not intended to prevent the use of alternative materials or methods as permitted by Section R104.2.2 of the *International Residential Code*.

101.6 Items not addressed. Elements and assemblies not specifically addressed by this standard shall be designed and constructed in accordance with the *International Residential Code*.

101.7 Alternative means and methods. The provisions of this standard are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this standard, provided that any such alternative has been *approved* in accordance with Section R104.2.2 of the *International Residential Code*.

CHAPTER 2
DEFINITIONS

SECTION 201
GENERAL

201.1 General. For the purposes of this standard, the terms listed in Section 202 shall have the indicated meaning. Initialisms bracketed after a defined term indicate the I-Code from which it is sourced.

201.2 Undefined terms. The terms not specifically defined in this standard or in standards referenced herein shall have ordinarily accepted meaning such as the context implies.

201.3 Interchangeability. Words used in the present tense include the future; words in the masculine gender include the feminine and neuter; and the singular number includes the plural and the plural the singular.

201.4 Terms defined in other ICC publications. Where terms are not defined in this code, such terms shall have the meanings ascribed in other code or standard publications of the International Code Council.

SECTION 202
DEFINITIONS

ACCESSORY DWELLING UNIT (ADU). An additional, subordinate dwelling unit on the same lot that is entirely within a dwelling unit, attached to a dwelling unit or in a detached structure.

ACCESSORY STRUCTURE [IFC]. A structure that is accessory to and incidental to that of the dwelling(s) and is located on the same lot.

ALTERATION [IFC]. Any construction or renovation to an existing structure other than a repair or addition.

APPROVED [IWUIC]. Acceptable to the *code official*.

APPROVED AGENCY [IRC]. An established and recognized organization that is regularly engaged in conducting tests, furnishing inspection services or furnishing product evaluation or certification where such organization has been *approved*.

BUILDING OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this standard, or a duly authorized representative.

CROWN FIRE. A fire extending into, and often above, the tree canopy within a forest or group of trees.

DEFENSIBLE SPACE. An area either natural or man-made, where material capable of allowing a fire to spread unchecked has been treated, cleared or modified on each side of the building to slow the rate and intensity of an advancing wildfire and to create an area for fire suppression operations to occur.

DRIP LINE. A line defined by the anticipated outermost perimeter of vegetation [canopy] growth where water drips from the branches or limbs and onto the ground (edge of the canopy).

DWELLING. Any building that contains one or two dwelling units used, intended or designed to be built, used, rented, leased, let or hired out to be occupied, or that are occupied for living purposes.

EMBER. A particle of solid material that emits radiant energy due either to its temperature or to the process of combustion on its surface and that poses a risk of ignition to any materials upon which it is incident.

DIRECT EMBER IGNITION. When embers ignite building materials and/or furnishings via conductive or radiant heat (i.e., direct contact).

DIRECT EMBER RESISTANCE. [Reserved.]

ENFORCING AGENCY. The entity responsible for the enforcement of building codes and standards.

EXISTING BUILDING. A building legally in existence prior to the date of adoption of this standard by the authority having jurisdiction, or one for which a legal building permit has been issued.

EXTERIOR SURFACES [IBC]. Weather-exposed surfaces.

EXTERIOR WALL [IRC]. An above-grade wall that defines the exterior boundaries of a building. Includes between-floor spandrels, peripheral edges of floors, roof and basement knee walls, dormer walls, gable end walls, gable end roof trusses, walls enclosing a mansard roof and basement walls with an average below-grade wall that is less than 50 percent of the total opaque and nonopaque area of that enclosing side.

EXTERIOR WALL ASSEMBLY [2024 IBC]. A system including the exterior wall covering, framing, and components such as water-resistive barriers and insulating materials. This system provides protection of the building structural members and conditioned interior space from the detrimental effects of the exterior environment.

EXTERIOR WALL COVERING [IRC]. A material or assembly of materials applied on the exterior side of exterior walls for the purpose of providing a weather-resisting barrier, insulation or for aesthetics, including but not limited to veneers, siding, exterior insulation and finish systems, *rainscreen systems*, architectural trim and embellishments such as cornices.

FIRE CODE OFFICIAL. The fire chief or other designated authority charged with the administration and enforcement of the code, or a duly authorized representative.

FIRE LANE. [Reserved.]

FIRE-RETARDANT-TREATED WOOD. Wood products that, when impregnated with chemicals by a pressure process or other means during manufacture, exhibit reduced surface-burning characteristics and resist propagation of fire.

FIRE PROTECTION PLAN. A document prepared for a specific project or development proposed for the wildland-urban interface area. It describes ways to minimize and mitigate the fire problems created by the project or development, with the purpose of reducing impact on the community's fire protection delivery system.

FLAME SPREAD INDEX. A comparative measure, expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time for a material tested in accordance with ASTM E84 or UL 723.

FIRE RESISTANCE [IBC]. That property of materials or their assemblies that prevents or retards the passage of excessive heat, hot gases or flames under conditions of use.

FIRE-RESISTANCE RATING. A measure of the fire resistance of a member or assembly, expressed in units of hours, under specified exposure conditions.

FIRE-SMART VEGETATION. Plants, shrubs, trees and other vegetation that exhibit properties, such as high moisture content, little accumulation of dead vegetation and low sap or resin content, that make them less likely to ignite or contribute heat or spread flame in a fire than native vegetation typically found in the region.

FUEL LOAD. The aggregate sum of the vegetative fuels and structural fuel loads.

STRUCTURAL FUEL LOAD. The sum of the mass of each combustible structural element multiplied by the heat of combustion. This does not include the contents of the building.

FUEL MODIFICATION ZONES. A zone in which the fuel load has been modified by reducing the amount of combustibles or altering the vegetation or other fuel types to reduce the fuel load.

HABITABLE BUILDING. A building or portion thereof designed for living, sleeping, eating or cooking.

IGNITION-RESISTANT BUILDING MATERIAL [IWUIC 2024]. A type of building material that resists ignition or sustained flaming combustion sufficiently so as to reduce losses from wildfire exposure of burning embers and small flames.

LISTED [IRC]. Equipment, materials, products or services included in a list published by an organization acceptable to the code official and concerned with evaluation of products or services that

maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose. Terms that are used to identify listed equipment, products or materials include “listed,” “certified,” “classified” or other terms as determined appropriate by the listing organization.

RAINSCREEN SYSTEM [IRC]. An assembly applied to the exterior side of an exterior wall which consists of, at minimum, an outer layer, an inner layer and a cavity between them sufficient for the passive removal of liquid water and water vapor.

REPAIR [IEBC]. The reconstruction, replacement or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

ROOF ASSEMBLY [IRC 2024]. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as the roof covering and roof deck. A roof assembly can include an underlayment, thermal barrier, ignition barrier, insulation or a vapor retarder.

ROOF COVERING [IRC 2024]. The covering applied to the roof deck for weather resistance, fire classification or appearance.

ROOF DECK [IRC 2024]. The flat or sloped surface not including its supporting members or vertical supports.

SLOPE. The change in terrain elevation relative to a horizontal distance, expressed as a percentage.

SUBDIVISION. The division of a tract, lot or parcel of land into two or more lots, plots, sites or other divisions of land.

TINY HOUSE. A dwelling that is 400 square feet (37 m²) or less in floor area excluding lofts.

UNENCLOSED ACCESSORY STRUCTURES. An *accessory structure* without a roof or exterior walls fully enclosing the accessory structure.

VEGETATIVE FUELS. Combustible vegetation of light, medium or heavy fuels.

VENTILATION OPENINGS. An opening provided in the building envelope to supply unconditioned air to, or remove unconditioned air from, attic, rafter, or under-floor spaces.

WILDFIRE EXPOSURE. Fire exposure consisting of one or more of the following: burning embers, radiant heat, and direct flame impingement to a structure.

WILDFIRE HAZARD AREA. A geographic area designated by the local jurisdiction with fire hazard severity of moderate, high or extreme factors of wildfire exposure.

WILDFIRE HAZARD AREA CONSTRUCTION CLASS. One of three sets of additional requirements for construction of residential buildings in wildfire hazard areas, classified as wildfire hazard area construction Class 1, wildfire hazard area construction Class 2 or wildfire hazard area construction Class 3.

**CHAPTER 3
WILDFIRE HAZARD AREA DESIGN CRITERIA**

**SECTION 301
GENERAL**

301.1 Scope. This chapter provides a methodology for establishing the required defensible space and construction class for *dwellings* and associated *accessory structures* within *wildfire hazard areas* based on design exposures during a wildfire including direct flame contact, radiant heat and ember exposures.

301.2. Dwellings. New *dwellings* constructed in or relocated into *wildfire hazard areas* shall be evaluated based on the provided *defensible space* distance and expected exposure. Each side of the structure shall be assessed independently in accordance with Table 301.2 and Figure 301.2 and comply with the requirements of this standard.

Repair, addition or alteration of *existing dwellings* in *wildfire hazard areas* shall comply with Chapter 6, based on provided *defensible space* distance and assessed independently for each side of the structure in accordance with Table 301.2. Provided *defensible space* area for each side of the structure shall be in accordance with Figure 301.2.

Exception: Where covenants or other agreements permit owners, tenants or associations to manage vegetation outside lot lines, such areas shall be maintained and considered as part of the provided *defensible space*.

TABLE 301.2 WILDFIRE EXPOSURE AND CONSTRUCTION CLASSIFICATION FOR DWELLINGS.

PROVIDED DEFENSIBLE SPACE	EXPECTED WILDFIRE EXPOSURE	WILDFIRE HAZARD AREA CONSTRUCTION CLASS
Less than the minimum defensible space distances specified in Table 402.2	Direct flame contact, radiant heat and ember exposure	Class 1 in accordance with Section 503
Minimum defensible space distances specified in Table 402.2	Radiant heat and ember exposure	Class 2 in accordance with Section 504
Expanded defensible space distances specified in Table 402.2	Ember exposure	Class 3 in accordance with Section 505

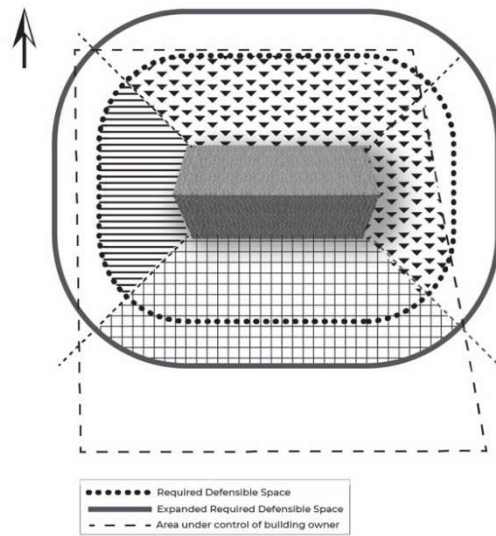


FIGURE 301.2 PROVIDED DEFENSIBLE SPACE FOR EACH SIDE OF DWELLING.

