

## CARMEL-BY-THE-SEA AND WESTERN CHAPTER ISA

### PRUNING STANDARDS

#### PURPOSE:

Trees and other woody plants respond in specific and predictable ways to pruning and other maintenance practices. Careful study of these responses have led to pruning practices which best preserve and enhance the beauty, structural integrity, and the functional value of trees.

If an effort to promote practices that encourage the preservation of tree structure and health, the W.C. ISA Certification Committee has established the following Standards of Pruning for Certified Arborists. The Standards are presented as working guidelines, recognizing that trees are individually unique in form and structure, and that their pruning needs may not always fit strict rules.

Carmel-by-the-Sea's Forest and Beach Commission has adopted these pruning standards with minor amendments. **Licensed tree companies are required to adhere to these standards.** A tree-pruning permit must be obtained if pruning practices that vary from these standards are proposed. Failure to follow these standards shall be grounds for suspension/revocation of a tree company's business license.

#### I. PRUNING TECHNIQUES

- A. A thinning cut removes a branch at its point of attachment or shortens it to a lateral large enough to assume the terminal role. Thinning opens up a tree, reduces weight on heavy limbs, can reduce a tree's height, distributes ensuing invigoration throughout a tree and helps retain the tree's natural shape. Thinning cuts are therefore preferred in tree pruning.

When shortening a branch or leader, the lateral to which it is cut should be at least one-half the diameter of the cut being made. Removal of a branch or leader back to sufficiently large lateral is often called "drop crotching".

- B. A heading cut removes a branch to a stub, a bud or a lateral branch not large enough to assume the terminal role. Heading cuts should not be used because vigorous, weakly attached upright sprouts are forced just below such cuts, and the tree's natural form is altered. In some situations, branch stubs die or produce only weak sprouts. Trees shall not be topped unless necessary for utility line clearance or under unusual circumstances for which a pruning permit is necessary.
- C. When removing a live branch, pruning cuts should be made in branch tissue just outside the branch bark ridge and collar, which are trunk tissue (Figure 1). If no collar is visible, the angle of the cut should approximate the angle formed by the branch bark ridge and the trunk (Figure 2).

- D. When removing a dead branch, the final cut should be made outside the collar of live callus tissue. If the collar has grown out along the branch stub, only the dead stub should be removed, the collar should remain intact, and uninjured (Figure 3).
- E. When reducing the length of a branch or the height of a leader, the final cut should be made just beyond (without violating) the branch bark ridge of the branch being cut to. The cut should approximately bisect the angle formed by the branch bark ridge and an imaginary line perpendicular to the trunk or branch cut (Figure 4).
- F. A goal of structural pruning is to maintain the size of lateral branches to less than three-fourths the diameter of the parent branch or trunk. If the branch is co-dominant or close to the size of the parent branch, thin the branch's foliage by 15% to 25%, particularly near the terminal. Thin the parent branch less, if at all. This will allow the parent branch to grow at a faster rate, will reduce the weight of the lateral branch, slow its total growth, and develop a stronger branch attachment. If this does not appear appropriate, the branch should be completely removed or shortened to a large lateral (Figure 5).
- G. On large-growing trees, except whorl-branching conifers, branches that are more than one-third the diameter of the trunk should be spaced along the trunk at least 10 inches apart, on center. If this is not possible because of the present size of the tree, such branches should have their foliage thinned 15% to 25%, particularly near their terminals (Figure 6).
- H. Pruning cuts should be clean and smooth with the bark at the edge of the cut firmly attached to the wood.
- I. Large or heavy branches that cannot be thrown clear, should be lowered on ropes to prevent injury to the tree or other property.
- J. Wound dressings and tree paints have not been shown to be effective in preventing or reducing decay. They are therefore not recommended for routine use when pruning.

## **II. TYPES OF PRUNING – MATURE TREES**

### **A. CROWN CLEANING**

Crown cleaning or cleaning out is the removal of dead, dying, diseased, crowded, weakly attached, and low-vigor branches and water sprouts from a tree crown.

