

CITY OF PLEASANTON SHADE TREE GUIDELINES FOR NON-RESIDENTIAL PROPERTIES

I. INTRODUCTION / PURPOSE:

This document outlines the City of Pleasanton's Shade Tree Guidelines for calculating shade trees for non-residential developments as defined in California Green Building Code Section 5.106.12.

The purpose of the Shade Tree Guidelines is to simplify how to meet the new requirements of:

- A. Over 50 percent shade over the surface parking area within 15 years (Section 5.106.12.1)
- B. Over 20 percent shade over the landscape area within 15 years (Section 5.106.12.2)
- C. Over 20 percent shade over the hardscape area within 15 years (Section 5.106.12.3)

The Guidelines apply to commercial developments only (per California Green Building Code).

II. SHADE REQUIREMENTS AND CALCULATIONS:

The calculations for shade trees apply as follows:

- A. Surface Parking Areas:
 - i. Parking stalls
 - ii. Driveways
 - iii. All drives aisles within the property line
 - iv. All maneuvering areas for vehicles
- B. Landscape Areas:
 - i. All areas that are not hardscape including, but not limited to, lawn, groundcover, shrub, mulch, and dirt areas.
- C. Hardscape Areas:
 - i. Impervious pavement not for vehicular travel
 - ii. Pervious pavement not for vehicular travel
 - iii. Furnishings, sculptures, etc. on concrete pads

Exceptions to the shade requirements include:

- A. Parking structures
- B. Buildings
- C. Truck loading areas in front of overhead doors
- D. Truck maneuvering and truck parking areas unconnected to and exclusive of any vehicle parking
- E. Parking areas in garages

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- F. Surface parking or hardscape under solar panels or under shade structures with roofing material compliant with CRRC initial or aged thermal emittance per Green Building Code Table A5.105.106.11.2.2
- G. Playfields for organized sports

Shade Calculations:

If a surface parking area has two or more unconnected parking areas, shade is calculated separately for each area. If they are connected by a joining drive, they are calculated as one lot.

Overlapping shade does not count twice.

The amount of shade provided by a given tree should be determined by using the tree canopy width at maturity as defined by the City of Pleasanton Tree Canopy Sizes for Shade Trees, Exhibit A.

If the designer proposes a tree that is not on the list of City of Pleasanton Tree Canopy Sizes for Shade Trees, then that tree will need to be approved by the City Landscape Architect. To determine acceptable tree canopy diameter, utilize Sunset Western Gardens – the average diameter of the tree at maturity. For planting areas with less than 200 square feet of planting area per tree, the diameter should be calculated at 50% of the average canopy per Sunset. For planting areas with more than 200 square feet of planting area per tree, or with Silva Cells or approved equal, the diameter should be calculated at 75% of the average canopy per Sunset. The square footage of the planting area shall be determined based on the continuous planting area that is within the dripline of the tree.

A sample parking lot shade tree plan is provided in Exhibit B.

The shade calculations plan should include a:

- A. Table with:
 - i. Tree symbols and/or abbreviations
 - ii. Tree type
 - iii. Assumed tree canopy at 15 years (per the City of Pleasanton Tree Canopy Sizes for Shade Trees)
 - iv. Quantity of each type of tree
 - v. Shade quantities for:
 - a. Surface parking area:
 - 1. Total square footage of surface parking area
 - 2. Square footage of shaded surface parking area
 - 3. Percent shaded surface parking area
 - b. Landscape area:
 - 1. Total square footage of landscape area
 - 2. Square footage of shaded landscape area
 - 3. Percent shaded landscape area
 - c. Hardscape area:

1. Total square footage of hardscape area
2. Square footage of shaded hardscape area
3. Percent shaded hardscape area

B. Plan that identifies:

- i. Surface parking area, shaded areas shown with a hatch
- ii. Landscape area, shaded areas shown with a hatch
- iii. Hardscape areas, shaded areas shown with a hatch

III. TREE CANOPY SIZES FOR SHADE TREES:

See Exhibit A

IV. RECOMMENDED TREE PLANTING PRACTICES:

Proper planting practices are essential to achieve healthy trees with large tree canopies to supply shade. These practices include, but are not limited to, the following measures:

