

TIBURON FIRE PROTECTION DISTRICT

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www.tiburonfire.org

STANDARD NO.: 304.1.2

REVISED: 08/11/08

SUBJECT : Vegetation Management

AUTHORIZED: R. Pearce

1. The Vegetation Management Plan referred to hereinafter as the VMP shall be submitted to the Fire Official for review prior to implementation. The VMP shall be submitted in two forms;
 - a) 2 sets of scaled black line drawings showing the structure, plant type and spacing within 100 feet of the structure or to property line. Landscape plans only will be rejected unless they include a specific outline of the information required by this Standard.
 - b) Text describing results of the fire-hazard assessment (slope and aspect) and proposed long-term maintenance schedule and, the list of plants to be used.

2. Within 100 feet of all structures defensible space must be maintained. “Defensible space” means the area 100 feet, or to the property line, around a structure that the owner maintains to reduce the potential for transfer of fire between the structure and the adjacent vegetation, the adjacent vegetation and the structure, or from structure to structure.
 - a) Within the first 10 feet:
 - 1) No pyrophytic plants within 10 ft. of house
 - 2) Trim tree limbs to a minimum of 10 feet away from the outlet of chimneys for 360 degrees.
 - 3) Maintain the roof and deck area of any structure on the property free of leaves, needles, or dead vegetative growth.
 - 4) Remove or cut all combustible vegetation such as, dead trees, and all dead vegetation.
 - 5) Remove all flammable materials from your deck.
 - 6) Keep gutters clear of combustible material.
 - 7) Regardless of plant selection, shrubs should be spaced so that no continuity exists between the ground fuels and tree crowns.
 - 8) Individual existing non-pyrophytic trees may be allowed to remain on a case by case basis if proper crown separation can be maintained.
 - b) Within 11-50 feet:
 - 1) Remove dead and dying grass, shrubs, and trees.
 - 2) Reduce the density of vegetation and ladder fuels.
 - 3) Cut grasses to 3 inches in height above the ground.

- 4) Clumps of shrubs, called islands, must be separated by a distance of no less than two times the height of the shrubs
 - 5) Individual trees or small clumps of trees of non-pyrophytic species shall have a minimum crown separation of 20 feet.
 - 6) Individual pyrophytic trees shall have a minimum crown separation of twice their height.
 - 7) Remove or chip all cut vegetation.
 - 8) Replace hazardous vegetation with fire-resistive, irrigated landscape vegetation including lawn, or other low growing groundcovers and flowering plants.
- c) Within 51-100 feet:
- 1) Trim the limbs that are 3 inches or less in diameter 6 feet from the ground on trees that exceed 18 feet in height.
 - 2) Remove dead and dying material.
 - 3) Cut grasses to 3 inches in height above ground.
 - 4) Give individual trees or shrubs, and islands of trees or shrubs 10 feet of separation.
4. Adjacent to Roadways:
- a) Trim and maintain vegetation to within 10 feet of roadways as required for defensible space.
 - b) Trim trees so they do not hang lower than 13'6" above the roadway.
5. 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 may increase due to increases in slope. Specific terrain may require adjustment.
6. Fire Safety Practices:
- a) Do not store combustible vegetation except as agreed upon for pickup.
 - b) Ensure mowers, saws and yard maintenance equipment are equipped with a spark arrestor.
 - c) When using mowers or metal cutting blades, pre-check the area for rocks or metal to avoid the blades making sparks.
 - d) Ensure effective spark arresters are fitted on chimneys.
 - e) Wood roofs in any location are susceptible to falling fire brands which can result in the loss of the structure and the spread to adjacent buildings and vegetation. Consider changing wood roofs to a non-combustible roof.
 - f) Coordinate vegetation management efforts with your neighborhood association to reduce your cost for chipping and hauling.
 - g) 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 of its high flammability and fire spread characteristics.

