



STANDARD 515 DEFENSIBLE SPACE AND FUEL MODIFICATION ZONES

The information contained in this standard is provided solely for the convenience of the reader and was being enforced by the Ventura County Fire Protection District (Fire Department) at the time of publication. The Fire Department reserves the right to make changes and improvements to this standard when required by law, or at any time. The Fire Department's current standards will be posted and made available for downloading by the public at the following website: www.vcfd.org.

Please note that the Fire Department assumes no liability for any damages incurred directly or indirectly as a result of any errors, omissions, or discrepancies between this standard and any applicable law. It is the sole responsibility of the person or persons conducting any work pursuant to this standard to ensure the work complies with any applicable codes, ordinances, and regulations.

CHAPTER 1 – ADMINISTRATION

1.1 Purpose. Defensible space and fuel modification zone (FMZ) provisions are intended to mitigate the risk to life and structures from intrusion of fire from wildland fire exposures and fire exposures from adjacent structures. Furthermore, the intent is to prevent fires from spreading to wildland fuels that may threaten to destroy life, overwhelm fire suppression capabilities, or result in large property loss. Proper installation, spacing, and maintenance of plants and landscape is one of the key elements in the survivability of a structure during a wildfire. For information regarding Prohibited Plants, Plant Reference Guide, Defensible Space, and the Fire Hazard Reduction Program (FHRP), please visit VCFHRP.org. For questions regarding this standard, please contact the Fire Department's Fire Hazard Reduction Program Unit at 805-389-9759 or FHRP@ventura.org.

1.2 Scope. This standard provides the general requirements for the installation, maintenance, and spacing for plants, trees, other vegetation and combustible items within a defensible space and fuel modification zone (FMZ) required by the Ventura County Fire Code and state law. Reference: VCFC Chapter 49.

1.3 Applicability. Defensible Space and Fuel Modification Zones (FMZ) located within a State Responsibility Area (SRA), Local Responsibility Area (LRA) Fire Hazard Severity Zone, Wildland-Urban Interface (WUI) area, or any property as determined by Fire Department. Maps of SRA and LRA FHSZs can be viewed at CAL FIRE website. Note: All FHSZs are being updated in 2023.

1.4 Responsibility. Any person owning, leasing, controlling, operating, or maintaining any building in, upon, or adjoining any Wildland-Urban Interface (WUI) area, and any person owning, leasing, or controlling any land adjacent to such buildings shall provide around and adjacent to such building an effective defensible space FMZ for a distance not less than 100-feet from all portions of the building. Distances may be increased by the Fire Department because of a site-specific analysis, based on

local conditions and, when required, based on a Fire Protection Plan. Reference: Public Resource Code (PRC) 4291, Government Code (GC) 51182, and current Ventura County Fire Code.

1.4.1 Clearance Area. Property owners are required to maintain only the portion of the defensible space zone that falls upon their property. If the required defensible space zone crosses property lines, then each affected property owner is responsible only for the portion that occurs on their property, regardless of which property the building is located upon. Reference: Ventura County Fire Code.

1.4.2 Required Clearance. All fuels and vegetation within the 0-100 foot FMZ are subject to defensible space laws and regulations and shall comply with this standard. This includes ornamental plants, cultivated landscape plants, native plants, trees, shrubs, grasses, weeds, and wildland vegetation. Cutting brush, plants, and trees all the way down to dirt is not required.

1.4.3 Disposal. All Fuels and Vegetation cut and or removed to provide the required Defensible Space, including clearing of land for a new building, shall be disposed of in accordance with all applicable Federal, State, and Local Laws and Regulations. Cut and or removed Fuels and Vegetation shall not be relocated outside the required Defensible Space zone. Burning of Fuels and Vegetation for disposal is prohibited.

1.4.4 Other Agency Permits. Any permits required from other regulatory agencies shall be obtained prior to installation and work within the FMZ. This includes any required plan reviews and approvals by Cities and the County. This may also require coordination of plan reviews and approvals.

