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Fire Protection Standard 220

VEGETATION/FUELS MANAGEMENT PLAN

Date: 2/22/001

Revision: 12/10/03

This Standard has been developed pursuant to article 86 CFR and Appendix II A of the Uniform Fire Code, adopted by local Ordinance and Section 4290 and 4291 of the Public Resources Code. The standard shall apply to all new houses, subdivisions and those buildings which fall under the substantial remodel provision of NFD ordinance and other properties that are within an urban wildland interface area as define by the Chief.

Clearance distances, type of vegetation and topographic features influence factors in determining adequate green belts and fire fuel breaks around structures. This methodology is implemented for the primary purpose of providing time for fire suppression personnel and equipment to respond and establish operational tactics and strategies during an ensuing wildland fire.

I. General

A. The Vegetation Management Plan referred to hereinafter as the VMP shall be submitted to the Fire Marshal for review prior to implementation. The VMP shall be submitted in two forms, blue line drawings and text format describing specific and applicable contributing factors in the selection and design of the plan.

II. VPM Content

A. The VPM shall include at the minimum:
   1. The entire "plan content" elements described in narrative form.
   2. Not less than three (3) complete plan sets should be submitted to the Fire District for review.
   3. The Hazard Assessment Matrix
   4. The list of plants to be used and materials consisted with the approved plant list.
   5. 3 sets of blue prints showing the house, zone, plant type and spacing.
   6. An NFD permit application with permit fee deposit.

   Note:Landscape plans only will be rejected unless they include a specific outline of the information required by this Standard.

III. Determining Risk

A. Using the Hazard Assessment Matrix on page 3 of this standard, determine the hazard points of the specific property.

B. Aspect. This is the direction in which the face of the slope is situated.

C. Slope. This is the most predominant angle of the hillside measured in % of slope, on the site that the structure is located on or to be placed.

D. Fuel zone- 0-30 feet. Identify from the fuel type list on the hazard assessment matrix what vegetation is mostly represented in the 0 to 30 ft. zone from the proposed structure.

E. Fuel zone- 31-100 feet. Identify the fuel type list on the hazard assessment matrix what vegetation type is most represented in the 31 to 100 ft. zone from the proposed structure.

F. Total the hazard assessment points for each category. This will provide a set of distances that clearance is required around the proposed structure.

IV. Plant List and Selection Within the Zone

A. The entire defensible space zone (see figure II) shall be planted and irrigated if necessary. **Native grasses are not allowed within this zone. Annual cutting is not permitted.**

B. By using the Firescape Plant selection list on the University of California Cooperative Extension Phyrophytic vs. Fire Resistant Plants brochure, select use of native, domestic or combination thereof that best suits the architectural and planning design of the proposed project. Slope, soil type, drought resistance should be considered when selecting plant types.

V. Plant Spacing and Crown Separation

A. Regardless of plant selection, shrubs should be spaced so that no continuity exists between the ground fuels and tree crowns.

B. Tree crowns should be separated by at least 10 feet. Add an additional five feet for every ten (10%) percent increase in slope.

C. Separate individual shrub crowns by at least two times the height or clump shrubs into islands of no greater than 18-ft. diameter. Separate the islands by a distance of no less than two times the canopy height.

D. Chipped wood and mulch can provide an excellent thermal barrier, which will help prevent lost moister in ground fuels. **However, shredded bark, sometimes referred to as "monkey hair" is prohibited from use because its high flammability and fire spread characteristics.**

Figure I

HAZARD ASSESSMENT MATRIX

Hazard Points	1	2		3	4	5	6	7	8	Points
Aspect	NE	NW	W	SE	SW					
Slope		0-10			11-20		21-30		31+	
Fuel 0-30	Specimen Garden	Hardwood		Grass	Mostly Grass	Mostly Brush	Pyrophoric Hardwoods Chaparral	Conifer	Conifer w/brush under story	
Fuel 31-100	Mostly Grass	Mostly Brush			Pyrophoric Hardwoods Chaparral	Conifer with brush under story				

Total Hazard Points _____

Minimum Horizontal Clearance Requirement in feet _____

Hazard Points:

1 2 3 4 5 6 7	8 9 10 11 12 13 14	15 16 17 18 19 20 21 22 23 24 25 >
30x30x30 ft.	30x30x50 ft	50x50x100 ft.