7. Pyrophytic Plants are plants that ignite more readily and burn more intensely than others. Some characteristics that pyrophytic plants share are: a high surface area to volume ratio, a low moisture content, and a high percentage of dead matter or debris. **Plants that have a favorable fire performance rating may have an unfavorable fire performance if proper maintenance of landscaping is not maintained. Proper maintenance of landscaping is crucial to keeping a plant from becoming pyrophytic.** The following list is a partial list of plants that have an unfavorable fire performance rating, pyrophytic plants.

<i>Scientific Name</i>	Common Name	Plant Type	Plant Form
<i>Abies spp.</i>	Fir	Evergreen	Tree
<i>Adenostoma fasciculatum</i>	Greasewood Chamise	Evergreen	Shrub
<i>Adenostoma Sparsifolium</i>	Red Shanks	Evergreen	Shrub
<i>Coprosma pumila</i>	Prostrate coprosma	Evergreen	Groundcover
<i>Cortaderia selloana</i>	Pampas grass	Evergreen	Grass
<i>Bambuseae</i>	Bamboo	Evergreen	Shrub, Tree
<i>Eriogonum fasciculatum</i>	California Buckwheat	Perennial	Shrub
<i>Eucalyptus spp.</i>	Eucalyptus	Evergreen	Tree
<i>Juniperus spp.</i>	Juniper	Evergreen	Tree/Shrub
<i>Larix spp.</i>	Larch	Deciduous	Tree
<i>Lonicera japonica</i>	Japanese honeysuckle	Evergreen	Vine
<i>Palms</i>	Palm	Evergreen	Tree
<i>Picea spp.</i>	Spruce	Evergreen	Tree
<i>Pickeringia Montana</i>	Chaparral pea	Evergreen	Shrub
<i>Pseudotsuga menziesii</i>	Douglas-fir	Evergreen	Tree
<i>Spartium junceum</i>	Spanish broom	Evergreen	Shrub
<i>Taxus spp.</i>	Yew	Evergreen	Tree
<i>Thuja spp.</i>	Arborvitae	Evergreen	Tree
<i>Tsuga</i>	Hemlock	Evergreen	Tree

This list is updated frequently.

8. The following is a list of plants that have a favorable fire performance rating, fire resistant. The list is sorted by their plant form: i.e. groundcovers, shrubs, trees. Some species may be listed twice as they may have properties found in several forms.

A plants fire resistive characteristics may become compromised if not properly maintained. Plants must be properly irrigated, pruned and planted in a climate that is recommended for the plant to keep their fire resistive characteristics.

