

Design and Manage Communities for Wind Resistance

Design the *Right Place*



Trees growing in groups survive hurricane winds better than trees planted individually.

Researchers who visited post-hurricane sites found that many tree failures could have been prevented with good design. The most important design element that is often overlooked is having enough soil space for tree roots to grow. To provide anchorage

for the tree, roots need to spread beyond the edge of the canopy and grow deep into the soil. Both homeowners and community planners should make sure there is space for tree growth when choosing to plant large maturing trees.

Provide space for growth

- Plant trees in soil spaces according to their mature size:
 - large trees: at least 30 feet x 30 feet.
 - medium trees: at least 20 feet x 20 feet.
 - small trees: at least 10 feet x 10 feet.
- Soil should have plenty of open surface space to allow growth of trunk and main flare roots.
- Ideally, soil should be well drained to allow roots to grow at least 3 feet deep to anchor trees.
- Group trees together in large spaces rather than individually in many small spaces.
- Do not plant right next to a house, wall or any other structure.

Select the *Right Tree*

Choose trees that resist decay and therefore recover well from wind damage. Small maturing trees (30 feet at maximum height) are often a better choice for areas where there is not enough soil space for large maturing trees.



Small maturing trees are nicely suited for this site because of overhead power lines and small soil space.

Make sure trees are adapted to local site conditions, such as dry versus wet soils. See *Wind Resistant Tree Species* (page 12) for a list of trees to plant. For more information on selecting trees for Florida and southeast U.S. go to <http://orb.at.ufl.edu/FloridaTrees>.

Consider small maturing trees

- When planting near power lines.
- When planting within 10 feet of curbing, building or any other obstruction.
- When the space is inadequate for root growth or the soil is shallow, compacted or poorly drained. Large trees can blow over due to shallow roots.

Tree Management: Evaluate Trees for Hazard Potential



Hazard: internal trunk decay.

Large trees are more likely to be damaged in a hurricane. When such trees are located near a home, property damage could be reduced by having a professional arborist evaluate the trees to assess risk and treat problems. Here are some things to look for:

- **Know the species of the tree.** Is it prone to decay? How long is the life span? Trees near the end of their lives are at greater risk of failure.
- **Check the health of the tree.** Look for defects such as root rot and internal trunk decay. A tree can appear perfectly healthy on the outside and have serious flaws that require attention (see photo at left).
- **Is the structure strong or weak?** Become familiar with the components of strong structure to decide (page 10).
- **Evaluate previous cultural practices.** Have the roots been cut during construction? Is the tree located near a paved surface? Has the tree been topped or poorly pruned? These situations can increase likelihood of failure.
- **Is the canopy very dense?** Trees with dense canopies can be made more wind resistant by removing small branches from the outer edge of the canopy. Interior branches should not be removed.



Hazard: major support roots cut.

Do not wait until the last minute to prepare your trees for storm season! Take action now. Hire an ISA certified arborist.

Establishing Trees for a Healthy and Wind Resistant Urban Forest

A healthy and more wind resistant urban forest depends on managing existing trees and establishing new trees properly. When planting new trees, consider these recommendations:



Plant tree species that are more wind resistant, such as cabbage palms.



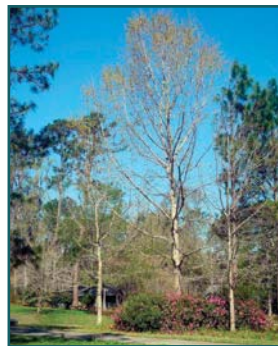
Match recommended species to the local site conditions.



Consider planting trees in groups (at least five trees) as opposed to individually.



Give trees adequate rooting space (with no obstructions).



Plant a variety of species, ages and layers of trees and shrubs to maintain diversity in your community.



Consider soil properties (soil depth, water table and compaction). This porous surface reduces runoff and improves root health.



Plant high quality trees with good structure (Florida #1 or Florida Fancy).



Plant considering the aerial space needed for a mature-sized tree.



Establish a structural pruning program early on. Reduce the length of branches competing with the main trunk.