CHAPTER 2 – DEFINITIONS

Combustible Fencing. Any fencing material or installation that is not IGNITION-RESITANT MATERIAL (as defined by CBC Chapter 7A). Combustible fencing includes wood, plastic, and other petroleum based, fence materials

Combustible Material. Includes seasonal and recurrent weeds, stubble, brush, dry leaves, mulch, tumbleweeds, rubbish, recyclable material, litter, or flammable materials of any kind.

Deck. A flat surface capable of supporting weight, similar to a floor, constructed outdoors and attached to or located within five (5) feet of a Structure, including porches, balconies, and stairs. A Patio on grade constructed of concrete, stone or similar materials is not a deck.

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 to slow the rate and intensity of an advancing wildfire and to create an area for fire suppression operations to occur.

Fire Hazard Severity Zones (FHSZ). Geographical areas designated pursuant to California Public Resources Code, Sections 4201 through 4204, and classified as Very High, High, or Moderate in State Responsibility Areas (SRA) or as Local Responsibility Agency Very High, High or Moderate Fire Hazard Severity Zones designated pursuant to California Government Code, Sections 51175 through 51189.

Fire-Resistant 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.

[Note: The following sources contain examples of types of vegetation that can be considered fire resistant vegetation. (Fire-resistant Plants for Home Landscapes, A Pacific Northwest Extension publication; Home Landscaping for Fire, University of California Division of Agriculture and Natural Resources; Sunset Western Garden Book)]

Fuel. Any combustible material, including petroleum-based products, cultivated landscape plants, grasses, weeds, Ornamental Landscape, and wildland vegetation.

Fuel Break. An area, strategically located for fighting anticipated fires, where the native vegetation has been permanently modified or replaced so that fires burning into it can be more easily controlled. Fuel Breaks divide fire-prone areas into smaller areas for easier fire control and to provide access for firefighting.

Fuel Modification. A method of modifying fuel load by reducing the amount of non-fire-resistive vegetation or altering the type of vegetation to reduce the fuel load.

Fuel Mosaic. A Fuel Modification system that provides for the creation of islands and irregular boundaries to reduce the visual and ecological impact of Fuel Modification.

Hazardous Fire Area (HFA). Land which is covered with grass, grain, brush, or forest, whether privately or publicly owned, which is so situated or is of such inaccessible location that a fire originating upon such land would present an abnormally difficult job of suppression or would result in great and unusual damage through fire or resulting erosion and includes any location within 500 feet of a forest or brush, grass, or grain covered land, exclusive of small individual lots or parcels of land located outside of a brush, forest grass, or grain covered area. Such areas are designated by the Fire Code Official. The Fire Code Official is authorized to utilize, as references, the definition of Wildland-Urban Interface Fire Area, State SRA maps, and LRA Fire Hazard Severity Zone Maps designated pursuant to California Government Code, Sections 51175 through 51189, and the International Wildland-Urban Interface Code. Areas classified as a Hazardous Fire Area are designated as a WUI area

Ladder Fuels. Vegetative fuels which provide vertical continuity, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease.

Ornamental Landscape. All grasses, plants, trees, and other vegetation installed by a property owner. This is usually for aesthetic purposes or privacy screening.

Vegetation. Means all plants, including trees, shrubs, grass, and perennial or annual plants.

Wildfire. Any uncontrolled fire spreading through vegetative fuels that threatens to destroy life, property or resources as defined in Public Resources Code, Sections 4103 and 4104.

Wildfire Exposure. One or a combination of radiant heat, convective heat, direct flame contact and burning embers being projected by vegetation fire to a structure and its immediate environment.

Wildland-Urban Interface (WUI). A geographical area identified by the state as a “Fire Hazard Severity Zone” in accordance with the Public Resources Code, Sections 4201 through 4204, and Government Code, Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires including Hazardous Fire Areas.

CHAPTER 3 – REQUIREMENTS

3.0 Defensible Space Zones. Zones 0, 1 and 2 currently make up the 100-feet of defensible space required by law. See Figure 1. The requirements for each zone are listed in section 3.1 through 3.7.