- A. Trees shall have a minimum of 25 square feet of planting area per tree. Smaller dimensions may be considered subject to the approval of the City Landscape Architect.
- B. Inside dimensions (back of curb to back of curb) of a planting finger or island shall be a minimum of four feet wide. Trees should be planted halfway between the curbs, bands or edges of pavement.
- C. Two feet of vehicle overhang into a planter area is allowed, provided the planter is a minimum width of four feet and trees are aligned with parking striping.
- D. Tree types:
 - i. Provide a mix of tree types (species or cultivars) if more than ten trees are required.
 - ii. If 20 to 40 trees are required, no more than 50 percent of the trees may be of the same type.
 - iii. If more than 40 trees are required, the City recommends that no more than 25 percent of the trees be of the same type.
 - iv. The City encourages a minimum of 20 percent of the tree selection for a site to be oak or other native tree species if appropriate to the site.
- E. Continuous planting islands are encouraged to allow for multiple tree plantings and increased rootable soil volume. These islands might also be designed to incorporate surface water runoff treatment measures such as bio-swales. The City encourages the use of planter fingers be connected to continuous planting islands to increase the amount of planting area available to shade trees.
- F. The City encourages the use of structural soil systems, such as Silva Cells, for trees in parking or hardscape areas to increase the volume of rootable soil, and thus, the size of the canopy and amount of shade that each tree provides. Additional shade credit will be provided for trees with soil systems, such as Silva Cells, as determined by the City Landscape Architect. Refer to Exhibit A for credits depending on tree type.

Exhibit A

City of Pleasanton Tree Canopy Sizes for Shade Trees

TREES		APPROVED CANOPY DIAMETER	
Botanic Name	Common Name	Planting Area 25	Planting Area 200 sf/tree
		sf/tree min	min or Silva Cells
Acacia stenophylla	Shoestring Acacia	10	15
Acer ginnala 'Ruby Slippers'	Amur Maple	8	10
Acer rubrum 'Bowhall' or 'Armstrong'	Red Maple	10	15
Acer rubrum 'October Glory' or 'Red Sunset'	Red Maple	20	30
Aesculus californica	California Buckeye	15	24
Arbutus 'Marina'	Marina Arbutus	15	25
Arbutus unedo 'Compacta'	Dwarf Strawberry Tree	5	8
Arbutus unedo 'Oktoberfest'	Dwarf Strawberry Tree	5	6
Callistemon citrinus	Lemon Bottle Brush	5	10
Carpinus betulus	European Hornbeam	20	30
Cedrus deodora	Deodar Cedar	20	30
Celtis occidentalis	Common Hackberry	25	40
Celtis sinensis	Chinese Hackberry	20	30
Cercis canadensis	Eastern Redbud	15	25
Cercis occidentalis	Western Redbud	8	10
Cercis reniformis 'Oklahoma'	Oaklahoma Redbud	15	25
Chionanthus retusus	Chinese Fringe Tree	10	15
Chitalpa tashkentensis 'Pink Dawn'	White & Pink Chitalpa	15	20
Cinnamomum camphora	Camphor Tree	30	45
Cupressus sempervirens	Italian Cypress - full form	5	8
Eriobotrya deflexa	Bronze Loquat	10	15
Eucalyptus nicholii	Nichol's Willowleaf Peppermint	15	25
Feijoa sellowiana	Pineapple Guava	10	15
Fraxinus americana 'Autumn Purple'	White Ash	25	40
Fraxinus angustifolia 'Raywood' (F. oxycarpa)	Raywood Ash	20	25
Fraxinus uhdei 'Majestic Beauty'	Evergreen Ash	30	45
Fraxinus velutina 'Rio Grande'	Fan-Tex Ash	20	25
Ginkgo Biloba 'Autumn Gold'	Maidenhair Tree	20	25
Ginkgo Biloba 'Princeton Sentry'	Maidenhair Tree	10	15
Juglans hindsii	California Black Walnut	25	35
Juglans regia	English Walnut	30	45
Koelreuteria bipinnata	Chinese Flame Tree	15	25
Lagerstroemia 'Muskogee', 'Natchez', 'Tuscarora'	Crape Myrtle	6	10
Lagerstroemia 'Zuni'	Lavendar Crape Myrtle	5	6
Lagerstroemia indica 'Catawba'	Purple Crape Myrtle	5	8
Lagerstroemia 'Watermelon Red'	Watermelon Red Crape Myrtle	10	15
Laurus nobilis	Sweet Bay	20	30
Laurus 'Saratoga'	Saratoga Laurel	20	30
Leptospermum laevigatum	Australian Tea Tree	10	15
Leptospermum Scoparium	New Zealand Tea Tree	5	8
Lyonothamnus floribundus asplenifolius	Catalina Ironwood	8	12
Magnolia grandiflora 'Little Gem'	Southern Magnolia	5	10
Magnolia grandiflora 'Majestic Beauty'	Southern Magnolia	10	15
Magnolia X soulangiana	Saucer Magnolia	15	20
Melaleuca quinquenervia	Cajeput Tree	10	15
Metrosideros excelsa	New Zealand Christmas Tree	15	25
Nyssa sylvatica	Sour Gum/Tupleo	15	20
Olea europea 'Swan Hill'	European Olive	15	20
Pinus canariensis	Canary Island Pine	15	20
Pinus pinea	Italian Stone Pine	25	40
Pistacia chinensis	Chinese Pistache	25	35
Platanus acerifolia 'Bloodgood'	London Plane	20	25
Platanus racemosa	California Sycamore	20	25
Podocarpus gracilior	Fern Pine	8	12
Podocarpus macrophyllus	Yew Pine	5	10
Prunus caroliniana	Carolina Laurel Cherry	10	15