Scientific Name	Common Name	Plant Type	Plant Form
<i>Achillea millefolium white</i>	White yarrow	Perennial	Shrub
<i>Achillea tomentosa var. Moonshine</i>	Wolly yarrow	Perennial	Groundcover
<i>Aeonium decorum</i>	Aeonium	Succulent	Shrub
<i>Aeonium simsii</i>	Aeonium	Succulent	Shrub
<i>Aesculus californica</i>	California buckeye	Deciduous	Tree
<i>Agapanthus 'Peter pan'</i>	Lilly of the Nile, Dwarf	Evergreen	Shrub
<i>Agave Americana 'alba picata'</i>	Century plant	Succulent	Shrub
<i>Agave victoriae-reginae</i>	Agave	Succulent	Shrub
<i>Ajuga reptans</i>	Carpet bugle	Perennial	Groundcover
<i>Alnus rhombifolia</i>	White alder	Deciduous	Tree
<i>Aloe arborescens</i>	Torch aloe	Succulent	Shrub
<i>Aloe aristata</i>	Aloe, Dwarf aloe	Succulent	Shrub
<i>Aloe brevifolia</i>	Aloe	Succulent	Shrub
<i>Arbutus menziesii</i>	Madrone	Evergreen	Tree
<i>Arbutus unedo</i>	Strawberry tree	Evergreen	Tree
<i>Arctotheca calendula</i>	Silver spreader	Evergreen	Groundcover
<i>Armeria maritima</i>	Thrift, Common thrift	Evergreen	Groundcover
<i>Artemisia caucasica</i>	Silver spreader	Evergreen	Shrub
<i>Artemisia pycnocephala</i>	Sandhill sage	Evergreen	Shrub
<i>Asarum caudatum</i>	Wild ginger	Perennial	Shrub
<i>Atriplex canescens</i>	Four-wing saltbush	Evergreen	Shrub
<i>Atriplex lentiformis breweri</i>	Saltbush	Deciduous	Shrub
<i>Atriplex semibaccata</i>	Saltbush	Evergreen	Shrub
<i>Callistemon viminalis</i>	Weeping bottlebrush	Evergreen	Tree
<i>Campsis radicans</i>	Trumpet vine, Trumpet creeper	Deciduous	Vine
<i>Carpobrotus edulis</i>	Ice plant, Hottentot fig, Sea fig	Succulent	Groundcover
<i>Ceanothus thyrsiflorus</i>	Blueblossom	Evergreen	Shrub
<i>Centranthus ruber</i>	Red valerian, Jupiter's beard	Evergreen	Shrub
<i>Cerastium tomentosum</i>	Snow in summer	Evergreen	Groundcover
<i>Ceratonia siliqua</i>	Carob, St. John's beard	Evergreen	Tree
<i>Cercis occidentalis</i>	Western redbud	Evergreen	Tree
<i>Cistus purpureus</i>	Orchid rockrose, Purple rockrose	Evergreen	Shrub
<i>Cistus villosus prostratus (C. salviifolius)</i>	Purple rockrose, Prostrate rockrose	Evergreen	Groundcover
<i>Citrus spp.</i>	Citrus	Evergreen	Tree
<i>Convolvulus cneorum</i>	Bush morning glory	Evergreen	Shrub

<i>Coprosma kirkii</i>	Creeping coprosma	Evergreen	Groundcover
<i>Cotoneaster congestus</i>	Likiano	Evergreen	Shrub
<i>Cotoneaster dammerii</i>	Bearberry cottoneaster	Evergreen	Groundcover
<i>Crassula argentea</i>	Jade plant	Succulent	Groundcover
<i>Crassula lactea</i>	Crassula	Succulent	Groundcover
<i>Crassula multiclava</i>	Crassula	Succulent	Groundcover
<i>Crassula tetragona</i>	Crassula	Succulent	Groundcover
<i>Delosperma alba</i>	White trailing ice plant	Succulent	Groundcover
<i>Dietes bicolor</i>	Wild yellow iris, African iris	Evergreen	Shrub
<i>Dietes vegeta</i>	Fortnight lily	Evergreen	Shrub
<i>Diplacus longifolius</i>	Monkey flower	Perennial	Shrub
<i>Drosanthemum floribundum rosea</i>	Ice plant, Rosea ice plant	Perennial	Groundcover
<i>Drosanthemum hispidum</i>	Rosea ice plant	Perennial	Groundcover
<i>Drosanthemum speciosum</i>	Drosanthemum, Dew flower	Perennial	Groundcover
<i>Duchesnea indica</i>	Mock strawberry	Perennial	Groundcover
<i>Dymondia margaretae</i>	Dymondia	Evergreen	Groundcover
<i>Erigeron karvinskianus</i>	Santa Barbara daisy, Fleabane	Perennial	Groundcover
<i>Eriodictyon trichocalyx</i>	Yerba santa, Hairy yerba santa		Shrub
<i>Eriophyllum confertiflorum</i>	Golden yarrow	Perennial	Shrub
<i>Eschscholzia californica</i>	California poppy	Perennial	Groundcover
<i>Eunymous fortunei radicans</i>	Winter creeper, Common winter creeper	Evergreen	Shrub
<i>Feijoa sellowiana</i>	Pineapple guava	Evergreen	Tree
<i>Festuca rubra</i>	Creeping red fescue	Perennial	Groundcover
<i>Fragaria chiloensis</i>	Wild strawberry, Sand strawberry, Ornamental	Evergreen	Groundcover
<i>Fraxinus spp.</i>	Ash	Deciduous	Tree
<i>Fremontodendron spp.</i>	Fremontia, Flannel bush	Evergreen	Shrub
<i>Galvezia speciosa</i>	Showy island, Snapdragon, Hummingbird flower	Evergreen	Shrub
<i>Gazania ringens leucolaena (G. uniflora)</i>	Trailing gazonia	Perennial	Groundcover
<i>Gazania uniflora (G. ringens leucoleana)</i>	Trailing gazonia	Perennial	Groundcover
<i>Grindelia stricta</i>	Gum plant, Coastal wild gum	Perennial	Groundcover
<i>Grindelia stricta venulosa</i>	Coastal wild gum	Perennial	Shrub
<i>Helichrysum petiolatum</i>	Licorice plant, Curry plant	Perennial	Shrub
<i>Hemerocallis spp.</i>	Daylily	Deciduous or evergreen	Shrub
<i>Hesperaloe parviflora</i>	Red yucca	Evergreen	Shrub
<i>Heuchera maxima</i>	Island alum root, Coral bells	Perennial	Groundcover