Figure 1 – Defensible Space Zones

3.1 Zone 0 – Ember-Resistant Zone

3.1.1 Purpose and Location. Zone 0 reduces the likelihood of structure ignition by reducing the potential for direct ignition of the structure from flame contact, by embers that accumulate at the base of a wall, and/or indirect ignitions when embers ignite vegetation, vegetative debris or other combustible materials located close to the structure that result in either a radiant heat and/or a direct flame contact exposure to the structure.

Zone 0 is the horizontal area within the first five feet around the structure, any outbuildings, and attached decks, and stairs. Zone 0 is measured from the edge of a structure, attached decks, patio covers, balconies, and floor projections above grade, The zone also includes the area under attached decks and stair landings.

3.1.2 Requirements and Allowable Items. This should be a “lean” or no planting zone. It is highly recommended to be a non-combustible zone.

- a. Herbaceous non-woody ground cover not exceeding 3-inches high.
- b. Non-woody small herbaceous or succulent plants not exceeding two (2) feet high. Plants shall be spaced a minimum of 2x the height from other plants.
- c. Plants shall have a minimum clearance of 2x the plant height below and adjacent to windows or other openings into the structure, including vents.
- d. All ground cover and plants shall be set back from structures and decks 1x the height of the plant or 12-inches, whichever is greater.
- e. Vines and climbing plants are not allowed on structures, including decks, patio / shade structures, and any fences within 5 feet of a building.
- f. No combustible landscape mulch or wood chips. Use clear soil, rocks, gravel, or concrete.
- g. No combustible landscape boards and timbers.
- h. Only non-combustible pots and planting boxes at ground level shall be used.
- i. No new window planting boxes shall be attached to the structure.
- j. No new trees. See Section 3.2.2a regarding tree canopy setback from structures.
- k. Firewood is prohibited in Zone 0.
- l. Artificial or synthetic grass is prohibited within Zone 0.
- m. Vegetation is prohibited underneath any deck.
- n. Other fuels underneath decks may be limited and shall not cause an ignition due to embers.
- o. Vegetation on decks shall meet the requirements of Zone 0 regardless of the distance to the structure.
- p. **Landscaped roofs.** Landscape roofs shall meet the requirements of Zone 0 shall also comply with VCFC Section 317,
- q. **Roofs and Gutters.** Roofs and gutters on buildings shall be maintained free of any leaves, needles, or other vegetative combustible materials.

- r. **Roof Clearance.** The vertical clearance distance above any roof shall not be less than 3-feet.
- s. **Eve and Roof Projection Clearance.** A minimum 3-foot clearance shall be provided to the side and above any eve or roof projection from the exterior wall of a building. A minimum 6 foot clearance shall be provided below any eve or roof projection.

Advisory Notice: VCFPD has local Zone 0 requirements currently in effect for new buildings and additions to existing buildings. As required by State Law, Assembly Bill 3074 (Chaptered September 2020), new State regulations for Zone 0, currently under development by the State Board of Forestry and Fire Protection, are scheduled to take effect in late 2023 for all new buildings, and one (1) year thereafter, for all existing buildings. Any State regulation more restrictive than VCFPD ordinance or the requirements of Standard 515-Defensible Space and Fuel Modification Standards, will apply. This may require thinning and or removal of plants, trees, and vegetation, to meet State Law.

3.1.3 Fencing.

3.1.3.1 Scope. This section only applies to fences, including gates within the fencing, within 5 feet of building(s) that are in the WUI area. Reference: VCFC Section 4905.4

3.1.3.2 New fencing. New fencing and gates installed on or after January 1, 2023, shall comply with the following:

1. Combustible fencing shall not be installed back-to-back. Two parallel combustible fences shall be separated by at least 5 feet.
2. There shall be no mulch, combustible vegetation, or any other combustible material lined at the bottom and within 12 inches on each side of combustible fences.
3. Fencing and gates that are not parallel to the building, and are within 5 feet of the building, shall be of non-combustible material.