Exhibit A

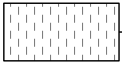
City of Pleasanton Tree Canopy Sizes for Shade Trees

<i>Prunus cerasifera</i> 'Atropurpurea'	Purple Leaf Plum	10	15
<i>Prunus cerasifera</i> 'Krauter Vesuvius'	Purple-Leaf Flowering Plum	8	10
<i>Prunus ilicifolia</i> Lyonii	Catalina Cherry	10	15
<i>Pyrus kawakamii</i>	Evergreen Pear	15	20
<i>Quercus agrifolia</i>	Coast Live Oak	25	40
<i>Quercus chrysolepis</i>	Canyon Live Oak	20	30
<i>Quercus coccinea</i>	Scarlet Oak	25	40
<i>Quercus douglasii</i>	Blue Oak	25	40
<i>Quercus engelmannii</i>	Mesa Oak	35	55
<i>Quercus ilex</i>	Holly Oak	25	35
<i>Quercus kelloggii</i>	California Black Oak	25	40
<i>Quercus lobata</i>	Valley Oak	35	55
<i>Quercus robur</i>	English Oak	15	25
<i>Quercus robur</i> 'Fastigiata'	English Oak	8	10
<i>Quercus rubra</i>	Red Oak	25	40
<i>Quercus shumardii</i>	Shumard Oak	25	40
<i>Quercus suber</i>	Cork Oak	25	35
<i>Quercus virginiana</i>	Southern Live Oak	35	55
<i>Quercus wizlizenii</i>	Interior Live Oak	30	45
<i>Rhaphiolepis</i> 'Majestic Beauty'	Majestic Beauty Hawthorne	5	8
<i>Rhus lancea</i>	African Sumac	15	20
<i>Sapium sebiferum</i> (<i>Triadica sebifera</i>)	Chinese Tallow Tree	15	25
<i>Schinus molle</i>	California Pepper Tree	15	25
<i>Schinus terebinthifolius</i>	Brazilian Pepper Tree	15	25
<i>Tilia cordata</i>	Little Leaf Linden	15	20
<i>Tristania conferta</i> (<i>Lophostemon confertus</i>)	Brisbane Box	15	20
<i>Ulmus</i> 'Frontier'	Frontier Elm	15	25
<i>Ulmus parvifolia</i>	Chinese Elm	30	45
<i>Ulmus propinqua</i> 'Emerald Sunshine'	Emerald Sunshine Elm	15	20
<i>Ulmus wilsoniana</i> 'Prospector'	Prospector Elm	15	25
<i>Zelkova serrata</i> 'Village Green'	Saw Leaf Zelkova	25	35
<i>Zelkova serrata</i> 'Wireless'	Saw Leaf Zelkova	20	25

SHADE TREE CALCULATIONS

PROPERTY SIZE: 98,952


SURFACE PARKING AREA: 36,907 SF

 SHADE 27,047 SF 73%









HARDSCAPE AREA: 2,230 SF

 SHADE 677 SF 30%

LANDSCAPE AREA: 43,967 SF

 SHADE 22,878 SF 52%

SHADE TREE LEGEND

SYMBOL	BOTANICAL/COMMON NAME	PROJECTED CANOPY*	QTY
	FRAXINUS AMERICANA 'AUTUMN PURPLE' DRAKE CHINESE ELM	40 FT.**	8
	LAURUS 'SARATOGA' SARATOGA LAUREL	30 FT.**	4
	MAGNOLIA X SOULANGIANA SAUCER MAGNOLIA	20 FT.**	11
	PISTACIA CHINENSIS CHINESE PISTACHE	25 FT.	4
	QUERCUS LOBATA VALLEY OAK	35 FT.	8
	QUERCUS SUBER CORK OAK	35 FT.**	5
	QUERCUS WISLIZENII VALLEY LIVE OAK	30 FT.	4
	ZELKOVA SERRATA 'VILLAGE GREEN' SAWLEAF ZELKOVA	35 FT.**	6
			TOTAL TREES 50

* DIAMETER OF TREE CANOPY PROJECTED AT 15 YEARS GROWTH. FOR APPROVED CANOPY SIZES REFER TO THE CITY OF PLEASANTON SHADE TREE GUIDELINES FOR COMMERCIAL PROPERTY.
 ** DENOTES TREE WITH AT LEAST 200 SF OF PLANTING AREA

BUILDING
(13,680 SF)

TRUCK LOADING ZONE
(2,168 SF)
EXEMPT FROM SHADE TREE
CALCULATIONS

LARCH ST.