<i>Iberis sempervirens</i>	Evergreen candytuft, Edging candytuft	Evergreen	Groundcover
<i>Iris douglasiana</i>	Pacific coast iris, Douglas iris	Bulb	Shrub
<i>Isomeris arborea (Cleome isomeris)</i>	Bladerpod, Bladderbrush, Burrofat	Evergreen	Shrub
<i>Kniphofia uvaria</i>	Red hot poker	Perennial	Shrub
<i>Lampranthus aurantiacus</i>	Trailing ice plant, Bush gold, Bush ice plant	Succulent	Groundcover
<i>Lampranthus filicaulis</i>	Redondo creeper	Succulent	Groundcover
<i>Lampranthus spectabilis</i>	Trailing ice plant	Succulent	Groundcover
<i>Lantana camara and cultivars</i>	Trailing lantana, Yellow sage	Evergreen or annual	Groundcover
<i>Ligustrum texanum</i>	Texas privet	Evergreen	Shrub
<i>Limonium perezii</i>	Statice, Marsh rosemary, Sea lavender	Perennial	Shrub
<i>Lippia canescens</i>	Carpet grass, Lippia	Perennial	Groundcover
<i>Liriope gigantea</i>	Giant turf lily	Perennial	Groundcover
<i>Lonicera japonica 'Halliana'</i>	Hall's honeysuckle	Evergreen	Tree
<i>Macadamia hybrids</i>	Macadamia nut, Queensland nut	Evergreen	Tree
<i>Mahonia repens</i>	Creeping mahonia	Evergreen	Shrub
<i>Malephora crocea</i>	Iceplant, Croceum ice plant	Succulent	Groundcover
<i>Malephora luteola</i>	Yellow trailing ice plant	Succulent	Groundcover
<i>Metrosideros excelsus</i>	New Zealand Christmas tree, Pohutukawa	Evergreen	Tree
<i>Mimulus longiflorus (Diplacus longiflorus)</i>	Monkey flower	Perennial	Shrub
<i>Myoporum parvifolium prostrata</i>	Creeping bobyalla, Myoporum	Evergreen	Groundcover
<i>Myrica californica</i>	Wax myrtle, Pacific wax myrtle, California wax myrtle	Evergreen	Shrub
<i>Nerine masonorum</i>	Nerine	Bulb	Shrub
<i>Nerium oleander</i>	Oleander	Evergreen	Shrub
<i>Oenothera berlandieri</i>	Mexican evening primrose	Perennial	Groundcover
<i>Osteospermum fruticosum</i>	Trailing south African daisy, Freeway daisy	Perennial	Groundcover
<i>Pelargonium peltatum</i>	Ivy geranium	Perennial	Groundcover
<i>Phyla nodiflora</i>	Lippia	Perennial	Groundcover
<i>Pittosporum crassifolium</i>	Dwarf karo	Evergreen	Shrub
<i>Pittosporum tobira</i>	Mock orange, Wheeler's mock orange	Evergreen	Shrub
<i>Populus spp.</i>	Aspen, Cottonwood, Poplar	Deciduous	Tree