## **B. CROWN THINNING**

Crown thinning includes crown cleaning and the selective removal of branches to increase light penetration and air movement into the crown. Increased light and air stimulates and maintains interior foliage, which in turn improves branch taper and strength. Thinning reduces the wind-sail effect of the crown and the weight of heavy limbs. Thinning the crown can emphasize the structural beauty.

At least one-half of the foliage should be on branches that arise in the lower two-thirds of the trees. Likewise, when thinning laterals from a limb, an effort should be made to retain inner lateral branches and leave the same distribution of foliage along the branch. Trees and branches so pruned will have stress more evenly distributed throughout the tree or along a branch.

## **C. CROWN REDUCTION**

Crown reduction is used to reduce the height and/or spread of a tree. Thinning cuts are most effective in maintaining the structural integrity and natural form of a tree and in delaying the time when it will need to be pruned again. The lateral to which a branch or trunk is cut should be at least one-half the diameter of the cut being made.

## **D. CROWN RESTORATION**

Crown restoration can improve the structure and appearance of trees that have been topped or severely pruned using heading cuts. One to three sprouts on main branch stubs should be selected to reform a more natural appearing crown. Selected vigorous sprouts may need to be thinned to a lateral, or even headed, to control length growth in order to ensure adequate attachment for the size of the sprout. Restoration may require several pruning over a number of years.

## **E. CROWN RAISING**

Crown raising removes the lower branches of a tree in order to provide clearance for building, vehicles, pedestrians, and vistas. It is important that a tree have at least one-half of its foliage on branches that originate in the lower two-thirds of its crown to ensure a well-formed, tapered structure and to uniformly distribute stress within a tree.

When pruning for view, it is preferable to develop “windows” through the foliage of the tree, rather to severely raise or reduce the crown.

### **III. SIZE OF PRUNING CUTS**

Each of the Pruning Techniques (Section I) and Types of Pruning (Section II) can be done to different levels of detail or refinement. The removal of many small branches rather than a few large branches will require more time, but will produce a less-pruned appearance, will force fewer water sprouts and will help to maintain the vitality and structure of the tree.

The maximum size (Base diameter) of live branches that may be removed without a permit is four (4) inches. Dead limbs should always be removed.

### **IV. MISCELLANEOUS**

- A. All motor vehicles and other major equipment of any licensed business used in conducting the licensed business shall be clearly identified with the name of the licensee/business name.
- B. All work must be done safely and in accordance with the American Standard for Tree Care Operation (ANSI Z133.1-1988).
- C. All tree companies must be licensed to work in the City of Carmel-by-the-Sea and in addition must have a contractors license.

### **V. WHEN TO PRUNE**

The timing of any tree pruning operation depends upon the species of tree, it's condition and the desired results. Crown thinning and major limb removal should be targeted toward the dormant period for most tree species. In Carmel this period is between mid-October through mid-February. Pruning during these months provides several benefits to the tree:

- Reduced stress
- Less insect activity
- Improved callus formation
- Lessened water sprout production

Other types of pruning can be done year-round but the long-term benefit to the tree should be the primary consideration.

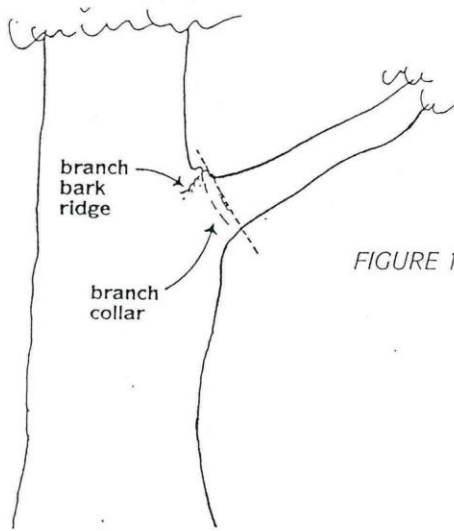


FIGURE 1. When removing a branch, the final cut should be just outside the branch bark ridge and collar.

FIGURE 2. In removing a limb without a branch collar, the angle of the final cut to the branch bark ridge should approximate the angle the branch bark ridge forms with the limb. Angle AB should equal Angle BC.