❖ Commentary: The different hatched areas show the provided defensible space on each side of the dwelling. Figure 1 provides an example for designing dwellings in the *wildfire hazard area* based on the provided defensible space on each side. This example dwelling is located in an area with extreme wildfire hazard. According to Table 402.3, the required defensible space distance in this condition is equal to 100 feet. This is shown in Figure 1:

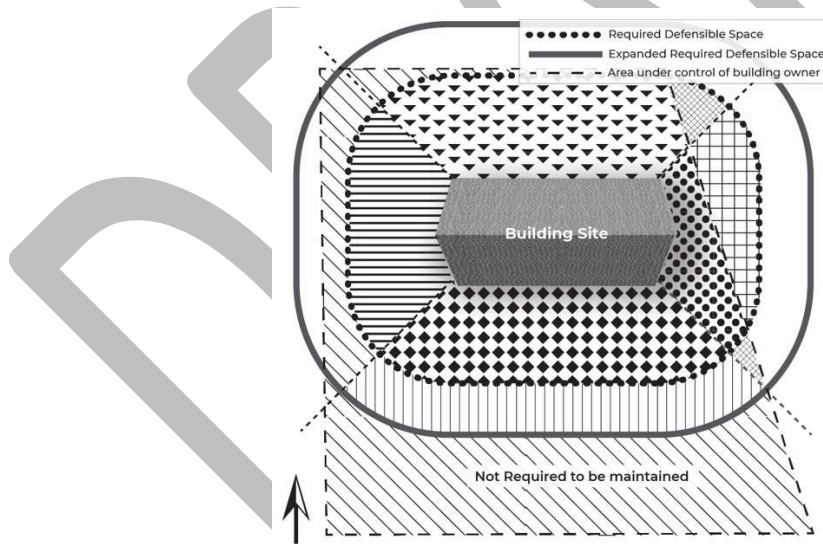


Figure 1. Required defensible space around building

- On northern side of the dwelling, the area under control of the dwelling owner is less than the required defensible space (diagonal crosshatched area). As a result, this side must be constructed by considering direct flame contact, radiation heat and ember exposures and in accordance with Wildfire Hazard Area Construction Class 1 (Section 503). The fuel modification area on this side (triangle hatched area) will be limited to the required defensible space distance line (dotted line).

- On the eastern side of the dwelling, the area under control of the dwelling owner is less than the required defensible space (crosshatched area). As a result, this side must be constructed by considering direct flame contact, radiation heat and ember exposures and in accordance with Wildfire Hazard Area Construction Class 1 (Section 503). The fuel modification area on this side (dotted hatched area) will be limited to the lot lines or required defensible space distance, whichever is less.
- On the southern side of the dwelling, the area under control of the dwelling owner is more than 1.5 times the required defensible space. As a result, this side can be constructed in three different ways:
 - a. To only resist against ember exposure and in accordance with Wildfire Hazard Area Construction Class 3 (Section 505). In this case, maintenance of the defensible space area on this side will be limited to the extended required defensible distance line (solid line).
 - b. To resist against ember and radiation heat exposures and in accordance with Wildfire Hazard Area Construction Class 2 (Section 504). In this case, the fuel modification area on this side (diamond hatched area) will be limited to the required defensible space line.
 - c. To resist against ember, radiation heat and direct flame contact exposures and in accordance with Wildfire Hazard Area Construction Class 1 (Section 503). In this case, the fuel modification area on this side initiates from the edge of the southern exterior wall of the dwelling and extends 5 feet horizontally away from the perimeter of all projections.
- On the western side of the building, the area under control of the dwelling owner is more than the required defensible space and less than the expanded required defensible space. As a result, this side can be constructed in two different ways:
 - a. To resist against ember and radiation heat exposures and in accordance with Wildfire Hazard Area Construction Class 2 (Section 504). The defensible space area on this side will be limited to the dotted line (horizontally hatched area).
 - b. To resist against ember, radiation heat and direct flame contact exposures and in accordance with Wildfire Hazard Area Construction Class 1 (Section 503). The defensible space area on this side initiates from the edge of the western exterior wall of building and extends 5 feet horizontally away from the perimeter of all projections.

301.3 Accessory structures. *Accessory structures* constructed in or relocated into the wildfire hazard area shall comply with the requirements of this section based on the horizontal separation distance from dwellings on the same lot. Repair, addition or alteration of existing *accessory structures* in *wildfire hazard areas* shall comply with Chapter 6. New construction on existing *accessory structures* shall be in accordance with the requirements of this section based on horizontal separation distance from *dwellings* on the same lot. *Defensible space* Zone X shall be provided around *accessory structures* in accordance with Section 402.3.1.

301.3.1 Accessory structures located less than 30 feet from a dwelling. Where located less than 30 feet from a *dwelling*, *accessory structures* shall be constructed in accordance with Section 506.2.

Exception: Where all sides of the *dwelling* that face the *accessory structure* are constructed in accordance with Section 503, the *accessory structure* shall not be required to comply with this standard.

301.3.2 Accessory structures located between 30 and 50 feet from a dwelling. Where located between 30 and 50 feet from a *dwelling*, accessory structures shall be constructed in accordance with Section 506.2 or 506.3.

Exception: Where all sides of the *dwelling* that face the accessory structure are constructed in accordance with Section 503, the accessory structure shall not be required to comply with this standard.

301.3.3 Accessory structures located more than 50 feet from a dwelling. Where located more than 50 feet from a *dwelling*, accessory structures shall not be required to comply with this standard.

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CHAPTER 4 FUEL MANAGEMENT

SECTION 401 GENERAL

401.1 Scope. Fuel management on the premises of new and existing *buildings* located within *wildfire hazard areas* shall comply with this chapter.

SECTION 402 DEFENSIBLE SPACE REQUIREMENTS

402.1 Objective. Provisions of this section are intended to modify the *fuel load* in areas adjacent to buildings to create a *defensible space* that protects against exposure to direct flame contact and reduces the radiant heat and ember exposures to a level that minimizes potential for ignition or other damage.

❖ **Commentary:** The target wildland fire exposures to a structure in wildfire hazard areas are ember exposure, and heat exposure less than 15 kW/m². These exposures form the basis of the defensible space provisions of Section 402.

402.2 Defensible space distance. Provisions of this section establish *defensible space* distances based on fire hazard severity. Minimum and expanded *defensible space* distances shall be in accordance with Sections 402.2.1 and 402.2.2. *Defensible space* distances shall be maintained in accordance with Sections 402.3 and 402.4.

The fire hazard severity of building sites for buildings located in wildfire hazard areas shall be determined by the authority having jurisdiction. Appendix A of this standard offers examples for determining fire hazard severity.

TABLE 402.2 DEFENSIBLE SPACE DISTANCES

FIRE HAZARD SEVERITY	MINIMUM DEFENSIBLE SPACE (feet)	EXPANDED DEFENSIBLE SPACE (feet)
Moderate	30	45
High	50	75
Extreme	100	150

For SI: 1 foot = 304.8 mm.

402.2.1 Minimum defensible space. The minimum required *defensible space* distances based on fire hazard severity shall be in accordance with Table 402.2. Where the provided *defensible space* meets the minimum *defensible space* distance, those sides of the *dwelling* shall be constructed in accordance with Table 301.2 to resist radiant heat and ember exposures.

402.2.2 Expanded defensible space. Where the expanded *defensible space* distances in Table 402.2 are provided, those sides of the *dwelling* shall be constructed in accordance with Table 301.2 to resist against ember exposure.

402.2.3 Lot-limited defensible space. Where the property does not allow for the required minimum *defensible space* distances along the entire length of any side of the structure's exposure, the provided *defensible space* shall extend to the lot line. In such cases, those sides of the *dwelling* with lot-limited *defensible space* distances shall be constructed in accordance with Section 301.2 to resist against direct flame contact.

402.2.4 Landscape plans. Landscape plans shall be provided where required by the *enforcing agency*. The landscape plan shall include development and maintenance requirements for the fuel modification zones adjacent to buildings or structures.

402.2.4.1 Contents. Landscape plans shall be drawn to scale, and shall contain the following:

1. Delineation of the horizontal projection of all buildings and structures on the lot.
2. Identification of the wildfire hazard area construction classification for each side of buildings and structures.
3. Delineation of fuel management zones, as measured from the horizontal projection of buildings or structures.
4. Identification of location and species of existing vegetation to remain and proposed new vegetation.
5. A plant legend with both botanical and common names, and identification of all plant material symbols.
6. Identification of hardscape, ground treatments and species of vegetation within Zone X.
7. Identification of ground *slope* within the provided *defensible space* on each side.

402.2.4.2 Defensible space sign. Provided *defensible space* area shall be identified by a permanent sign approved by the *enforcing agency*, placed next to, or adjacent to, a permanent fixture such as an exterior water faucet, water meter or electrical box. The sign shall identify fire hazard severity, provided *defensible space* distances, wildfire hazard area construction classification and the applicable edition of this standard.

❖ Commentary: An example of a defensible space sign. *

Building Sides	Provided Defensible Space (feet)	Wildfire Hazard Area Construction Classification	Slope (%)
Side A			
Side B			
Side C			

*Buildings located in an area with extreme wildfire hazard severity and constructed in accordance with this standard. Add additional lines as necessary based on building design. Buildings can be constructed with one type of construction or as many as applicable according to the defensible space distance provided.

402.3 Defensible space zones. The defensible space zones extend horizontally from the building as shown in Figure 402.3 and include Zone X, Zone Y and Zone Z as applicable in accordance with Sections 402.3.1, 402.3.2 and 403.3.3. Each zone represents the area where the vegetation is modified and maintained to create a defensible space between the structure and the surrounding area.

