This Standard has been developed pursuant to Appendix II A of the Uniform Fire Code, adopted by local Ordinance, and Section 4290 and 4291 of the Public Resources Code. Fuel modification distances, type of vegetation and topographic features are factors in determining adequate green belts and fire fuel modification around structures. This methodology is implemented for the primary purpose of providing time for fire suppression personnel and equipment to respond and establish effective operational tactics and strategies during an ensuing wildland fire.

This standard applies to all new homes and structures, subdivisions, and those buildings that are undergoing substantial remodel that are within the Wildland-Urban Interface as defined by the Towns of San Anselmo and Fairfax and the Sleepy Hollow Fire Protection District.

Included here are requirements for submitting a vegetation management plan (VMP) and a fire-hazard-assessment matrix that defines the recommended extent of defensible space based on site features including aspect, slope, and vegetation type. Guidelines for treating vegetation within the recommended defensible space are also provided.

This standard will determine the minimum required defensible space without reference to property lines. If the minimum required defensible space crosses property lines, the property owner will be required to obtain a "defensible space easement" from the adjoining property owner. If this cannot be obtained, the proposed structure may be required to be re-sited. For existing structures, additional fire protection measures may be required to mitigate a reduction in the required defensible space.

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, 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. The narrative should also contain information regarding maintenance.

2. Not less than three (3) complete plan sets should be submitted to the Ross Valley Fire Department for review. The plan sets shall show the structure(s) and its defensible space zone, the location and configuration of existing plants/shrubs/trees, delineate those planned to be removed and/or modified, and the location, name and configuration of vegetation to be planted.

3. The Hazard Assessment Matrix

4. The list of plants to be used and/or retained.

5. Irrigation details, if applicable.

6. Ross Valley Fire Department permit application with permit fee.

Landscape plans 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 in the back 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 degree of angle on the site that the structure is to be placed.

D. Fuel. 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. 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 (if applicable) and irrigated if necessary.

B. By using the FireScape Plant selection list on the University of California Cooperative Extension Pyrophytic vs. Fire Resistant Plants brochure or other approved plant lists as determined by the Fire Marshal, 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. Also, see the attached list (Table 1) of prohibited plants. Note that this list is not all-inclusive and some proposed plants may be deleted from your project.

Please Note: Chipped wood and mulch can provide an excellent thermal barrier, which will help prevent, lost moisture in ground fuels. However, shredded bark, sometimes

referred to as "monkey hair" is prohibited from use because its ease of ignition and fire spread characteristics.

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, such that a ground fire will not extend into the tree canopy.

B. Trees should be planted such that when mature, their crowns will be separated by at least 10 feet. Add an additional five feet for every ten (10%) percent increases in slope. Existing trees may be required to be thinned and/or removed depending on their configuration and distance from the structure(s).

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.

VI. Adjacent to Roadways and Driveways:

A. Trim and maintain vegetation within 10 feet of roadways as for defensible space.

B. Trim trees so they do not hang lower than 15-ft. above the roadway.

Figure I

HAZARD ASSESSMENT MATRIX

Hazard Points	1	2	3	4	5	6	7	8	Points
Aspect	NE, E	NW, N	SE, W	S	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	Grass, Mostly Grass	Mostly Brush		Pyrophoric Hardwoods Chaparral	Conifer with brush under story				

Total Hazard Points _____

Minimum Horizontal Modification 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 is high in volatile oils, which 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.

