

Managing Trees in School Yards

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The Young Trees

Parents and students are planting a tree in the school yard. It is a great event for the school and its community; a small contribution for a better future. Once ev-

erybody is gone, the tree is turned over to the maintenance crew.

Did we provide proper instructions for the planting event? Can we ensure the long-term survival of the tree?

At the time of planting, there is an important practice that must be implemented. The root system of the tree must be managed to deal with circling roots. These roots continue to grow around and around,

even after planting, eventually growing into the trunk and becoming girdling roots. We often see trees dying from girdling roots two to five years after planting.

All trees coming from a nursery may have circling roots. Trees grown in containers may have roots that circle inside the container. The circling roots are obvious on the outside of the root ball. Field-grown trees sold as bare root or balled-and-burlapped may have been propagated from seed, acorn or cutting in a small circle container. In this case, the circling roots are close to the trunk and may not be visible unless the root system is exposed.

To prevent the formation of girdling roots, the root system must be roughed up at the time of planting. Destroy the outside layer of roots; have no hesitation. Experience has shown that trees with cut roots at the time of planting establish better than trees left untouched because regrowth is vigorous at the cut portion. There is one provision: the tree must be properly irrigated until established, as the removal of some roots results in a small stress on the tree.

Here is another method. Before removing the tree from the container, use a pruning saw and cut out one or two centimetres from all around the root ball, also at the bottom. A root will continue to grow in the direction it is pointing. If the root is cut on the outside during the circling portion, the regrowth will continue to circle. By contrast, if the root is cut just before the outside edge, the regrowth will go toward the outside of the root ball.

There are other important practices at the time of planting. Stakes can be installed around the tree. Their purpose is mostly to create an invisible barrier and keep young vandals away. The stakes can be attached at one-third to two-thirds the height of the tree. The attachment must be loose to allow the tree to move in the wind, which helps build the trunk calliper quickly. Remove the stakes when the tree is large enough to support itself.

Mulch can be installed at the base of the tree. Apply a layer five centimetres thick of good-quality compost on the surface of the soil. This will stimulate microbial activity in the root zone. Top it with another five-centimetre-thick layer of bark mulch or coarse wood chips. This 10-centimetre layer will provide about 80 per cent weed control and improve soil quality over time. Plan to refresh every two years.

Mulching the ground has another major benefit: it keeps the weed trimmers away from the base of the tree.

Weed trimmers are useful in our maintenance program. But we must train the operators; otherwise they damage the trunk of young trees while cleaning weeds growing at the base.

Instead of mulching, apply a landscape disk at the base of the tree. The best disks are made of coco fibre or other natural materials. They work well, give a nice finished look and last for three to five years until the tree is large enough that weed control is less of a concern.

The Mature Trees

The school district is planning an expansion to an existing school. It is an exciting time for the school and the students!

There are two mature trees located near the planned construction. The trees are still in good condition. What will you do to preserve the trees? How can you manage the site to ensure the trees are not damaged during construction?



Planning ahead is critical to ensuring tree preservation. Trees in good or excellent condition are suitable for retention. Efforts should be made to preserve them. Trees in poor condition, or young and unimportant to the site, can be removed if it's an impediment to the construction activities. Often, these low-quality trees are retained only to be found later in the middle of the construction project and subjected to fill soil and equipment compaction. They have no chance.



A fence must be installed around every tree to be retained. This is the single most important practice to protect trees during construction. The fence must be sturdy, in clear visible colours, 2.4 metres high to prevent dumping of fill soil, and anchored to the soil to prevent displacement.

The size of the fence depends on many factors. Generally, it should be large enough to protect at least 50 per cent of the root

zone. That means placing the fence one foot away from the trunk for every one inch of trunk calliper (measured at 1.5 metres from the ground). The very minimum acceptable is to place the fence at the dripline of the tree.

The fenced area is the “tree protection zone”. It protects the rooting area that the tree requires to survive. Any construction activity within this zone may have an adverse impact on the long-term health of the tree.

Healthy trees can tolerate removal of one-third to half of the root system. However, root pruning done improperly may cause significant damage to the tree. For example, excess root removal on one side, or removal of larger roots, may lead to reduced anchorage and possible tree failure in a windstorm.

If a tree is to be preserved, there must be no construction activ-



ity within the fenced area, no storage of materials or dumping of soil, or parking of cars. Only light activities are allowed (for example, a lunch table and chairs, or storage of hand shovels).



Mature trees usually require little work. Fertilization and irrigation should be kept to a minimum.

Pruning is sometimes done. Much the same as fertilization and irrigation, unless there is a good reason, pruning is not necessary on mature trees. If required to fix a problem or match the tree to the site, managers can refer to the pruning recommendations of the American National Standards Institute (ANSI).