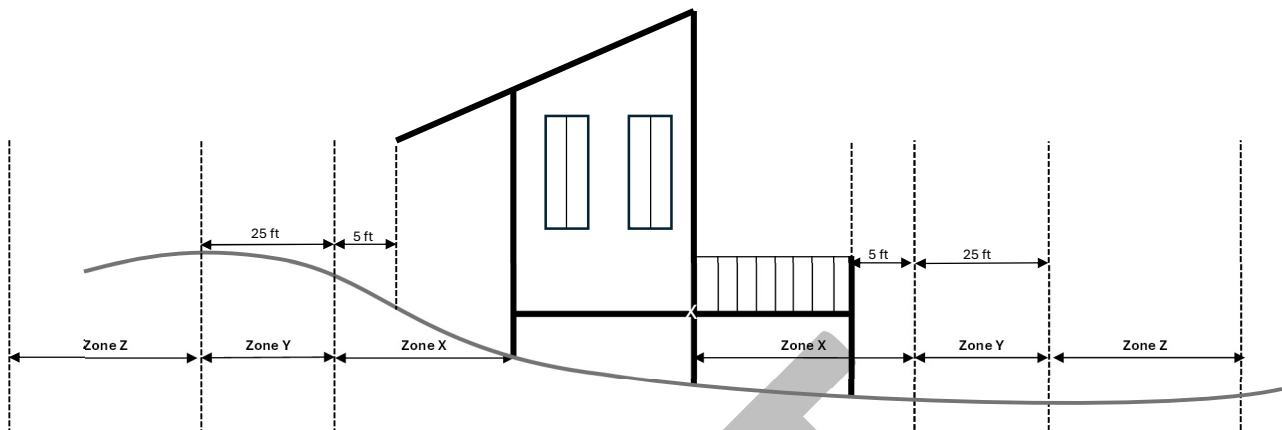


FIGURE 402.3

DEFENSIBLE SPACE AREA AND FUEL MODIFICATION ZONES

402.3.1 Zone X. Zone X extends from the face of the exterior walls to the lesser of 5 feet from the outermost perimeter of all projections or to the lot-line. This zone shall be maintained in accordance with the following:

1. Any ground cover shall be noncombustible, such as gravel, pavers or bare soil. Combustible ground covers such as bark and mulch shall not be permitted.
2. All vegetation shall be removed from this zone. New vegetation shall not be permitted.
Exception: Where approved by the enforcing agency, existing heritage trees and existing *fire smart vegetation* maintained in accordance with Section 402.4 shall be permitted adjacent to sides constructed in accordance with Section 503.
3. Fences, gates and arbors within Zone X shall be constructed with noncombustible materials.
Exception: Fences constructed with combustible materials shall be permitted provided the structure is constructed in accordance with Section 503.
4. Storage of combustible material is prohibited. A permanent sign shall be installed in each unenclosed underfloor area, stating the following: "Storage of combustible material is prohibited in this location."
Exceptions:
 1. Combustible material contained in a fully enclosed noncombustible storage container.
 2. Combustible material where the structure is constructed in accordance with Section 503. The permanent sign shall not be required in unenclosed underfloor areas constructed in accordance with Section 503.
5. All exterior surfaces of buildings such as gutters, roofs and decks, and areas shall be maintained free of accumulated combustible debris.

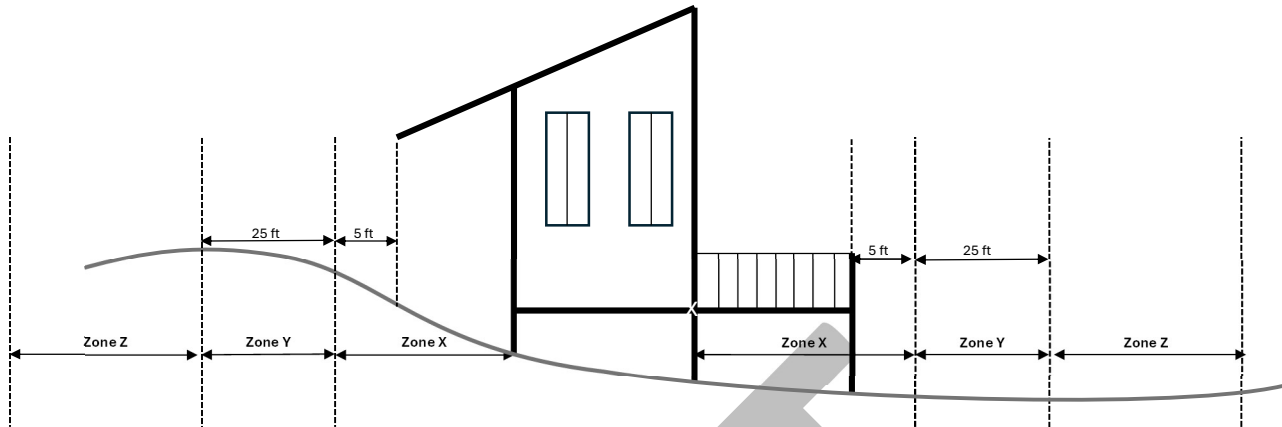


FIGURE 402.3.1
FUEL MODIFICATION ZONE X

402.3.2 Zone Y. Zone Y extends from Zone X to the lesser of 25 feet from Zone X or to the lot line. Zone Y shall be maintained in accordance with the following:

1. Groundcover vegetation shall be maintained in accordance with Section 402.4.1.
2. Shrubs shall be maintained in accordance with Section 402.4.2.
3. All trees shall be removed from this area.

Exceptions:

1. Trees trimmed and maintained in accordance with the shrub requirements provided in Section 402.4.2.
2. Existing heritage trees approved by the enforcing agency and maintained in accordance with Section 402.4.3, provided that the side of the structure facing the heritage tree is constructed in accordance with Section 503.
4. Storage of combustible material is prohibited.

Exceptions:

1. Combustible material contained in a fully enclosed noncombustible storage container.
2. Storage of combustible material is permitted, where the side of the dwelling facing combustible material is constructed in accordance with Section 503.

❖ **Commentary:** Combustible material can be any combustible item such as a trash can, firewood, etc.

5. All areas shall be maintained free of combustible debris.

402.3.3 Zone Z. Zone Z extends from Zone Y to the lesser of the distance specified in Table 402.2 or to the lot line. Zone Z shall be maintained in accordance with the following:

1. Ground cover vegetation shall be maintained in accordance with Section 402.4.1.
2. Shrubs shall be maintained in accordance with Section 402.4.2.
3. Trees shall be maintained in accordance with Section 402.4.3.
4. A 10-foot (3048 mm) clearance around exposed wood piles shall be provided by noncombustible ground covering in all directions.
5. LP-gas containers or tanks located in Zone Z shall be in accordance with the *International Fire Code*. A 10-foot (3048 mm) clearance around LP-gas containers shall be provided by noncombustible ground covering in all directions.

402.4 Vegetation management. All new vegetation in the provided *defensible space* shall be approved *fire smart vegetation*.

402.4.1 Groundcover vegetation. All groundcover vegetation shall comply with the following:

1. Groundcover vegetation shall not exceed 6 inches (152 mm) in height.
2. Groundcover vegetation shall be separated horizontally from crown of shrubs, trees and combustible structures such as fences and detached accessory structures a minimum of 12 inches (3045 mm).

402.4.2 Shrubs. All shrubs shall comply with the following:

1. Shrubs located in Zone Y shall not exceed 5 feet (1524 mm) in height.
2. Groupings of shrubs are limited to a maximum aggregate diameter of 10 feet (3048 mm).
3. Shrub groupings crowns shall be separated from other groupings and structures in accordance with Table 402.4.3.
4. Shrubs shall be pruned to remove limbs to a height of 12 inches (305 mm) above the ground surface.
Exception: Shrubs with height less than 2 feet shall be pruned to a level that allows removal of combustible debris or litter.
5. No combustible material or debris allowed under the shrub canopy.
6. Shrubs shall be maintained in a healthy state, by regular and appropriate watering and removal of dead material.
7. Shrubs shall be separated from combustible structures such as fences and detached accessory structures a minimum of 5 feet (1524 mm).

402.4.3 Trees. All trees shall comply with the following:

1. The horizontal distance between crowns of trees shall be in accordance with Table 402.4.3.
2. Tree crowns shall be pruned to remove limbs to a height 6 feet (1829 mm) above the ground surface or 25 percent of the total crown height, whichever is less.
3. Combustible material is prohibited under the tree canopy.
4. Trees shall be separated from shrubs, other trees and the structure in accordance with Table 402.4.3.
5. Trees shall be maintained in a healthy state by regular and appropriate watering and removal of dead material.
6. Tree branches shall be separated from combustible structures such as fences, sheds or other detached accessory structures a minimum of 10 feet (3048 mm).