<i>Populus tremuloides</i>	Quaking aspen	Deciduous	Tree
<i>Portulacaria afra</i>	Purslane tree, Elephant's food	Succulent	Groundcover
<i>Potentilla tabernaemontanii</i> (<i>P. verna</i>)	Spring cinquefoil	Evergreen	Groundcover
<i>Prunus ilicifolia</i>	Holly-leaved cherry	Evergreen	Shrub
<i>Prunus lyonii</i>	Catalina cherry	Evergreen	Shrub
<i>Prunus spp.</i>	Plum, Peach, Cherry, Apricot, Evergreen Cherry	Evergreen	Tree
<i>Punica granatum</i>	Pomegranate	Deciduous	Shrub
<i>Punica granatum 'Nana'</i>	Dwarf pomegranate	Deciduous	Shrub
<i>Pyracantha 'Santa Cruz'</i>	Pyracantha, Firethorn	Evergreen	Shrub
<i>Quercus agrifolia</i>	Encina, Coast live oak, California live oak	Evergreen	Tree
<i>Rhamnus alaternus</i>	Italian buckthorn	Evergreen	Shrub
<i>Rhamnus californica</i>	Coffeeberry	Evergreen	Shrub
<i>Rhamnus crocea</i>	Spiny redberry, Redberry, hollyleaf redberry, Red-berried buckthorn	Evergreen	Shrub
<i>Rhododendron occidentale</i>	Western azalea	Evergreen	Shrub
<i>Rhus integrifolia</i>	Lemonade berry	Evergreen	Shrub
<i>Rhus lancea</i>	African sumac	Evergreen	Tree
<i>Ribes viburnifolium</i>	Evergreen currant, Catalina perfume	Evergreen	Shrub
<i>Salvia sonomensis</i>	Sonoma sage, Creeping sage	Perennial	Shrub
<i>Santolina chamaecyparissus</i>	Santolina, Lavender, Gray lavender	Evergreen	Shrub
<i>Scaevola 'muave clusters'</i>	Fan flower	Perennial	Groundcover
<i>Schinus molle</i>	Peruvian pepper tree, California pepper tree	Evergreen	Tree
<i>Schinus terebinthifolius</i>	Brazilian pepper tree	Evergreen	Tree
<i>Sedum acre</i>	Goldmoss sedum	Succulent	Creeper
<i>Sedum album</i>	Green stonecrop	Succulent	Creeper
<i>Sedum brevifolium</i>	Stonecrop	Succulent	Groundcover
<i>Sedum confusum</i>	Stonecrop, Sedum	Succulent	Groundcover
<i>Sedum rubrotinctum</i> (<i>S. guatemalense</i>)	Brown bean, Pork and beans	Succulent	Groundcover
<i>Sedum spathulifolium</i>	Stonecrop	Succulent	Groundcover
<i>Senecio mandraliscae</i>	Blue ice plant	Succulent	Shrub
<i>Senecio serpens</i> (<i>Kleinia repens</i>)	Senecio, Dusty miller, Blue-chalksticks	Succulent	Shrub
<i>Simmondsia chinensis</i>	Pignut, Jojoba, Goatnut	Evergreen	Shrub
<i>Sisyrinchium bellum</i>	Yellow-eyed grass, Blue-	Perennial	Grass