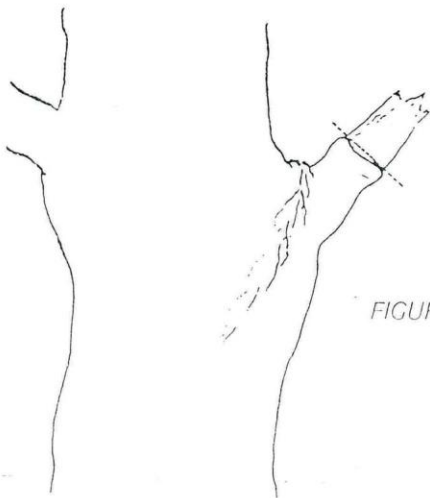
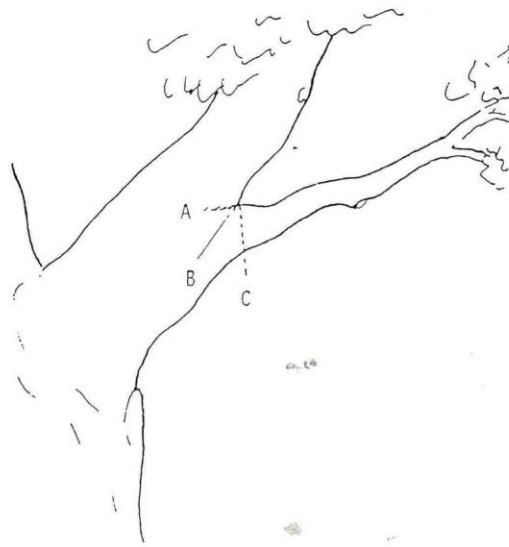


FIGURE 3. When removing a dead branch, cut outside the callus tissue that has begun to form around the branch.

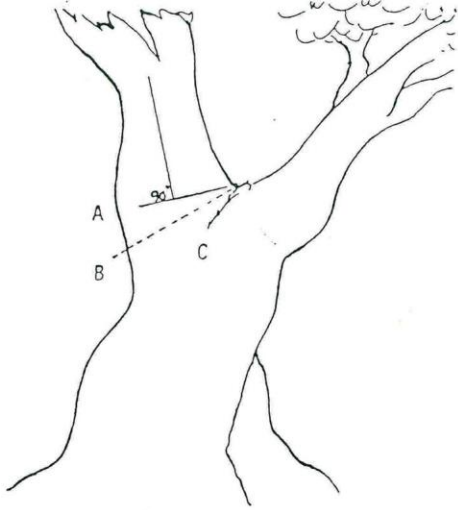


FIGURE 4. In removing the end of a limb to a large lateral branch, the final cut is made along a line that bisects the angle between the branch bark ridge and a line perpendicular to the limb being removed. Angle AB is equal to Angle BC.

FIGURE 5. A tree with limbs tending to be equal-sized, or codominant. Limbs marked B are greater than  $\frac{3}{4}$  the size of the parent limb A. Thin the foliage of branch B more than branch A to slow its growth and develop a stronger branch attachment.

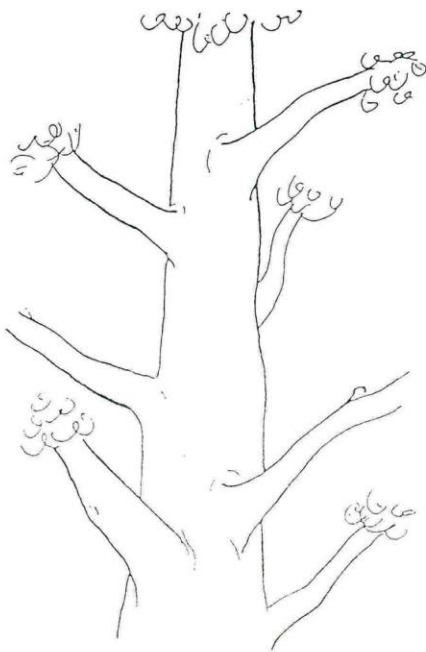


FIGURE 6. Major branches should be well spaced both along and around the stem.