**TABLE 402.4.3
MINIMUM HORIZONTAL DISTANCE FROM EDGE OF ONE PLANT CANOPY TO ANOTHER**

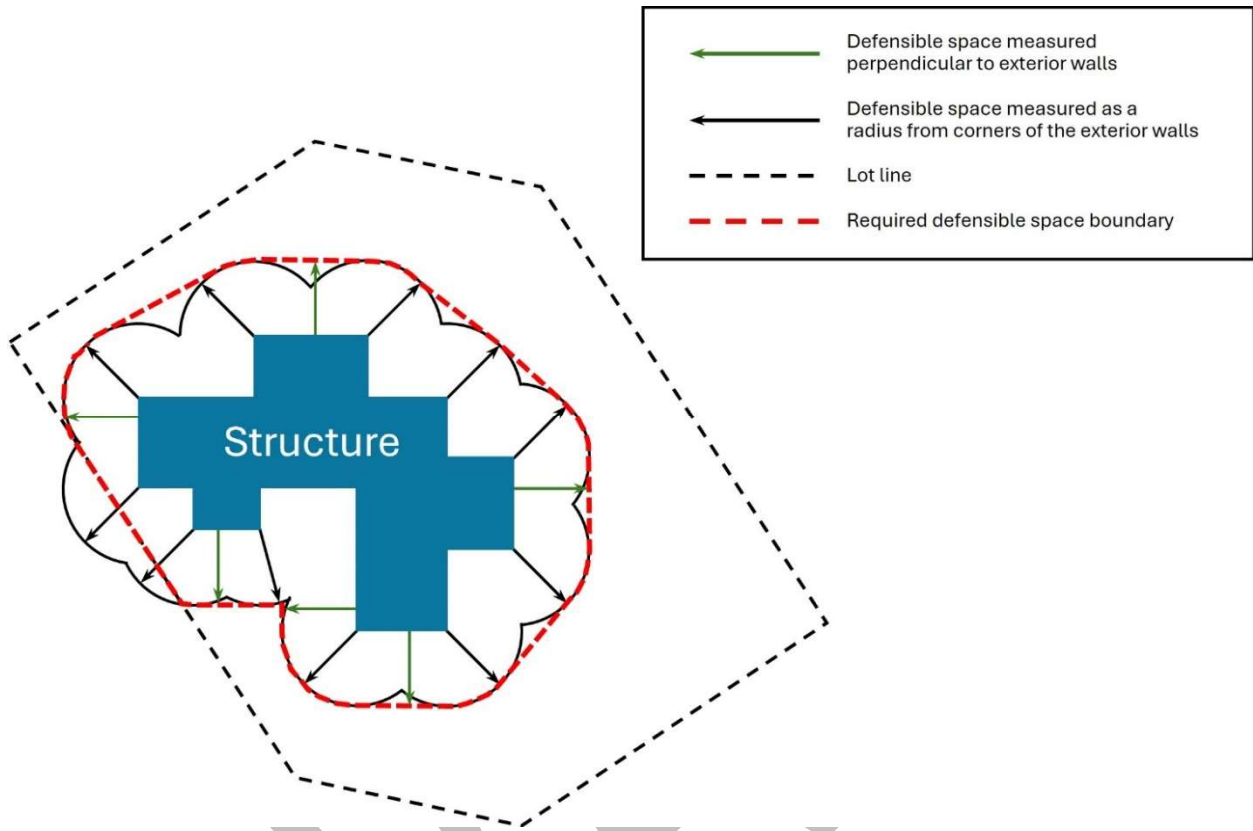
VEGETATION TYPE	SLOPE ^a	HORIZONTAL DISTANCE (feet) ^b
Shrubs and trees	Less than 8%	10
	8%–20%	20
	Greater than 20%	30

For SI: 1 foot = 304.8 mm.

- a. Where approved by the enforcing agency, distances are allowed to be reduced based on a site-specific analysis based on local conditions and the fire protection plan.
- b. The required defensible space is represented as a continuous line measured perpendicularly from all sides of the structure and as a radius from all outside and reentrant corners (Commentary Figure 402.4.3).

The maximum space contained by the continuous combination of lines and arcs represent the required defensible space in accordance with Section 402. Required defensible space distance for curved exterior sides shall be measured perpendicularly to the tangent of the arc along the entire arc.

❖ **COMMENTARY:** [The horizontal distance is based on Regulation 14 CCR 1299 \(Gilmer, M 1994, California wildfire landscaping\)](#)



❖ COMMENTARY FIGURE 402.4.3 – Required Defensible Space Determination Method

CHAPTER 5 NEW BUILDING CONSTRUCTION

SECTION 501 SCOPE

501.1 Scope. New construction shall meet the requirements of this chapter and the applicable codes.

❖ The scope of this chapter assumes coordination with Chapter 3.

SECTION 502 MATERIALS AND ASSEMBLIES

502.1 General. Materials and assemblies shall comply with the applicable requirements of Sections 502.2 through 502.3. Intersections of different wildfire hazard area (WHA) construction classes or of different materials shall comply with the applicable requirements of Section 502.4. The minimum required ember protection shall comply with Section 502.5.

502.2 Materials.

502.2.1 Noncombustible material. Materials required to be noncombustible shall be tested in accordance with ASTM E136 and pass the test. Alternately, materials required to be noncombustible shall be tested in accordance with ASTM E2652 using the acceptance criteria prescribed by ASTM E136.

Exception: Materials having a structural base of noncombustible material as determined in accordance with ASTM E136, or with ASTM E2652 using the acceptance criteria prescribed by ASTM E136, with a surfacing of not more than 0.125 inch (3.18 mm) in thickness having a flame spread index not greater than 50 when tested in accordance with ASTM E84 or UL 723 shall be acceptable as noncombustible.

502.2.2 Fire-retardant-treated wood. Fire-retardant-treated wood shall be qualified in accordance with Section 502.2.3 and labeled with the words "No increase in the listed classification when subjected to the Standard Rain Test."

502.2.3 Ignition-resistant building material. Ignition-resistant building materials shall be tested on the front and back faces in accordance with the extended ASTM E84 or the extended UL 723 test, for a total test period of 30 minutes, or in accordance with the ASTM E2768 test. The materials shall bear identification showing the fire test results. Panel products shall be tested with a ripped or cut longitudinal gap of 1/8 inch (3.18 mm). The materials, when tested in accordance with the test procedures set forth in ASTM E84 or UL 723 for a test period of 30 minutes, or in accordance with ASTM E2768, shall comply with Sections 503.2.3.1 through 503.2.3.3.

Exception: Materials composed of a combustible core and a noncombustible exterior covering made from either aluminum at a minimum 0.019-inch (0.48 mm) thickness or corrosion-resistant steel at a minimum 0.0149-inch (0.38 mm) thickness shall not be required to be tested with a ripped or cut longitudinal gap.

502.2.3.1 Flame spread. The material shall exhibit a flame spread index not exceeding 25. The certification of the flame spread index shall be accompanied by a test report or other supporting documentation from an approved agency stating that all portions of the test specimen ahead of the flame front remained in position during the test in accordance with ASTM E2768, extended ASTM E84 or extended UL 723. Materials or products which melt, drip or delaminate to the extent that the continuity of the flame front is destroyed are not permitted.

502.2.3.2 Flame front. The material shall exhibit a flame front that does not progress more than 10 feet 6 inches (3200 mm) beyond the centerline of the burner at any time during the test.

502.2.3.3 Weathering. Ignition-resistant building materials shall maintain their performance in accordance with this section after exposure to weathering (including exposure to temperature, moisture and ultraviolet radiation) in accordance with Sections 503.2.3.3.1 through 503.2.3.3.3, as applicable to the materials and conditions of use.

502.2.3.3.1 Evaluation requirements for weathering. Ignition-resistant building materials shall be evaluated after weathering in accordance with Method A, "Test Method for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing," in ASTM D2898. No increase in the listed classification shall be permitted where the material has been exposed to the Standard Rain Test.

502.2.3.3.2 Wood-plastic composite materials. Wood-plastic composite materials shall demonstrate acceptable fire performance after weathering by the following procedure: first testing in accordance with ASTM E1354 at an incident heat flux of 50 kW/m² in the horizontal orientation, then weathering in accordance with ASTM D7032, and then retesting in accordance with ASTM E1354 and exhibiting an increase of not more than 10 percent in peak rate of heat release when compared to the peak heat release rate of the nonweathered material.

502.2.3.3.3 Plastic lumber materials. Plastic lumber materials shall demonstrate acceptable fire performance after weathering by the following procedure: first testing in accordance with ASTM E1354 at an incident heat flux of 50 kW/m² in the horizontal orientation, then weathering in accordance with ASTM D6662, and then retesting in accordance with ASTM E1354 and exhibiting an increase of not more than 10 percent in peak rate of heat release when compared to the peak heat release rate of the nonweathered material.

502.3 Assemblies.

502.3.1 Fire-resistance-rated construction. Where this standard requires fire-resistance-rated construction, the rating of building elements or assemblies from the exterior side shall be determined by the test procedures set forth in ASTM E119 or UL 263 or an analytical method in accordance with Section 703.2.2 of the *International Building Code*. Fire-resistance-rated log wall construction in accordance with Section 303 of ICC 400 shall be permitted.

502.3.2 Fire-retardant-treated wood roof coverings. Roof assemblies that contain fire-retardant-treated wood shingles and shakes shall comply with the requirements of Section R902.2 of the *International Residential Code* and be classified as Class A roof assemblies as required in Section 502.3.3.

502.3.3 Class A roof assemblies. Class A roof assemblies and roof coverings shall be listed and identified as Class A when tested in accordance with ASTM E108 or UL 790 by an approved testing agency.

502.4 Intersections.

502.4.1 Intersection of different wildfire hazard area construction classes. The intersection of different wildfire hazard area construction classes, as identified in Section 301, shall be protected with materials compliant with the more stringent class.

502.4.2 Intersection of different construction elements within the same wildfire hazard area construction class. The intersection of different construction elements within the same wildfire hazard area construction class shall conform to the requirements listed within each wildfire hazard area construction classification section.

502.5 Minimum required ember protection. All buildings located in the wildfire hazard area, shall be constructed with the following requirements:

1. Exterior walls at the intersection with grade, balconies, decks and roofs shall be protected from ignition caused by ember accumulation in accordance with one or more of the following:
 - 1.1 Weather-exposed surface of noncombustible materials or metal flashing, extending not less than 6 inches vertically.
 - 1.2 A minimum of 6" noncombustible vertical separation between horizontal surfaces and weather-exposed surfaces shall be maintained.Flashing provided in accordance with this section shall be lapped with flashing, counterflashing or water-resistive barriers as required by the *International Residential Code*.
2. Gaps shall not exceed 1/8 inch (3.2 mm) between exterior elements.

3. Operable fenestrations shall be protected by noncombustible corrosion-resistant mesh with openings not exceeding 1/16 inch (1.6 mm).
4. Skylights shall be designed and constructed in accordance with the following:
 - 4.1 Curbs and framing for skylights shall be protected or constructed on the exterior with noncombustible, ignition-resistant or fire-retardant-treated wood materials.
 - 4.2 External skylight framing members shall be protected or constructed with noncombustible, ignition-resistant or fire-retardant-treated wood materials.
 - 4.3 Skylight glass glazing shall be in accordance with Section 504.5.2.1.
 - 4.4 Skylight glazing other than glass shall comply with not less than a Class A rating when tested in accordance with ASTM E108 or UL 790.

❖ The roof-to-skylight interface creates an ember accumulation condition. If the skylight frame is combustible, or has exposed combustible materials (e.g., wood), metal flashing can be used to resist ignition from accumulated embers. Skylights are located through roofs, which makes them nearly horizontal surfaces and thus potential ember accumulators. Dome skylights are typically made of plastic material, which is susceptible to penetration from embers.

502.5.1 Exterior walls. Noncombustible material or metal flashing, extending a minimum of 6 inches vertically, is required on the exterior side of exterior walls at intersections with the ground, decking, balconies, and roofs.