	eyed grass		
<i>Sisyrinchium californicum</i>	Yellow-eyed grass	Perennial	grass
<i>Solanum jasminoides</i>	Potato vine	Evergreen or deciduous	Vine
<i>Solanum xanti</i>	Purple nightshade	Evergreen	Shrub
<i>Strelitzia reginae</i>	Bird of paradise	Perennial	Shrub
<i>Symphoricarpos mollis</i>	Waxberry, Creeping snowberry, Trip vine	Deciduous	Groundcover
<i>Tecomaria capensis</i>	Cape honeysuckle	Evergreen	Vine
<i>Thymus praecox articus</i>	Mother of thyme, Creeping thyme	Perennial	Shrub
<i>Thymus pseudolanuginosus</i> (<i>T.lanuginosus</i>)	Woolly thyme, Thyme	Perennial	Groundcover
<i>Trachelospermum jasminoides</i>	Star jasmine	Evergreen	Groundcover
<i>Trichostema lanatum</i>	Woolly blue curls, Romero	Perennial	Shrub
<i>Trifolium fragiferum</i>	O'Connor's legume	Perennial	Groundcover
<i>Tulbaghia violacea</i>	Society garlic	Perennial	Shrub
<i>Vinca major</i>	Periwinkle	Perennial	Groundcover
<i>Vinca minor</i>	Dwarf periwinkle myrtle, Dwarf running myrtle	Perennial	Groundcover
<i>Zauschneria californica</i>	California fuschia, Hummingbird flower	Perennial	Shrub

If you would like to use a plant in your landscape that is not listed in either of the previous lists, please provide written proof that it is not a pyrophyte.

This list is updated frequently.

HAZARD MATRIX

Hazard Points	1	2	3	4	5	6	7	8	9
ASPECT	NE	NW	SE	SW					
SLOPE %	"Level"	3 - 10		11 - 20		21 - 30		31 Plus	
FUEL 0 - 30 FT	Domestic garden	Fire-resistant hardwood	Short grass & savanna	Tall grass & savanna	Brush	Short needle conifer	Chaparral	Pyrophytic hardwoods & Pine	Conifer with under-growth
FUEL 31 - 50 FT	Fire-resistant hardwood	Short grass & savanna	Tall grass & savanna	Brush	Short needle conifer	Chaparral	Pyrophytic hardwoods & Pine	Conifer with under-growth	
FUEL 51 - 100 FT	Tall grass & savanna	Brush	Short needle conifer	Chaparral	Pyrophytic hardwoods & Pine	Conifer with under-growth			

Hazard Scale

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 25+
30 X 30 X 30 FT	30 X 30 X 50 FT	30 X 50 X 100 FT	50 X 50 X 100+ FT

FUEL MODIFICATION MATRIX

DISTANCE	FUEL TYPE GARDEN	HARDWOOD	GRASS	BRUSH & CHAPARRAL	CONIFER & PYROPHYTIC HARDWOOD
0 - 30 FT	Maintained, specimen fire resistant plants, free of dead material and separated from one another. <i>A 10ft fire-resistant zone around all structures is critical!</i>	Raise tree crowns to 10ft above ground. Remove all dead-wood and pyrophytes within 10 feet of dripline	Cut to 3 inches. Mulch or remove debris	Remove all dead-wood. Thin all brush so that each bush is separated by a distance of no less than 2 x its height. Remove pyrophytes	Remove all brush, cured grass, pyrophytes and debris. Limb to 10ft. Remove all dead-wood. Separate trees so that crown to crown is >10ft. Thin 25-30% of total fuel load in trees
31 - 50 FT	Maintain	Raise tree crowns to 10ft above ground. Remove all pyrophytes within 10ft of dripline	Cut to 3-6 inches	Thin all brush so that each bush is separated by a distance of no less than 2 x height of crown. Remove pyrophytes	Remove all pyrophytes within 10 feet of dripline. Limb to 10 feet. Separate trees so that crown to crown is >10ft. Thin 25-30% of total fuel load in trees
51 - 100 FT	Maintain	Raise tree crowns to 10ft above ground. Remove under-growth	Cut to 3-12 inches	Thin all brush so that each bush is separated by a distance of no less than 2 x height of crown	Remove all brush, cured grass, pyrophytes and debris. Limb to 10ft