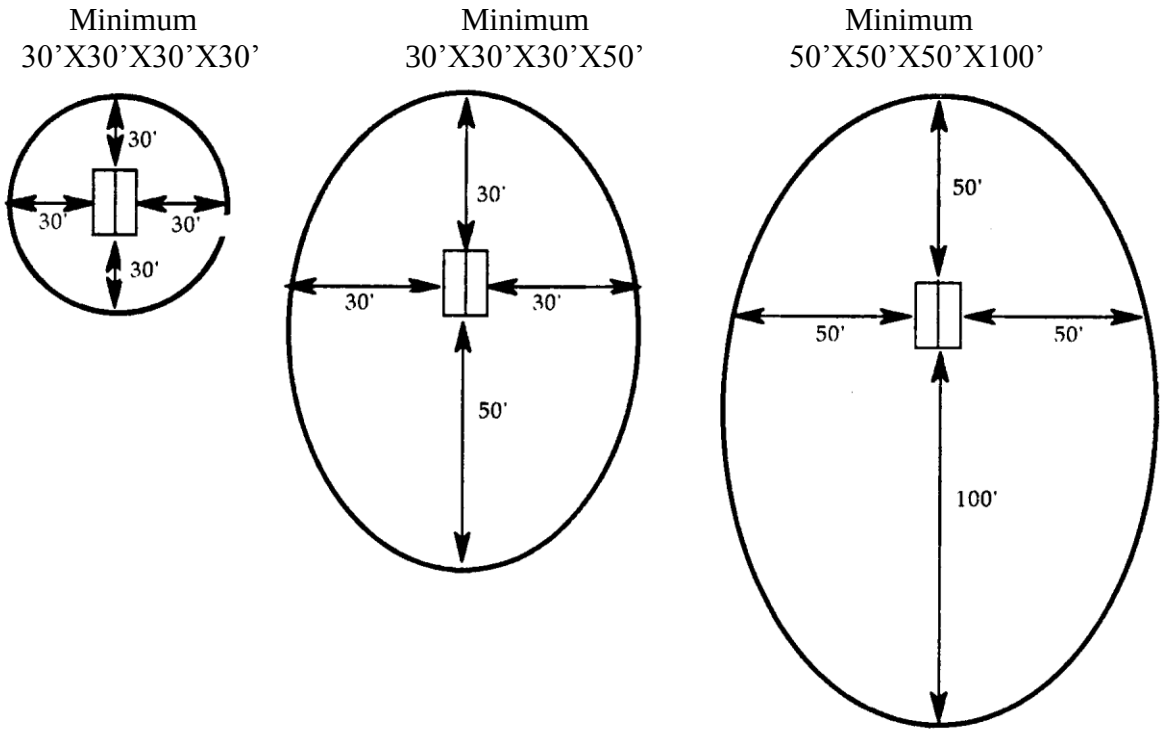
VI. Slope Influence on Minimum Defensible Space Clearances

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 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.

Note increased upslope and cross slope defensible space clearance requirements related to increase in slope. Minimum recommended cross slope and upslope increases are shown. Specific terrain may require adjustment:

Figure II
Defensible Space Zones



Level
0-10%

Moderate Slope
11-30%

Steep Slope Greater than
30%

Table 1

Fire Prone Species

Latin name	*Common name*
Abies spp.	Fir trees
Adenostoma fasciculatum	Chamise, Greasewood
Adenostoma sparsifolium	Redshank
Arctostaphylos spp.	Manzanitas
Artemesia californica	Sagebrush
Baccharis spp.	Coyote brush
Bambusa spp.	Bamboo
Cortaderia jubata	Jubata grass
Cortaderia selloana	Pampas grass
Cupressus spp.	Cypress species
Cytisus scoparius	Scotch broom
Eucalyptus globulus	Blue gum eucalyptus
Genista monspessulanus	French broom
Juniperus communis	Common juniper
Juniperus flaccida	Weeping juniper
Pennisetum spp.	Fountaingrasses
Picea spp.	Spruces
Pinus attenuata	Knobcone pine
Pinus coulteri	Coulter pine
Pinus muricata	Bishop pine
Pinus radiata	Monterey pine
Pinus sabiniana	Gray pine
Pinus serotina	Pond pine
Pinus sylvestris	Scots pine
Pinus torreyana	Torrey pine
Rosmarinus officinalis	Rosemary
Spartium junceum	Spanish broom
Thuja spp.	Arborivitae
Tsuga spp.	Hemlock
Ulex europea	Gorse