SECTION 503 WILDFIRE HAZARD AREA (WHA) CLASS 1

❖ Exposure based on Chapter 3 requirements:

- Direct flame contact assumes nonconforming defensible space that results in combustibles (vegetation, sheds, fences, etc.) in close proximity to the applicable building that if ignited will cause direct flame contact with the applicable building.
- Radiant heat: assumes nonconforming defensible space that results in burning fuels within proximity to cause radiant heating (but not necessarily direct flame contact).
- Embers: direct (landing on building; entering building through openings) and indirect (spot fires and or igniting combustibles causing radiant heat and/or direct flame contact).

503.1 Roof assembly. Roofs shall have a roof assembly that complies with a Class A classification when tested in accordance with ASTM E108 or UL 790.

503.1.1 Flame and ember protection of roof assembly. For roof assemblies where the roof covering profile creates a space between the roof covering and roof deck, the space shall resist entry of flames or embers by one or more of the following methods:

1. Fireblocking of the space between the roof covering and the roof deck.
2. Installation of one layer of cap sheet complying with ASTM D3909 over the combustible roof deck.
3. Installation of an underlayment that is a component of a listed Class A classified roof assembly that includes the roof covering that is to be installed.

503.1.2 Roof valley flashings. Where provided, valley flashings shall be not less than 0.019-inch (0.48 mm) (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide (914 mm) underlayment consisting of one layer of cap sheet complying with ASTM D3909 running the full length of the valley.

503.2 Eaves and soffits. Eaves and soffits shall be in accordance with Sections 503.2.1 through 503.2.3.

503.2.1 Acceptance criteria. Where provided, eaves and soffits shall comply with ASTM E2957 and meet all the following acceptance criteria:

1. Absence of flame penetration of the eaves at any time.
2. Absence of structural failure of the eave's subassembly at any time.
3. Absence of sustained combustion of any kind at the conclusion of the 40-min test.

503.2.2 Intersections. Eave and soffit intersections with exterior walls shall meet the requirements of 503.7.2.

503.3 Gutters and downspouts. Gutters and downspouts shall be constructed of noncombustible material. Gutters shall be provided with an approved means to resist the accumulation of combustible debris in the gutter. Gutters, downspouts and products used to resist the accumulation of combustible debris shall be constructed of noncombustible material.

503.4 Exterior walls. Exterior walls shall be in accordance with Sections 503.4.1 through 503.4.3.

Exception: Log walls constructed in accordance with Section 303 of ICC 400.

503.4.1 Exterior wall assembly. Exterior wall assemblies shall have a fire-resistance rating of not less than 1 hour as determined in accordance with Section 502.3.1. Continuity of the 1-hour fire-resistance rating shall be maintained from the foundation to the eaves and soffits.

503.4.2 Intersections, joints and intersections in exterior walls. Intersections, joints and intersections in exterior walls shall meet the requirements of Section 503.7.

503.4.3 Exterior wall coverings. Exterior wall coverings shall be constructed using one of the following methods:

1. Components of the exterior wall coverings shall be of noncombustible material in accordance with Section 502.2.1 Exterior surface of exterior sheathing shall have a flame-spread index not more than 25. Gaps or openings at base of wall covering (such as a rainscreen) shall be protected with noncombustible corrosion-resistant mesh with openings a minimum of 1/16 inch (1.6 mm) and not larger than 1/8 inch (3.2 mm) or be designed and approved to prevent flame or ember penetration into the cavity.

Exception: Wall coverings where the water-resistive barrier is the only combustible component and has water-resistive barriers having a peak heat release rate of less than 150 kW/m², a total heat release of less than 20 MJ/m² and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354 and having a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723.

2. Exterior wall assemblies that are tested in accordance with and comply with the acceptance criteria of NFPA 285.

❖ Option 2 provides an alternative for designers to specify assemblies that meet the intent of this section without requiring all components of the exterior wall coverings to be tested for ignition resistance, fire-retardant-treated wood, or noncombustibility.

503.5 Exterior opening protection.

503.5.1 Doors. Exterior doors shall have a fire protection rating of not less than 45 minutes. Windows within doors and glazed doors shall be in accordance with Section 503.5.2.

Exceptions:

1. Vehicle access doors.
2. Doors protected by *approved* fire-resistant-rated shutters. The fire-resistant shutter shall be not less than 45-minute rated and meet all the following requirements:
 - 2.1. Protect the entire door assembly including framing and glazing.
 - 2.2. Constructed with noncombustible material.
 - 2.3. Be fixed to the building and be nonremovable.
 - 2.4. Be operable manually from either inside or outside or be motorized shutter systems that are not reliant on main power to close.
 - 2.5. When in the closed position, have gaps not greater than 1/8 inch (3.2 mm) between the shutter and the wall, frame and sill.
 - 2.6. Where a mesh screen is used within the assembly, mesh openings shall not exceed 1/8 inch (3.2 mm).

503.5.2 Windows. Exterior windows, window walls, glazed doors, windows within exterior doors and skylights shall have a fire protection rating of not less than 45 minutes.

Exception: Windows protected by *approved* fire-resistant-rated shutters. The fire-resistant shutter shall be not less than 45-minute rated and meet all of the following requirements:

1. Protect the entire window including framing and glazing.
2. Constructed with noncombustible material.
3. Be fixed to the building and be nonremovable.
4. Be operable manually from either inside or outside or be motorized shutter systems that are not reliant on main power to close.
5. When in the closed position, have gaps not greater than 1/8 inch (3.2 mm) between the shutter and the wall, frame or sill.
6. Where a mesh screen is used within the assembly, mesh openings shall not exceed 1/8 inch (3.2 mm).

503.5.3 Ventilation openings. Attic, foundation, or underfloor ventilation openings shall be fully covered with listed corrosion-resistant vents tested in accordance with ASTM E2886 and comply with the following requirements:

1. There shall be no flaming ignition of the cotton material during the Ember Intrusion Test.
2. The Integrity Test portion of the Flame Intrusion Test shall be conducted in both horizontal and vertical orientation and there shall be no flaming ignition of the cotton material during either test.
3. The maximum temperature of the unexposed side of the vent shall not exceed 662°F (350°C).

Exception: Ventilation openings on a sloped roof or roof ridge shall be fully covered with noncombustible, corrosion-resistant vents with openings not greater than 1/8 inch (3.2 mm).

503.5.3.1 Ventilation opening locations. Gable end and dormer vents covering openings located in soffits, in eave overhangs, between rafters at eaves, or in other overhang areas shall comply with Section 503.5.3 and shall also have a minimum 1-hour fire-resistance rating when tested in accordance with ASTM E119 or UL 263.

503.5.4 Intersections.

Intersections of exterior openings with exterior walls shall meet the requirements of Section 503.7.

503.6 Underfloor areas.

Underfloor areas of buildings and structures shall be enclosed to the ground with materials permitted for exterior walls in accordance with Section 503.4.

Exception: The enclosure shall not be required to extend to the ground where the exposed floor assembly, columns and beams have a 1-hour fire resistance rating.

503.7 Joints and intersections.

503.7.1. Protection. Except as provided in Sections 503.7.2, 503.7.3, 503.7.4 and 503.7.5, joints and intersections of different construction elements and joints within construction elements shall be protected by an approved fire-resistant joint system designed to resist the passage of fire for a period of not less than 1 hour. Fire-resistant joint systems shall be tested in accordance with the requirements of either ASTM E1966 or UL 2079.

503.7.2. Intersections. Intersections of exterior horizontal assemblies to exterior vertical assemblies, such as soffits to exterior walls, eaves to exterior walls or floor projections to exterior walls, shall be tested in accordance with ASTM E2957. Fire penetration through the exterior horizontal surfaces, exterior vertical surfaces or intersections shall not occur during the test and sustained combustion beyond the exterior surfaces shall not be present at the end of the test. The test specimen, including the

exterior horizontal assembly, the exterior vertical assembly and the intersection, shall be representative of the construction that the test is intended to assess as to materials, workmanship and details such as dimensions of parts, and shall be built under conditions representative of those applied in building construction and operation.

503.7.3. Gaps around vents. Gaps around vents shall be sealed in accordance with vent manufacturer installation instructions to avoid ember and flame intrusion through the gaps.

503.7.4. Control joints. Where provided, control joints shall not exceed a maximum width of 0.625 inch (15.9 mm) and shall achieve a 1-hour fire-resistance rating when tested as part of an assembly in accordance with ASTM E119 or UL 263.

503.7.5. Gaps around doors. Gaps around rated doors and windows shall be sealed with sealants in accordance with door or window manufacturer installation instructions to avoid flame intrusion through the gaps.

SECTION 504 WILDFIRE HAZARD AREA (WHA) CLASS 2

❖ Exposure based on Chapter 3. This WHA class assumes conforming defensible space that is subject to radiant heat and embers.

504.1 Roof assembly. Roofs shall have a roof assembly that complies with a Class A classification when tested in accordance with ASTM E108 or UL 790, or an approved noncombustible roof covering.

504.1.1 Flame and ember protection of roof assembly. For roof assemblies where the roof covering profile creates a space between the roof covering and roof deck, the space shall resist entry of flames or embers by one or more of the following methods:

1. Fireblocking of the space between the roof covering and the roof deck.
2. Installation of one layer of cap sheet complying with ASTM D3909 over the combustible roof deck.
3. Installation of an underlayment that is a component of a listed Class A classified roof assembly that includes the roof covering that is to be installed.

504.1.2 Roof valley flashings. Where provided, valley flashings shall be not less than 0.019-inch (0.48 mm) (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide (914 mm) underlayment consisting of one layer of cap sheet complying with ASTM D3909 running the full length of the valley.

504.2 Eaves and soffits. Combustible eaves, fascias and soffits shall be protected with noncombustible or ignition-resistant materials, or fire-retardant-treated wood. Exposed rafter tails shall not be permitted unless constructed of heavy timber materials in accordance with *International Building Code* Section 2304.11.

504.3 Gutters and downspouts. Gutters and downspouts shall be constructed of noncombustible material. Gutters shall be provided with an approved means to resist the accumulation of combustible debris in the gutter. Gutters, downspouts and products used to resist the accumulation of combustible debris shall be constructed of noncombustible material.

504.4 Exterior Walls. Exterior walls shall be constructed with one or more of the following methods. Such assemblies shall extend from the top of the foundation to the underside of the roof sheathing or eaves or soffits.

1. Exterior wall assemblies that pass the following acceptance criteria when tested in accordance with ASTM E2707. The ASTM E2707 test shall be conducted on a minimum of three test specimens and meet the conditions of acceptance in Items 1 and 2 below. If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be performed. All three additional tests must meet the conditions of acceptance.
 - 1.1 Absence of flame penetration through the wall assembly at any time.
 - 2.1 Absence of evidence of glowing combustion on the interior surface of the assembly at the end of the 70-minute test.
2. Exterior wall assemblies with a minimum fire-resistance rating of 1 hour, rated for exposure on the exterior side and protected with one of the following exterior wall coverings:
 - 2.1 Noncombustible materials.