3.1.3.3 Existing fencing. Fencing installed prior to January 1, 2023, may remain.

Exception: The entire fencing not parallel and within 5 feet of the building, including gates within the fencing, shall be of non-combustible material when any portion of existing fencing within 5 feet is being replaced. Fencing beyond 5 feet from the building is not required to be replaced with non-combustible material.

3.2 Zone 1

3.2.1 Purpose and Location. Zone 1 is the intermediate zone that reduces the likelihood of fire burning directly to the structure. This is accomplished by modifying fuels and creating a discontinuity between planting groups that limits the pathways for fire to burn to the structure and reduces the potential for near-to-building ember generation and radiant heat exposures. An additional purpose of this zone is to provide a defensible area for fire personnel to stage and take direct action.

Zone 1 is the area within 5-30 feet of structures and decks with slopes not greater than 20 percent; 5-50 feet from buildings and decks when slopes are greater than 20 percent.

3.2.2 Requirements and Allowable Items. This is a minimal planting zone and very limited trees of a fire-resistive type and additional spacing.

- a. **Trees:** New trees shall be planted and maintained so that the tree's drip line at maturity is a minimum of 10-feet (3048 mm) from any combustible structure.
- b. **Firewood.** Firewood shall be relocated outside Zone 1 unless completely covered in a secured, fire-resistant enclosure or covered with a secured, fire-resistant material, and not exceeding 1000-cubic feet.
- c. See **Table 3 - Fire Department FMZ Spacing**, for plant and tree height, width, and space requirements.

3.3 Zone 2.

3.3.1 Purpose and Location. Zone 2 is the extended zone and is designed to reduce the potential behavior of an oncoming fire in such a way as to drop an approaching fire from the crown of trees to the ground, reducing the flame heights, and the potential for ember generation and radiant heat exposure to structures. Additional benefits of the Zone 2 include facilitating direct defense actions and improving the function of Zones 0 and 1. Zone 2 is the area from the outer edge of Zone 1 to 100-feet from structures and decks.

3.2.2 Requirements and Allowable Items. Zone 2 is a reduced fuel zone. Follow Table 3 – Fire Department FMZ Spacing.

3.2.3 Spacing. Spacing of vegetation and trees at the outer edge of Zone 2 shall be based upon the height of the vegetation within Zone 2 or the adjacent area beyond the 100-foot zone, whichever provides for the greater spacing. This may require clearance outside the 100-foot zone or setting back vegetation and trees within Zone 2 away from the 100-foot line.

3.2.3 Firewood. All exposed firewood and lumber piles must have a minimum of 10-feet of clearance, down to bare mineral soil in all directions and shall not exceed 1000 cubic feet.

3.4 Zone 3.

3.4.1 Purpose and Location. Zone 3 is considered a thinning zone and is any FMZ greater than 100-feet from structures and decks. When provided, either by conditions of development, voluntary by the property owner, or required by the Fire Department, this zone is more of a progressive thinning zone to lessen spread of fire as it approaches the primary FMZ adjacent to structures. The amount of fuel reduction and removal should take into consideration the type and density of fuels, aspect, topography, weather patterns, and fire history.

Table 3 – Fire Department FMZ Spacing

Type of Vegetation	Zone	Maximum Height	Maximum Area /diameter	% of Slope / Minimum horizontal Spacing*
Ground Cover	1 & 2	6-inches	Not Applicable	Not Applicable
Mosaic Grouping of Ground Cover (GC)	1	12-inches	Groupings shall not exceed 200 sq. ft. without minimum spacing to next grouping	<20%: 2 x GC height 20%-40%: 4 x GC height >40%: 6 x GC height
	2	18-inches	Groupings shall not exceed 500 sq. ft. without minimum spacing to next grouping	<20%: 2 x GC height 20%-40%: 4 x GC height >40%: 6 x GC height
Single Shrub	1	4-feet	4-foot diameter	<20%: 2 x shrub height 20%-40%: 4 x shrub height >40%: 6 x shrub height
	2	6-feet	4-foot diameter	<20%: 2 x shrub height 20%-40%: 4 x shrub height >40%: 6 x shrub height
Grouping of shrubs	1	Not Allowed	Not Applicable	<20%: 20-feet 20%-40%: 40-feet >40%: Not Allowed
	2	4-feet	Groupings shall not exceed 50 sq. ft. without minimum spacing to next grouping	<20%: 20-feet 20%-40%: 40-feet >40%: Not Allowed
Single Tree	1	Not Applicable	Tree canopy at full maturity not allowed within 10-feet of any structure	<20%: 20-feet 20%-40%: 30-feet >40%: 40-feet
	2	Not Applicable	Not Applicable	<20%: 10-feet 20%-40%: 20-feet >40%: 30-feet

