

## **Further Investigation of Tree Structure**

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Sometimes the decision to remove trees is not very obvious. Often times, trees with full green canopies, free of dead wood; cracks or decay can still be of high risk to potential targets.

Weak branch unions are places where branches are not strongly attached to the tree. These weak unions are often identified by tight, v-shaped crotches with two or more similarly sized, usually upright branches that are competing to be the main lead branch. Usually, the upright branches grow so closely together that bark grows between the branches, inside the union. This ingrown bark, known as "included bark" does not have the structural strength of wood and often times forces a wedge between the branches causing separation and decay within the union that goes unseen until one of the branches splits out.

Weak branch unions also form after a tree or branch is topped. Topping of branches involves cutting at a right angle to the direction of growth, leaving a large branch stub. The stub inevitably decays, providing very poor support for new branches that usually develop along the cut branch. After time the hidden decay in the upper branches cannot hold the weight of the new growth and large branches will break out of the tree.

Trees with included bark unions that have a crack, seeping, or buckling require immediate attention. Furthermore, trees that have been topped are extremely unpredictable and should be annually inspected for weakness and decay.

Many fast growing trees, such as soft maples, poplars, boxelders, willows, etc. are prone to forming weak unions or awkward growth patterns. Trees with growth pattern weakness or structural imbalances are referred to as trees with poor architecture. Although these types of trees have their place, they should not be planted near potential targets because their architecture is prone to failure.