Crown raising is the removal of some branches to provide vertical clearance. It is commonly done on trees interfering with car traffic or growing into a building. Branches are removed to the trunk or shortened to a side branch. In all cases, avoid making pruning cuts larger than five to 10 centimetres in diameter. Larger cuts may not heal properly and could lead to decay.



Crown cleaning is selective pruning to remove dead, diseased, or broken branches. It is a common pruning practice on mature trees, especially to reduce potential hazards caused by dead branches. It is also done to reduce terminal branches showing dieback, a common occurrence the year following a very dry summer. When done by contractors, the work should focus on removal of dead branches larger than five centimetres in diameter.





Crown thinning is pruning to reduce the density of live branches. On young established trees, faulty branches are removed to obtain a sound structure. On mature trees, branches are removed to open the canopy for air circulation or to reduce mechanical stress caused by cavities. This type of pruning is important but should not be done without a good reason.

Crown reduction is selective pruning to decrease height or spread. It is used on trees growing into utility lines, or on very

old trees to reduce the size of the crown. This pruning must be done with discretion, as many tree species react poorly to the large cuts.

The Heritage Trees

There is a very old tree in the school yard. It was planted by an important person a long time ago. Everybody in town knows about this tree.



But it is in poor condition. There are cavities and dead branches everywhere. What should you do? How can you mitigate the liability?

Trees with cavities, decay or dieback of large branches are a liability to the site manager. The situation is even more critical when people use the site on a regular basis. It is important to monitor the condition of the tree and manage the problem promptly. In some cases, the best solution may be to remove the tree completely.

However, any given tree may have special value for the community. It is a link to life in the past or it is visually impressive and makes a special contribution to the site. Or it has genetic or botanical rarity. In those cases, the tree has “heritage” value and is worthy of preservation.

One approach is to preserve the wildlife use of the tree. Open cavities may be used by animals nesting inside. The tree can be



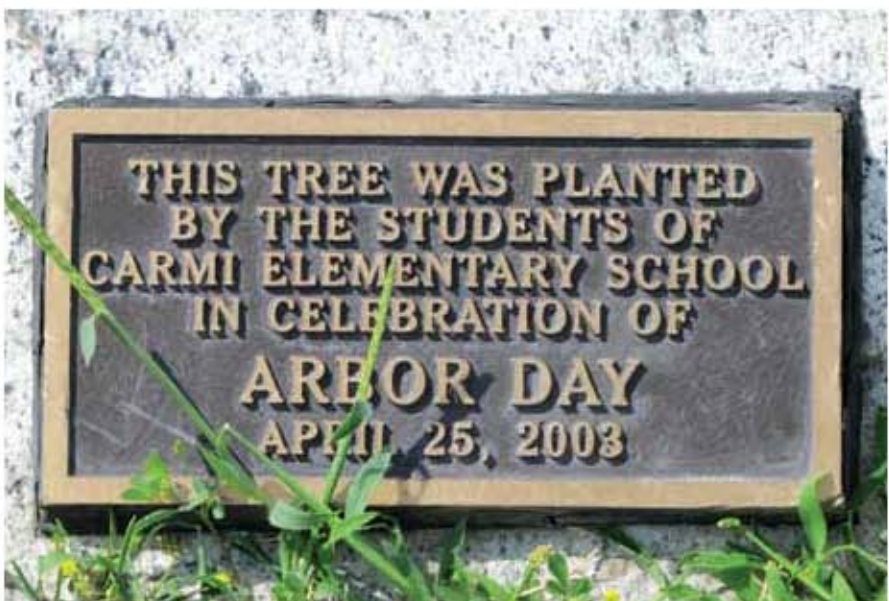
severely cut back to a height of three to five metres, placing the cut just above the open cavity. This allows retention of the heritage tree for useful purposes, while addressing the liability concern.

Another approach is to make the tree a veteran. This practice is made popular in England where many trees are hundreds of years old. The trees grow vigorously when young but start to lose branches when older. Very old trees or “ancient” trees shrink their crown to a small size and continue to live for many years. Much like humans, the trees find a way to cope with old age by reducing their activities.

Ancient and veteran trees deserve to live. We should give them a chance to live long and die with dignity.

To reduce liability yet allow old trees to live, arborists use retrenchment pruning. The technique imitates the natural crown ageing process. To avoid creating more problems, the pruning work must concentrate on the edge of the crown rather than the center. Total foliage removed should be about 10 per cent of total canopy, 25 per cent at the very most.

The purpose is to promote internal shoot development and encourage growth in lower regions of the tree. Three cuts are commonly made. Large dead branches are removed. Large live branches that overextend are cut back to reduce leverage in the wind. Small branches are broken by hand to mimic natural fracture pruning that occurs under snowload. ▀





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