* Table 3 Notes:

- a. Spacing is measured canopy to canopy at maturity. See Chapter 5 examples.
- b. Slopes greater than 20%, For grouping of ground cover and shrubs over 6-inches high, the maximum horizontal distance running with the slope shall not exceed 10-feet before spacing is required to the next grouping.

- c. Use Zone 1 Spacing for plants and trees located between and or overlapping Zone 1 and 2.
- d. Privacy screening using plants and trees must still comply with height, width and spacing requirements of Table 3.

3.5 Additional Requirements all Zones.

3.5.1 Prohibited Plants. Plants and trees listed in Fire Department Guideline 410 – Prohibited Plant List or identified as “*Target” (undesirable) plants and trees in Fire Department Guideline 417 – Plant Reference Guide shall not be planted within any zone. It is highly recommended that no new invasive plants be installed, and that any existing invasive plants be removed.

3.5.2 Grasses. Natural or annual grasses shall be mowed to a maximum height of 3-inch stubble with clippings removed.

3.5.3 Chimney & Stovepipe Clearance. The horizontal and vertical clearance to any chimney outlet or heat-producing device shall not be less than 10-feet.

3.5.4 Ground Clearance of Trees. Trees exceeding 6-feet in height shall be limbed up from the ground 6-feet or 1/3 the height of the tree, whichever is less. Exception: Fruit trees when approved, shall provide a minimum 12-inch clearance above ground. See Chapter 5 example.

3.5.5 Ground cover under tree canopy. When approved ground cover and shrubs are located underneath trees, the vertical clearance to the lowest branch of the tree canopy shall not be less than three times the height of ground cover or shrub under or adjacent to the tree. The horizontal clearance shall be 3-feet from the trunk of the tree. See Chapter 5 example.

3.5.5 Maintenance. All plants and trees, including dried palm fronds, shall be maintained free of dead and dying wood, leaves, and limbs that can increase ability to ignite and/or carry fire.

3.5.6 Tree Litter. Tree litter shall not exceed 2-inches in depth underneath tree canopies and shall be kept back a minimum of 12-inches from any tree trunk.

3.5.7 Mulch and Wood Chips. Combustible mulch and wood chips shall comply with Fire Department Standard 517 and are not allowed within 5-feet of structures.

3.5.8 Continuous Tree Canopies.

3.5.8.1 New Structures. Continuous tree canopies are not allowed. Tree spacing shall be in accordance with Table 3 of this standard.

3.5.8.2 Existing Structures Prior to April 19, 2019. Continuous tree canopies may be allowed as determined by the Fire Code Official but will require the complete removal of any understory and smaller trees to meet requirements for a shaded fuel zone. Any remaining trees shall be limbed up a minimum 12 feet from the ground or 1/3 the tree height, whichever is

less. The intent is to not allow a crown (canopy) fire to spread unchecked to a structure and to bring any crown fire down to the ground level prior to Zone 1.

3.5.9 Accessory Storage Buildings. New accessory buildings of any size install after January 1, 2023 and located within 50-feet of an applicable building on the same parcel shall be constructed of non-combustible materials or of ignition-resistant materials as required in California Building Code (CBC) Section 704A.2.

3.5.10 Erosion Control. Erosion control must be considered when conducting fuel modification / clearance work and when designing / installing new landscape. Contact the local jurisdiction, typically the public works agency, to determine if any specific erosion control is required. Plants and trees selected for erosion control are still required to comply with the VCFC and this Standard.