- 2.2 Fire-retardant-treated wood.
 - 2.3 Ignition-resistant building materials.
3. Log walls that meet the requirements of a 1-hour fire-resistant rating in accordance with Section 303 of ICC 400.

504.5 Exterior opening protection.

504.5.1 Doors. Exterior doors shall be approved noncombustible construction, solid core wood not less than 1 3/4 inches (45 mm) thick or have a fire protection rating of not less than 20 minutes when tested in accordance with NFPA 252, UL 10B, or UL 10C. Windows within doors and glazed doors shall be in accordance with Section 504.5.2.

Exception: Vehicle access doors.

504.5.2 Windows. Exterior windows, window walls, glazed doors, windows within exterior doors and skylights shall be tempered glass, multilayered glazed panels, glass block or have a fire protection rating of not less than 20 minutes when tested in accordance with NFPA 252, UL 10B or UL 10C.

504.5.3 Ventilation openings. Attic, foundation or underfloor ventilation openings shall be fully covered with listed corrosion-resistant vents tested in accordance with ASTM E2886 and comply with the following requirements:

1. There shall be no flaming ignition of the cotton material during the Ember Intrusion Test.
2. The Integrity Test portion of the Flame Intrusion Test shall be conducted in both horizontal and vertical orientation and there shall be no flaming ignition of the cotton material during either test.
3. The maximum temperature of the unexposed side of the vent shall not exceed 662°F (350°C).

Exception: Ventilation openings on a sloped roof or roof ridge shall be fully covered with noncombustible, corrosion-resistant vents with openings not greater than 1/8 inch (3.2 mm).

504.5.4 Intersections. Intersections of exterior openings with exterior walls shall meet the requirements of Section 504.7.

504.6 Underfloor areas. Underfloor areas below buildings or structures shall be enclosed to the ground, with materials permitted for exterior walls in accordance with Section 504.4.

Exception: The enclosure shall not be required to extend to the ground where the exposed floor assembly, columns and beams have a 1-hour fire-resistance rating.

504.7 Joints and intersections.

504.7.1. Protection. For assemblies that meet Section 504.4.1, no additional joint protection is required if the assembly tested in accordance with ASTM E2707 includes joints and intersections as used in the construction. If joints were not provided in tested assemblies, joints and intersections shall comply with Section 503.7.

504.7.2. Exterior walls. For exterior walls meeting Section 504.4.2, joints and intersections shall comply with Section 503.7.

504.7.3. Exterior log walls. For exterior log walls meeting Section 504.4.3, joints shall meet the requirements of Section 303 of ICC 400.

504.7.4. Gaps around vents. Gaps around vents shall be sealed in accordance with vent manufacturer installation instructions to avoid ember intrusion through the gaps.

504.7.5. Gaps around doors. Gaps around rated doors and windows shall be sealed with sealants in accordance with door or window manufacturer installation instructions to avoid flame intrusion through the gaps.

SECTION 505
WILDFIRE HAZARD AREA (WHA) CLASS 3

❖ Assumed exposure based on Chapter 3. Direct ember ignitions are those when an ember ignites a building material and contents via conduction and/or radiation. Direct ember-resistance classification assumes no radiant heat or direct flame exposure from exterior fire and maintained defensible space (including on building). These are the base requirements for all buildings being designed to resist wildland fire exposures.

505.1 Roof assembly. Roofs shall have a roof assembly that complies with a Class A classification when tested in accordance with ASTM E108 or UL 790.

505.1.1 Ember protection of roof assembly. For roof assemblies where the roof covering profile creates space between the roof covering and roof deck, the space shall resist entry of embers by one or more of the following methods:

1. Fireblocking of the space between the roof covering and the roof deck.
2. Installation of one layer of cap sheet complying with ASTM D3909 over the combustible roof deck.
3. Installation of an underlayment that is a component of a listed Class A classified roof assembly that includes the roof covering that is to be installed.

505.1.2 Roof valley flashings. Where provided, valley flashings shall be not less than 0.019-inch (0.44 mm) (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide (914 mm) underlayment consisting of one layer of cap sheet complying with ASTM D3909 running the full length of the valley.

505.2 Eaves and soffits. Gaps greater than 1/8 inch (3.2 mm) in eaves and soffits shall be sealed or covered with metal flashing to resist the accumulation of embers in gaps between construction materials (e.g., rafters and blocking) that can lead to ignition.

505.3 Gutters and downspouts. Gutters and downspouts shall be constructed of noncombustible material. Gutters shall be provided with an approved means to resist the accumulation of combustible debris in the gutter. Gutters, downspouts and products used to resist the accumulation of combustible debris shall be constructed of noncombustible material.

505.4 Exterior walls. Exterior walls at the intersection with grade, balconies, decks and roofs shall be protected from ignition caused by ember accumulation in accordance with one or both of the following:

1. Weather-exposed surface of noncombustible materials or metal flashing, extending not less than 6 inches (152 mm) vertically.
2. Not less than 6 inches (152 mm) of noncombustible vertical separation between horizontal surfaces and weather-exposed surfaces shall be maintained.

Flashing provided in accordance with this section shall be lapped with flashing, counterflashing or water-resistive barriers as required by the *International Residential Code*.

505.5 Exterior opening protection.

505.5.1 Doors.

❖ This section covers all exterior doors, including pedestrian, vehicle (e.g., garage), and utility (e.g., crawl space).

505.5.1.1. Gaps. Gaps shall not exceed 1/8 inch (3.2 mm) between exterior doors and door openings, at the bottom, sides and tops of doors.

505.5.1.2. Exterior doors. Exterior doors and door frames shall resist ignition from the accumulation of embers.

❖ Exterior doors may contain components (e.g., weather strip) that are combustible and susceptible to ignition from the accumulation of embers.

505.5.2 Windows.

❖ This section covers all exterior windows, including casement, hung and louvered.

505.5.2.1. Screen. Operable parts of the window (i.e., where it can open) shall be covered with a noncombustible and corrosion-resistant screen with openings not to exceed 1/16 inch (1.6 mm).

505.5.2.2. Embers. Exterior windows shall be designed and constructed to resist ignition from the accumulation of embers.

505.5.3 Ventilation openings. Attic, foundation or underfloor ventilation openings shall be fully covered with one of the following:

1. Listed vents tested in accordance with the Ember Intrusion Test of ASTM E2886 that comply with no flaming ignition of the cotton material during the Ember Intrusion Test.
2. Fully noncombustible, corrosion-resistant vents with openings not exceeding 1/8 inch (3.2 mm).

505.5.4 Intersections. Intersections of exterior openings with exterior walls shall meet the requirements of Section 505.7.

505.6 Underfloor enclosure. Buildings or structures, appendages and projections shall have underfloor areas enclosed to the ground with exterior walls in accordance with Section 505.4 or with noncombustible corrosion-resistant mesh with openings not exceeding 1/8 inch (3.2 mm).

Exception: The enclosure shall not be required to extend to the ground where a minimum of 6 inches (152 mm) of metal flashing or noncombustible material is applied vertically on the exterior of the vertically aligned structural elements such as columns and supporting walls at the ground.

505.7 Joints and intersections.

505.7.1. Ember protection. Joints and intersections that would be susceptible to accumulation of embers shall be protected per Section 503.7.

505.7.2. Gaps around vents. Gaps around vents shall be sealed in accordance with vent manufacturer installation instructions to avoid ember intrusion through the gaps.

505.7.3. Gaps around rated doors and windows. Gaps around rated doors and windows shall be sealed with sealants in accordance with door or window manufacturer installation instructions to avoid flame intrusion through the gaps.

505.8 Attached accessory structures. Unenclosed accessory structures and projections attached to the building shall have underfloor areas enclosed to the ground in accordance with Section 505.5.

❖ Examples of unenclosed attached accessory structures include decks and pergolas. Accessory structures have the same or similar vulnerability to direct embers as the primary structure and so should resist ignition in the same manner to reduce the potential of generating additional exposure.

SECTION 506 ACCESSORY STRUCTURES

506.1. General. Accessory structures shall be constructed in accordance with one of the methods described in Sections 506.2 through 506.3, based on the distance from the dwelling, and meet the following requirements:

1. Roof assemblies, where provided, shall comply with Section 505.1.
2. Gutters and downspouts, where provided, shall comply with Section 505.3.

506.2 Accessory structures located less than 30 feet from a dwelling. Where required in accordance with Section 301.3.1, accessory structures shall be constructed in accordance with Section 506.2.1 or 506.2.2 and underfloor areas of accessory structures shall meet the requirements of Section 506.2.3.

506.2.1 Enclosed accessory structures. Fully enclosed accessory structures such as sunrooms, garages and sheds shall be constructed in accordance with Section 506.2.1.1 or 506.2.1.2, based on their floor area.

506.2.1.1 Enclosed accessory structures with floor area not exceeding 200 square feet.

Enclosed accessory structures with a floor area not exceeding 200 square feet shall meet the following requirements:

1. Exterior surfaces shall be constructed or protected with one of the following:
 - a. Noncombustible building material in accordance with Section 502.2.1.
 - b. Fire-retardant treated wood in accordance with Section 502.2.2.
 - c. Ignition resistant building materials in accordance with Section 502.2.3.

Exception: Class A roof assemblies tested in accordance Section 505.1.

2. Exterior walls shall be constructed so the bottom 6 inches above grade is constructed of noncombustible materials or protected with metal flashing.
3. Exterior openings on the sides facing the dwelling shall be constructed in accordance with Section 503.5. Exterior openings on sides that are not facing the dwelling shall be constructed in accordance with 505.5.
4. Ventilation openings through the roof, where provided, shall be protected in accordance with Section 505.5.3.

506.2.1.2 Enclosed accessory structures with floor area greater than 200 square feet.

Enclosed accessory structures with a floor area greater than 200 square feet shall be constructed in accordance with Section 503.

506.2.2. Unenclosed accessory structures. Walking surfaces of unenclosed accessory structures shall be constructed of one of the following:

1. Noncombustible building material in accordance with Section 502.2.1.
2. Fire-retardant-treated wood in accordance with Section 502.2.2.
3. Ignition-resistant building materials in accordance with Section 502.2.3

Coated materials shall not be used as the walking surface of unenclosed accessory structures.