V. Fuel Types:

A. Specimen Garden: a well-maintained ornamental garden, usually irrigated. Trees and shrubs are well spaced or clustered, thinned and free of deadwood. The lawn is mowed and clean. No pyrophytic plants within 10 ft. of house.
B. Hardwood (Model 9): Broadleaf (non-pyrophytic) trees such as oaks, maples, ash, etc.
C. Grass (Model 1): Wild field grass dominates, trees and shrubs occupy less than 1/3 of the area.
D. Mostly Grass (Model 2): Brush and tree reproduction occupy more than 1/3 and less than 2/3 of the area.
E. Mostly Brush (Model 5): Brush and tree reproduction occupies 2/3 of the area. Includes young chaparral, coastal scrub and broom stands.
F. Pyrophytic Hardwoods (Model 12): Broadleaf trees that are high in volatile oils, that produce heavy debris and burn intensely. May have some conifers mixed in but the flammable hardwoods dominate the fire behavior.
G. Chaparral (Model 4): Six foot and taller old, pyrophytic brush with excessive deadwood. Includes mixed chaparral of manzanita, scrub oak, chaparral pea, tall ceanothus, chamise, etc. Often has some young Douglas fir or pines.
H. Conifer (Model 8): Needleleaf trees typically with heavy litter, low branches and plentiful deadwood. Often mixed with some hardwoods or even pyrophytic hardwoods, but conifers dominated and carry the fire.

I. Conifer with Brush Understory (Model 10): Pine and Douglas Fir with heavy brush and down & dead branches and suppressed trees in the understory.

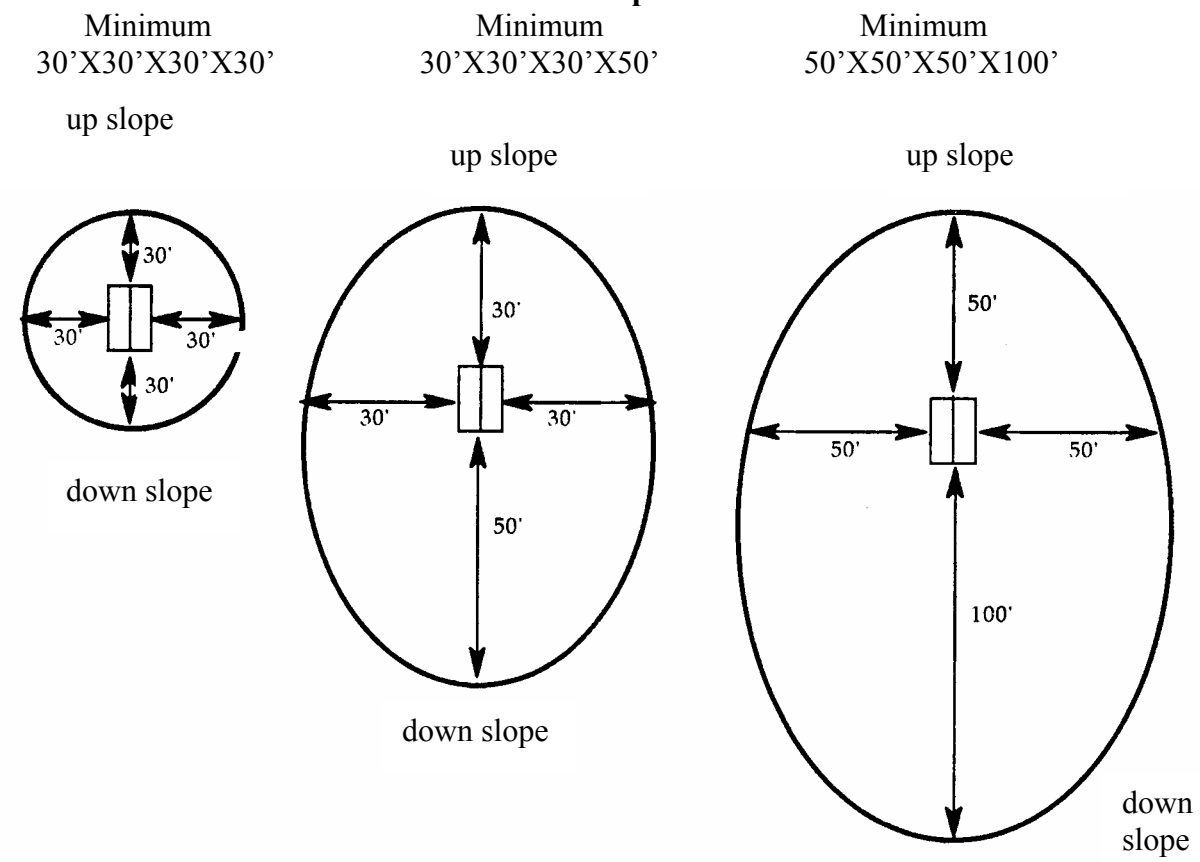
VI. Slope Influence on Minimum Defensible Space Clearances

Increasing slopes require increased defensible space clearances to be equally effective. For example, to be equally effective upslope, cross slope, and down slope, clearances around each structure must be increased as the percentage of slope increases when compared to level terrain.

Rate of spread, flame length, convective and radiant heat increase in relation to fuel type, aspect, and percentage of slope factors. Increased defensible space zone radiuses in relation to slope are required around structures through fuel modification and reduction.

Below are the listed Minimum required cross slope, down slope, and up slope zones measured in feet. Specific terrain may require adjustment:

Figure II
Defensible Space Zones



Level
0-10%

Moderate Slope
11-30%

Steep Slope
Greater than 30%