3.6 General Requirements for Entire Parcel.

3.6.1 Vertical Clearance. Provide a minimum 13-foot 6-inch vertical clearance above all roads, driveways, turnouts, and turnarounds providing fire department access to buildings.

3.6.2 Clearance of brush or vegetative growth from roadways. The Fire Code Official is authorized to require areas within 10 feet (3 048 mm) on each side of portions of Fire Apparatus Access Roads and driveways to be cleared of non-fire-resistive vegetation growth.

Exception: Single specimens of trees, Ornamental Landscape or cultivated ground cover, such as green grass, ivy, succulents, or similar plants used as ground cover, provided they do not form a means of readily transmitting fire or restrict firefighter operations along the road or driveway.

3.6.3 Hydrants. Provide a minimum 3-foot horizontal clearance, and minimum 8-foot vertical clearance, around all fire hydrants and fire department water supply outlets. Provide a minimum 3-foot-wide 8-foot tall pathway from the fire department access road/driveway to all fire hydrants, and fire department water supplies, located more than 3-feet from the access road/driveway.

3.6.4 Spark Arrestor. Provide an approved spark arrestor or screen on all chimney outlets.

3.6.5 Electrical Line Clearance. No new vegetation shall be planted under or adjacent to energized power lines that, at maturity, will grow within 10-feet (3 048 mm) of the energized conductors. The vertical clearance from vegetation and trees underneath overhead electrical facilities shall in accordance with the Ventura County Fire Code.

3.6.6 Outbuildings and LPG Tanks. Outbuildings (Group U storage buildings under 120 sq ft) and Liquid Propane Gas (LPG) storage tanks shall have a minimum 10-feet of clearance to bare mineral soil and no flammable vegetation for an additional 10-feet around their exterior. (Reference: CCR Title 14)

3.6.7 Special Requirements. See Ventura County Fire Code Chapter 49 for special clearance requirements regarding detached accessory buildings, detached photovoltaic systems, ignition sources, prefabricated sea cargo/metal storage containers, LPG tanks, hazardous material storage, fire protection equipment and utilities.

3.7 Modifications. Modifications to this standard may be allowed on a case-by-case basis after review and approval of a planting and maintenance plan. Requests shall be submitted to the Fire Prevention Bureau – FHRP Unit manager.

CHAPTER 4 – EXISTING FMZ INSTALLATIONS

4.1 Compliance. There is no “grandfathering” or exemptions for existing defensible space zones. When required by the Fire Department or State Law, existing defensible space/FMZs shall require retrofitting, including thinning and or removal of plants, trees, and vegetation, to meet this standard and or State Law. Also see note listed in Section 3.1.2 for Zone 0. When new buildings or additions to existing building are constructed on the parcel with existing buildings, the full 100-foot FMZ (or to property line if less than 100-feet) shall be brought into full compliance with this standard prior to final approval of the building construction.

4.1.1 Timing. Upon notification by the Fire Department, work to bring an existing defensible space and FMZ into compliance with this standard may be done over a four-year period. First year, an initial 30-feet from structure(s), then an additional 25-feet for each subsequent year.

CHAPTER 5 – SPACING GRAPHICS

5.0 General. Spacing and vertical clearance is required under State Law and Regulations, and VCFC requirements. The following figures are copied from CalFire and give the user a visual representation of how spacing and vertical clearance shall be measured and applied.

(Continued on next page)

5.1 Vertical Clearance: To determine the proper vertical clearance above the ground, and the separation between shrubs and the lowest branches of trees, use the formula below. (See Figure 2)



Figure 2 – Vertical Clearance and Separation

Example: A 4-foot shrub is growing near a tree. The vertical separation should be 3 times the height of the shrub. For a 4-foot-tall shrub, the required vertical separation would be 12-feet between the top of the shrub and the lowest tree branch ($4' \times 3 = 12'$).