506.2.3. Underfloor areas of accessory structures. Underfloor areas of accessory structures shall be enclosed to the ground with one of the following:

1. Noncombustible building material in accordance with Section 502.2.1.
2. Fire-retardant-treated wood in accordance with Section 502.2.2.
3. Ignition-resistant building materials in accordance with Section 502.2.3.
4. Corrosion resistant, noncombustible mesh screen with a mesh size not exceeding 1/8 inch.

Exception: Complete enclosure shall not be required where the underside of exposed floors and exposed structural members or walls are constructed in accordance with Section 506.2.2. The exposed structural members or walls shall be constructed so the bottom 6 inches above grade consists of noncombustible materials or is protected with metal flashing.

506.3. Accessory structures located between 30 and 50 feet from a dwelling. Where required in accordance with Section 301.3.2, accessory structures shall be constructed in accordance with Section 506.3.1 or 506.3.2 and underfloor areas of accessory structures shall meet the requirements of Section 506.3.3.

506.3.1 Enclosed accessory structures. Enclosed accessory structures such as sunrooms, garages and sheds shall be constructed in accordance with Section 506.3.1.1 or 506.3.1.2, based on their floor area.

506.3.1.1 Enclosed accessory structures with floor area not exceeding 200 square feet.

Enclosed accessory structures with a floor area not exceeding 200 square feet and located more than 30 feet away from a dwelling shall not be required to comply with this standard.

506.3.1.2 Enclosed accessory structures with floor area greater than 200 square feet.

Enclosed accessory structures with a floor area greater than 200 square feet shall be constructed in accordance with Section 504.

506.3.2. Unenclosed accessory structure. Unenclosed accessory structures located more than 30 feet away from a dwelling shall not be required to comply with this standard.

506.3.3. Underfloor area of accessory structures. Underfloor areas shall be enclosed to the ground with noncombustible corrosion-resistant mesh with a mesh size not exceeding 1/8 inch (3.2 mm).

Exception: Complete enclosure shall not be required where the exposed structural members or walls are constructed so the bottom 6 inches above grade consists of noncombustible materials or is protected with metal flashing.

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CHAPTER 6 EXISTING BUILDINGS

SECTION 601 SCOPE

601.1 Scope. The provisions of this chapter shall apply to the repair, alteration, addition to, change of occupancy or maintenance of existing buildings located within or relocated to wildfire hazard areas.

SECTION 602 GENERAL

602.1 General. The provisions of this chapter are intended to permit work performed on existing buildings that is consistent with the purpose of this standard. Compliance with this chapter shall be deemed to comply with this standard.

602.2 Classification of work. For purposes of this standard, work performed on existing buildings shall be classified into the categories of repair, alteration, addition, change of occupancy or relocation. Specific requirements are established for each category of work in these provisions.

602.3 Compliance.

602.3.1. Scope. Regardless of the category of work performed, the work shall be completed in a manner which results in the element or assembly complying with this standard.

602.3.2. Requirements. The completed work shall comply with the requirements of Chapter 3.

SECTION 603 REPAIRS

603.1 General.

Repairs to existing structures shall comply with the requirements of this section.

603.2 Building elements and materials.

603.2.1. General. Materials used during *repairs* shall comply with Section 603.2.1.1 or 603.2.1.2.

603.2.1.1 New and replacement materials. Except as otherwise required or permitted by this standard, materials permitted by this standard for new construction shall be used.

603.2.1.2 Existing materials. Materials already in use in a *building* that complied with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the *code official* to be unsafe.

603.2.2 Exterior wall covering replacement for Class 1.

603.2.2.1 Replacement of exterior wall coverings for Class 1 construction. Unless the existing exterior wall assembly is shown to comply with wildfire hazard area construction Class 1, as determined by the Code official, existing layers of wall coverings shall be removed to provide evaluation of wall covering components and sheathing. Deteriorated materials shall be replaced and the exterior wall built in accordance with Section 503.4.

603.2.2.2 Replacement of exterior wall coverings for Class 2 construction. Unless the existing exterior wall assembly is shown to comply with wildfire hazard area construction Class 2, as determined by the code official, existing layers of wall coverings shall be removed to provide evaluation of wall covering components and sheathing. Deteriorated materials shall be replaced and the exterior wall built in accordance with Section 504.4.

603.2.2.3 Replacement of exterior wall coverings for Class 3 construction. For exterior wall covering replacement to comply with wildfire hazard area construction Class 3, the intersections with grade, balconies, decks and roofs shall be protected from ignition caused by ember accumulation in accordance with one or both of the following:

1. Weather-exposed surface of noncombustible materials or metal flashing, extending to a minimum of 6 inches (152 mm) vertically.
2. A minimum of 6 inches (152 mm) noncombustible vertical separation between horizontal surfaces and weather-exposed surfaces shall be maintained.

603.2.3 Roof covering repair. Roof coverings on buildings or structures in existence prior to the adoption of this code that are replaced or have 25 percent or more replaced in a 12-month period shall be replaced with a roof covering required for new construction.

SECTION 604 ALTERATIONS

604.1 General. Alterations to existing buildings shall comply with the provisions of this standard for new construction, except as permitted by Sections 604.2 through 604.3. Alterations shall not cause the existing building to become less compliant with the provisions of this standard for new construction than the existing building was prior to the work.

604.2 Newly constructed elements. Newly constructed elements, components and systems shall comply with the requirements of this standard for new construction.

604.3 Nonconformities. The work shall not increase the extent of noncompliance or create nonconformity to those requirements that did not previously exist.

SECTION 605 ADDITIONS

605.1. General. All building elements in any addition shall comply with the provisions of this standard for new construction.

SECTION 606 CHANGE OF USE OR OCCUPANCY

606.1. General. Any change of use to bring a structure within the scope of *the International Residential Code* shall require compliance with this standard.

SECTION 607 RELOCATION

607.1. General. Any structure relocated into a wildfire hazard area shall comply with the provisions of this standard for new construction.

CHAPTER 7 MAINTENANCE

SECTION 701 GENERAL

701.1 General. Maintenance evaluation of existing buildings shall be performed regularly in accordance with this section. The owner or owner's authorized agent shall ensure that annual maintenance evaluations are conducted, and repairs made as required in Section 603.

SECTION 702 INSPECTIONS

702.1 Building elements and materials. Repair of any building materials shall meet the requirements as prescribed in Section 603.

702.2 Areas requiring inspection. Biannual inspections of existing buildings and structures shall include the following locations, areas and building elements.

1. Roof assemblies.
 - a. Roof-to-wall siding interfaces.
 - b. Roof joints at through penetrations (plumbing vents, chimneys, skylights, roof vents).
 - c. Roof-to-roof interfaces (valleys, ridges and hips).
 - d. Roof vent protection.
 - e. Edge-of-roof joints.
2. Wall assemblies.
 - a. Wall to roof, floor or foundation intersections.
 - b. Wall-to-wall joints.
 - c. Wall openings (windows, doors, garage doors, vents).
 - d. Architectural elements or projecting features.
3. Gutters and downspouts.
4. Attached decks, stairs, and landings.
5. Exterior features (fences, pergolas, and trellises).
6. Solar panels
7. Other elements, features or areas that may accumulate combustible debris or embers.

SECTION 703 EVALUATIONS

703.1 Maintenance evaluations. Evaluate the exterior envelope of the building ensuring that ignition-resistance or fire-resistance is maintained. The owner or owner's authorized agent can be guided by the checklist in Appendix B.

703.2 Areas requiring evaluation. Annual evaluation of existing buildings and structures shall include the following locations, areas and building elements.

1. Roof assemblies.
 - a. Roof-to-wall siding joints and intersections (dormers and walls adjacent to a roof surface).
 - b. Roof joints at through penetrations (plumbing vents, chimneys, skylights, roof vents).
 - c. Roof-to-roof joints and intersections (valleys, ridges and hips).
 - d. Roof vent protection.
 - e. Edge-of-roof joints.
2. Eaves and soffits.
 - a. Attic vent protection.
3. Exterior wall assemblies.
 - a. Wall-to-roof, -floor, -deck and -foundation joints and intersections.
 - b. Wall-to-wall joints.
 - c. Wall openings (windows, screens, doors, and garage doors).

- d. Wall vent protection.
 - e. Architectural elements and projecting features.
4. Underfloor areas (underside of exposed floors, decks, structural columns, beams and supporting walls).
 5. Gutters and downspouts.
 6. Attached decks, stairs and landings.
 7. Exterior features and structures that may become a fire exposure threat to the building, including fences, pergolas and trellises.
 8. Solar panels.
 9. Other elements, features or areas that may accumulate combustible debris or embers.

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CHAPTER 8

REFERENCED STANDARDS

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard.

ASTM

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

ASTM E2707-22:

Standard Test Method for Determining Fire Penetration of Exterior Wall Assemblies Using a Direct Flame Impingement Exposure

ASTM D2898-10(2017):

Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing

ASTM D3909-22:

Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules

ASTM D6662-22:

Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards

ASTM D7032-21:

Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite and Plastic Lumber Deck Boards, Stair Treads, Guards and Handrails

ASTM E84-23d:

Standard Test Method for Surface Burning Characteristics of Building Materials

ASTM E108-20a:

Standard Test Methods for Fire Tests of Roof Coverings

ASTM E119-24:

Standard Test Methods for Fire Tests of Building Construction and Materials

ASTM E136-24a:

Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C

ASTM 1354-23:

Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter

ASTM E2652-22:

Standard Test Method for Assessing Combustibility of Materials Using a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750°C

ASTM E2768-11(2018):

Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)

ASTM E2886-20:

Standard Test Method for Evaluating the Ability of Exterior Vents to Resist the Entry of Embers and Direct Flame Impingement

ICC

International Code Council
2200 Massachusetts Ave, NW Suite 250
Washington, DC 20001

IBC-24:
International Building Code

IEBC-24:
International Existing Building Code

IFC-24:
International Fire Code

IRC-24:
International Residential Code

IWUIC-24:
International Wildland-Urban Interface Code

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

NFPA 252-2022
Standard Methods of Fire Tests of Door Assemblies

NFPA 285-2023
Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies
Containing Combustible Components

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

UL 10B-2008
Standard for Fire Tests of Door Assemblies

UL 10C-2016
Positive Pressure Fire Tests of Door Assemblies

UL 263-2022:
Standard for Fire Tests of Building Construction and Materials

UL 723-2023:
Standard for Test for Surface Burning Characteristics of Building Materials

UL 790-2022:
Standard Test Methods for Fire Tests of Roof Coverings

**APPENDIX A
FIRE HAZARD SEVERITY**

**SECTION A101
GENERAL**

A101.1 Fire hazard severity form. Table A101.1 or Table A101.2 contain some templates for analyzing the fire hazard severity of building sites.

