

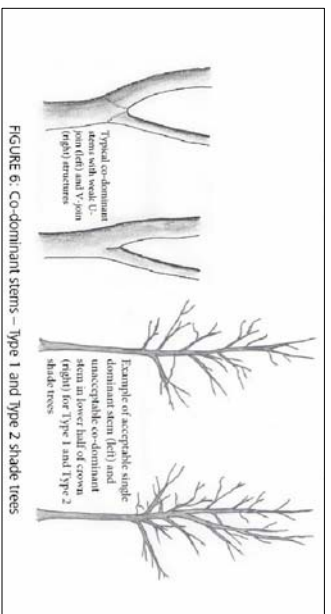
**GENERAL NOTE:**  
**ALL PLANT STOCK SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1) SPECIFICATIONS**

**BALLED & BURLAPPED AND CONTAINER GROWN STOCK**

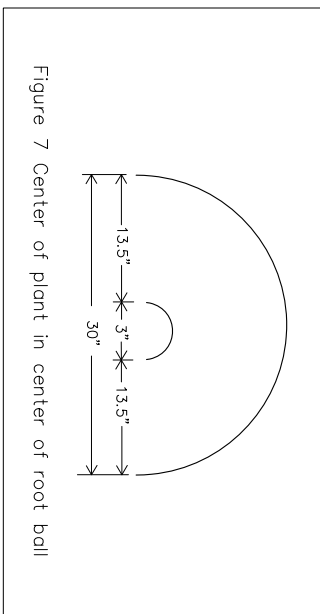
- A4. Plant Stock Specifications
- a) All plant stock shall conform to American Standard for Nursery Stock.
  - b) A minimum of three structural roots reasonably distributed around the trunk shall be found in each plant. Plants with structural roots on only one side of the trunk (U roots) shall be rejected.
  - c) The root crown must not be more than two inches below the soil line. The top two structural roots shall be no more than three inches below the soil line when measured four inches radial to the trunk. The top of the other structural root shall be no greater than five inches below the soil line when measured four inches radial to the trunk. The grower may request a modification to this requirement for species with roots that rapidly descend, provided that the grower removes all circling roots above the structural roots across the top of the structural roots.
  - d) The root system shall be reasonably free of root defects including potentially stem-girdling roots above the root collar and main structural roots, vertical roots, and/or kinked roots from nursery production practices, including roots on the interior of the root ball.
  - e) Container-grown plants, in addition to the above requirement, should comply with the following:
    1. Container-grown plants may be permitted only when indicated on the drawing or specification.
    2. Container-grown stock shall have been grown in a container long enough for the root system to have developed sufficiently to hold its potting medium together but not so long as to have developed roots that are matted or circling around the edge or interior of the main root mass. Plants shall have been root pruned at each change in container size.
    3. Plants that fail to meet any of the above requirements shall be modified to correct deficiencies if approved by the engineer. Modification shall include the following:
      - i. showing all circling on the exterior of the root mass deep enough so that all cut roots' ends are roughly radial to the trunk.
      - ii. removal of all roots above the top of the main structural roots and trunk flare including any roots that are imprints from previous smaller containers.
      - iii. the above modifications shall not be cause to alter the warranty provisions of this specification.
  - f) The center of the trunk(s) or stem(s) of the plant shall be in the center of the root ball. A tolerance of 10% of the diameter of the root ball is the maximum deviation allowable (see figure 7). For example: For a plant with a 30" root ball, the center of the plant at ground level shall be within a three-inch circle 13 1/2 inches from the outer edge of the ball.
  - g) Measurement:
 

Depth of the root ball is measured from the top of the ball, which in all cases shall begin at the root flare (see Figure 8). Soil above the root flare, from being deeply planted nursery as a young plant, as a result of maintenance practices in the nursery, or added during harvest, shall not be included in ball depth measurement, and should be removed.

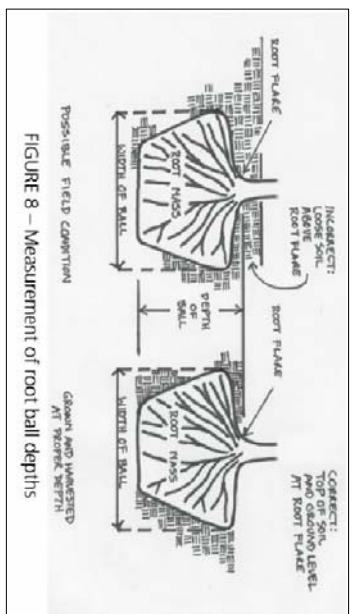
    - h) Plants shall be true to species and variety specified and nursery grown in accordance with good horticultural practices under climatic conditions similar to those in the locality of the project for at least 2 years. They shall have been freshly dug (during the most recent favorable harvest season).
    - i) Plants shall be trained in development and appearance as to be unquestionably superior in form, compactness and symmetry. They shall be sound, healthy, vigorous, well branched and densely foliated when in leaf, and free of disease and insect adults, eggs, pupae or larvae. They shall have healthy, well-developed root systems and shall be free from physical damage or other conditions that would prevent thriving growth.
    - j) Trees with multiple leaders, unless specified, will be rejected. (See figure 6) Trees with a damaged, cut, or crooked leader, included bark, abrasion of bark, sunscald, disfiguring knots, insect damage, mold, prematurely opened buds, or cuts of limbs over 3/4" inch (2 cm) diameter that are not completely callused are cause for rejection.
    - k) Balled and burtopped plants shall be dug with solid balls of standard size, the ball securely wrapped with non-synthetic, untreated, biodegradable burlap, and tightly bound with non-synthetic, biodegradable rope or twine. Alternatively they may be placed in wire basket lined non-synthetic, untreated, biodegradable burlap and tightly bound with non-synthetic, biodegradable rope or twine. Root collar shall be apparent at surface of ball. Bare root plants shall have a healthy, well branched root system characteristic of the species and with adequate spread.
    - l) Plants shall conform to the measurements specified, except that plants larger than those specified may be used if approved by the purchaser. Use of larger plants shall not increase the contract price nor allow the contractor to use smaller than specified material on other plants. If larger plants are approved, the root ball, root spread, or container shall be increased in proportion to the size of the plant.
    - m) Caliper measurements shall be taken on the trunk 6 inches (15 cm) above the root collar for trees up to 4 inches (10 cm) in caliper, and 12 inches (30 cm) above the root collar for trees over 4 inches (10 cm) in caliper. Height and spread dimensions specified refer to the main body of the plant and not from the branch tip to branch tip. Plants shall be measured when branches are in their normal position. If a range of size is given, no plant shall be less than the minimum size, and no less than 50 percent of the plants shall be as large as the maximum size specified. Plants that meet measurements but do not possess a normal balance between height and spread shall be rejected.



**DOMINANT & CO-DOMINANT STEMS**



**CENTER OF ROOT BALL**



**ROOT BALL DEPTHS**



REVISED: 1-17

FILE NAME: G:\ENG\SPCS\5308

ENGINEERING DEPARTMENT

PLATE: 5308

NURSERY STOCK SPECIFICATIONS