(Continued on next page)

5.2 Horizontal Spacing:

Horizontal spacing depends on the slope of the land and the height of the shrubs and/or trees. See Figure 3 to determine spacing requirements.

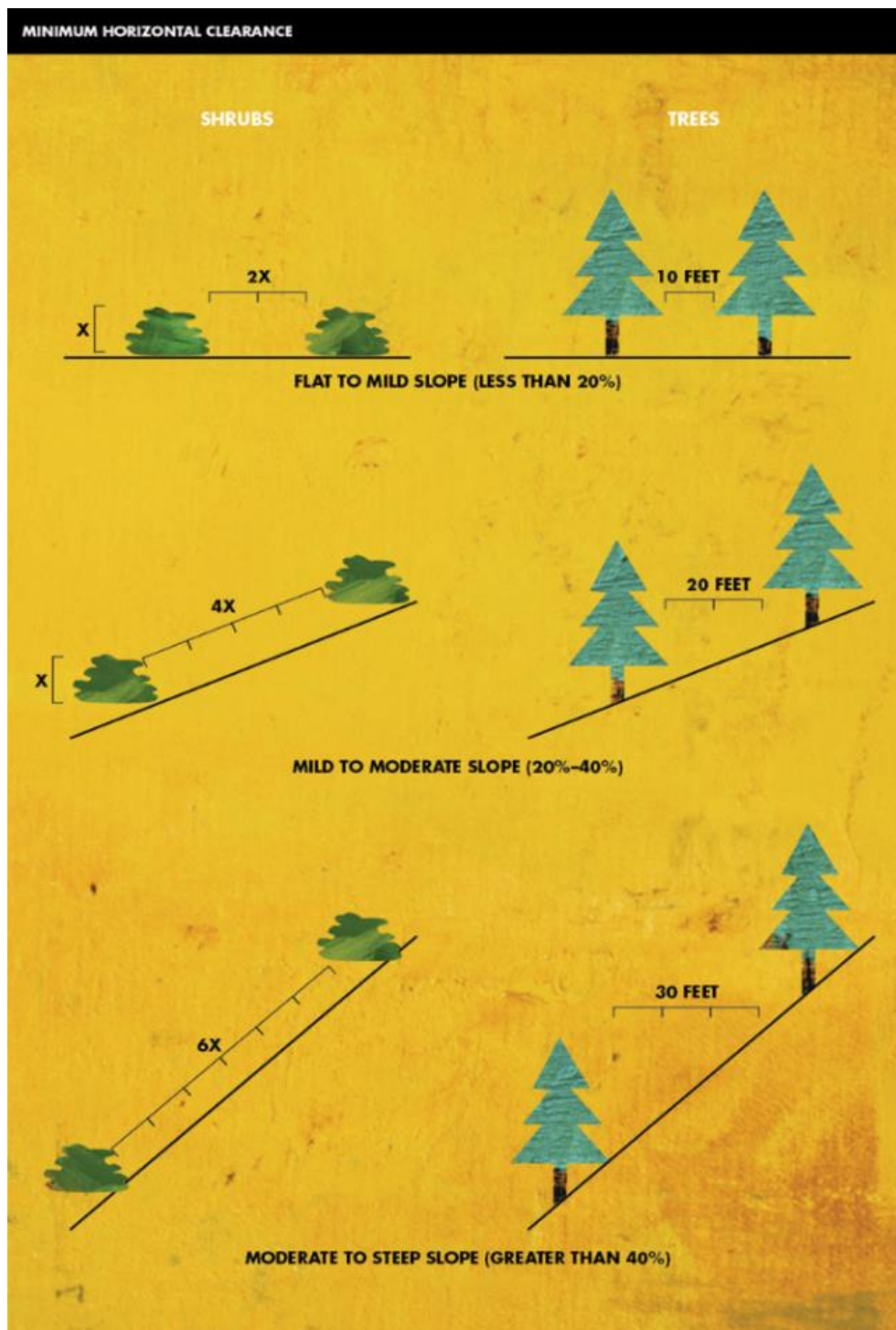


Figure 3 – Horizontal Spacing