**TABLE A101.1
FIRE HAZARD SEVERITY FORM**

A. Subdivision Design Points	
1. Ingress/Egress	
Two or more primary roads	1__
One road	3__
One-way road in, one-way road out	5__
2. Width of Primary Road	
20 feet or more	1__
Less than 20 feet	3__
3. Accessibility	
Road grade 5% or less	1__
Road grade more than 5%	3__
4. Secondary Road Terminus	
Loop roads, cul-de-sacs with an outside turning radius of 45 feet or greater	1__
Cul-de-sac turnaround	2__
Dead-end roads 200 feet or less in length	3__
Dead-end roads greater than 200 feet in length	5__
5. Street Signs	
Present	1__
Not present	3__
B. Vegetation (IWUIC Definitions)	
1. Fuel Types	
Light	1__
Medium	5__
Heavy	10__

**TABLE A101.1—continued
FIRE HAZARD SEVERITY FORM**

2. Defensible Space	
70% or more of site	1__
30% or more, but less than 70% of site	10__
Less than 30% of site	20__
C. Topography	
8% or less	1__
More than 8%, but less than 20%	4__
20% or more, but less than 30%	7__
30% or more	10__
D. Roofing Material	
Class A Fire Classification	1__
Class B Fire Classification	5__
Class C Fire Classification	10__
Nonclassified	20__
E. Fire Protection—Water Source	
500 GPM hydrant within 1,000 feet	1__
Hydrant farther than 1,000 feet or draft site	2__
Water source 20 min. or less, round trip	5__
Water source farther than 20 min., and 45 min. or less, round trip	7__
Water source farther than 45 min., round trip	10__
F. Existing Building Construction Materials	
Noncombustible siding/deck	1__
Noncombustible siding/combustible deck	5__
Combustible siding and deck	10__
G. Utilities (gas and/or electric)	
All underground utilities	1__
One underground, one above ground	3__
All above ground	5__
Total for Subdivision (add the scores for Items A through G)	
Moderate Hazard	40–59
High Hazard	60–74
Extreme Hazard	75+

For SI: 1 foot = 304.8 mm, 1 gallon per minute = 3.79 L/m.

**TABLE A101.2
FIRE HAZARD SEVERITY**

FUEL MODEL ^b	CRITICAL FIRE WEATHER FREQUENCY								
	≤ 1 Day ^a			2 to 7 days ^a			≥ 8 days ^a		
	Slope (%)			Slope (%)			Slope (%)		
	≤ 40	41-60	≥ 61	≤ 40	41-60	≥ 61	≤ 40	41-60	≥ 61
Light fuel	M	M	M	M	M	M	M	M	H
Medium fuel	M	M	H	H	H	H	E	E	E
Heavy fuel	H	H	H	H	E	E	E	E	E

E = Extreme hazard.

H = High hazard.

M = Moderate hazard.

a. Per annum.

b. Required by the code official, fuel classification shall be based on the historical fuel type for the area.

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**APPENDIX B
ANNUAL BUILDING EVALUATION CHECKLIST**

This appendix is for information purposes and is not intended for adoption.

About this appendix: Appendix B is not part of the regulatory requirements in this standard. Its purpose is to provide guidance for owners, the owner’s designated representative and maintenance personnel in evaluating the structure to determine if repairs are necessary to maintain the ignition resistance of the building. This appendix is in a checklist format to aid in the evaluation of the exterior components of the building.

**SECTION B101
GENERAL**

B101.1 Scope. The building construction components required in this standard shall be evaluated annually and maintained throughout the life of the building.

B101.2 Evaluation. The checklist in Table B101.2 can be used to ensure that all necessary building components are evaluated and maintained in accordance with the wildfire-resistant design and construction established in Chapters 3, 4 and 5.

B101.3 Building maintenance. Maintenance or repair shall be performed where the evaluation identifies deficiencies in building components. Repair of any building materials shall meet the requirements as prescribed in Section 603.

**Table B101.2
Annual Building Evaluation Checklist**

Building Component	Description	Maintenance Notes
Roof surface	Evaluation	Evaluate the exterior surface of roof components for damage that may reduce ember resistance or expose combustible building components. If the roof construction does not conform with the requirements of roof assembly provided in this standard, damage shall be repaired in accordance with Section 603.
	Joints and intersections	Evaluate joints and intersections where two surfaces or different materials interface. Ensure that roof surface joints are without gaps and cracks that may allow the accumulation of debris and collect embers, including: Roof-to-wall (e.g., dormers and walls adjacent to a roof surface) Roof-to-chimney Roof-to-skylight Roof surface vents Roof ridge cap Roof valley Edge of roof surface.
	Sealant	Seal cracks and gaps to prevent creating areas where vegetative debris and embers can accumulate.
	Flashing	Ensure that metal flashing joints and exposed edges are without gaps and buckling that may allow accumulation of debris and collect embers.

Building Component		Description	Maintenance Notes
		Metal flashing installed around penetrations through the roof surface shall not be corroded, torn or loose. Sealants must not be used to cover openings required for draining moisture.	
	Roof vents	Ensure that ridge vents and roof surface vents are provided with ember-resistant screens with mesh openings not to exceed 1/8 inch (3.2 mm). Repair any gaps between the roof surface and ember-resistant screens.	
	Roof ridge	Seal gaps that may collect debris and embers between the roof surface and ridge caps that do not serve as attic ventilation. Seal gaps at the ends of ridge caps.	
	Openable skylights	Ensure that openable skylights provide ember protection by noncombustible corrosion-resistant mesh not to exceed 1/16 inch.	
	Eave and soffit	See "Ventilation opening protection."	
	Debris	Remove vegetative debris from the roof, including on and adjacent to dormers, chimneys, skylights and similar features.	
Exterior wall surface	Evaluation	Evaluate the exterior surface of wall components for damage that may reduce ember resistance or expose combustible building elements. If the wall construction does not conform with the requirements of wall assembly provided in this standard, damage shall be repaired in accordance with Section 603.	
	Joints and intersections	Evaluate joints and intersections where two surfaces or different materials interface. Ensure that wall surface joints are without gaps and cracks that may allow the accumulation of debris and collect embers, including: Top-of-wall (e.g., intersection with roof and eaves and soffits) Bottom-of-wall surface (e.g., intersection with foundation) Wall surface corners and edge trim Wall-to-windows Wall-to-doors Wall-to-garage door Wall surface vents (e.g., attic and foundation vent openings) Wall-to-deck surface, and Wall-to-architectural details.	
	Sealant	Seal cracks and gaps to prevent creating areas where vegetative debris and embers can accumulate. Sealants must not be used to cover openings required for draining moisture, including weep holes and stucco weep screed.	
	Doors	Ensure that the space between door, framing and concrete does not have gaps exceeding 1/8 inch (3.2 mm). Ensure weather sealing is provided and in good condition. Ensure that fire-resistant shutters, where provided, are functional and maintained. Backup energy systems for power-assisted shutters shall be tested.	
	Windows	Ensure that the space between window, framing and sill does not have gaps exceeding 1/8 inch (3.2 mm). Ensure weather sealing is provided and in good condition. Ensure that fire-resistant shutters, where provided, are functional and maintained. Backup energy systems for power-assisted shutters shall be tested. Ensure that openable windows are covered with a noncombustible and corrosion-resistant screen with openings not to exceed 1/16 inch.	

Building Component		Description	Maintenance Notes
	Garage door	Ensure that the space between the garage door, framing and concrete does not have gaps exceeding 1/8 inch (3.2 mm). Ensure weather sealing is provided and in good condition.	
	Attic and crawl space vents	See "Ventilation opening protection."	
	Exterior perimeter	Evaluate ember resistance at the exterior wall intersection with grade, balconies, bay window projections, and walls adjacent to a roof surface. Ensure that the bottom of exterior walls maintains a minimum of 6 inches (152 mm) of ignition-resistant material or metal flashing. Remove combustible items and vegetation below bay window projections. Remove or relocate combustible items within 5 feet of the building.	
	Debris	Remove vegetative debris that has accumulated adjacent to the structure.	
Gutters and downspouts			
	Evaluation	Evaluate the ember resistance of rain gutters and downspouts. Ensure that gutters and downspouts are without gaps that may allow accumulation of debris and collect embers. Routinely remove leaves, pine needles and other debris.	
Ventilation opening protection			
	Evaluation	Evaluate vents (attic vents and crawl space vents) to make sure they are in good condition (e.g., screen is in good condition with no tears that would result in larger openings).	
	Ember-resistant screen mesh	Ensure that ventilation openings are protected by a screen with mesh openings not to exceed 1/8 inch (3.2 mm). Repair or seal any gaps between ember-resistant screens and wall or roof surface.	
	Ember- and flame-resistant vents	When ember- and flame-resistant vents are required, the installation must conform to Chapter 5. Ensure that gaps around vents are sealed in accordance with the manufacture's installation instructions to avoid flame intrusion.	
Fences			
	Evaluation	Evaluate fences and gates for the accumulation of combustible items and vegetative debris.	
	Debris	Remove vegetative debris and combustible items adjacent to fences and gates. Do not use fences as a trellis for plants because plants can create and trap ignitable vegetative debris.	
Solar panels			
	Evaluation	Evaluate solar panels for the accumulation of vegetative debris.	
	Debris	Remove vegetative debris that has accumulated on top of and below the solar panels and support structures.	
Decks, stairs and landings attached to structure			
	Evaluation	Evaluate deck structures for the accumulation of vegetative debris or combustible storage on or under the deck.	
	Debris	Remove vegetative debris that has accumulated on or under the deck.	
	Storage	Remove combustible items and combustible storage from below the deck.	
Pergolas and trellises			
	Evaluation	Evaluate pergolas and trellises for the accumulation of vegetative debris, both on and below the pergola and trellis.	

Building Component		Description	Maintenance Notes
	Debris	Remove vegetative debris that has accumulated on the pergola or trellis on a regular basis. Do not use pergolas or trellises as a support for plants because plants can create and trap ignitable vegetative debris.	

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