



Purdue University

## Forestry and Natural Resources

### Timber Processing

# Use of Urban and Development Site Trees for Lumber

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In the past, urban trees weren't usually marketable to traditional sawmills and veneer manufacturers because of the relatively small volumes of wood available at any one location and because of the potential to hit embedded objects that damage sawmill equipment. Often buildings, landscaping, and electric lines were damaged when trees were felled, or buried pipes and septic systems were damaged when heavy equipment was used to remove the logs. Until recently, these serious issues have nearly always made the risk of urban tree utilization too high for any potential return.

In the last several years, however, portable sawmills have been developed that can process even a single tree in urban as well as forested settings. Portable sawmills are relatively lightweight, are generally mounted on a two-wheel trailer, and can be pulled behind a pickup truck. The potential for site damage from heavy equipment needed to load and move logs is eliminated. To reduce damaging one's property during tree removal, hire a trained and qualified forester or Certified Arborist to remove the trees.

The need to utilize urban trees is important for several reasons. First, there is a tremendous amount of land used for urban development. In 1998 there was an estimated 560,000 acres of urban forest land in the United States compared to 400,000 acres in 1986. For comparison, there are only about 4.5 million acres of forest land in the entire state of Indiana. Homeowners often remove trees as trees die or become too large and risky for an urban setting. Cities incur substantial disposal cost when they remove hundreds of trees from rights-of-way and public land each year. Landfills closed to yard waste are often a roadblock to disposal. From a utilization standpoint, some urban trees contain wood useable by the home craftsman and others. Many ornamental species contain beautiful and decorative wood not readily available from lumberyards and dealers who only handle the more common species.

### Lumber Quality Considerations

There are three broad categories of trees that may become available in urban areas. These include trees planted around structures and have now matured; small

trees that were naturally present when the site was developed that have grown into mature trees; and trees that need to be removed at the time of construction (or within a few years) due to root system damage.

Trees removed from a wooded area for home or building construction can be high quality and well worth processing if they are relatively free of defects, living, and of sufficient size. These trees are essentially woods-grown trees.

Many trees planted for shade are open grown and have fast growth. They are often not the most desirable lumber species and may contain metal. They may be damaged around the base by lawn mowers and weed whips, and may have wounds on the trunk caused by improper pruning. This damage usually results in localized decay and discoloration of the wood. Because of these problems, careful economic consideration should be given before attempting to process these trees into high-value wood products.

Trees that were present in a wooded lot when the site was first developed and have now matured could be of use. If, at the time of development, these trees were already 10 to 15 inches in diameter, then the bottom part of the trunk should be free of limbs so annual wood growth should be clear of defects. Recent mechanical damage and the presence of iron may be apparent. With good judgment, many of these trees could be utilized.

### Species, Size, and Other Considerations

At this time, cherry, oak, sugar maple, and walnut are some of the most valuable and desirable hardwoods. Ash, basswood, silver maple, and red maple have intermediate desirability. Beech, hickory, and yellow poplar are of the least value. Cottonwood and sycamore usually end up as pallet stock or blocking.

Portable mills can cut logs as small as six or eight inches in diameter. However, most logs should be about 10 inches or larger in diameter on the small end inside the bark. Larger logs and logs from the butt of the tree generally produce lumber with fewer defects. The more knots and bumps on a log, the lower the quality of lumber produced.

Logs should be processed as soon as they are cut from a live tree. The longer the logs lay during the warmer months, the greater the chance for stain, decay, and insect attack to occur. These problems do not develop during cold winter months. Lumber from felled logs or from dead trees may have some uses. The heartwood in species such as oak, walnut, and cherry has some natural decay and insect resistance. The sapwood in these species will be destroyed in about a year, or less, but the heartwood may still be salvaged. For the other species mentioned above, a year of exposure will result in serious damage to the entire log.

### Portable Mills

If you are interested in purchasing your own saw mill, there are numerous manufacturers of portable sawmills. They may range from very small where the motorized saw is hand cranked through the log, to large more powerful mills equipped with hydraulic log loaders and computerized networks. These mills are capable of sawing several hundred board feet constituting several logs in a few hours.

If you wish to utilize the services of a sawyer, remember, each mill is generally a small business, thus the terms of any agreement can vary substantially with each owner. Most mills are easily transported to a site and can be set up in a few minutes, and sawing will begin immediately. Logs are processed into boards as directed by their owner. Sawing costs may be based on the number of board feet sawn or the amount of time on the job. The landowner is generally expected to provide assistance at least in the removal of lumber and waste wood, such as slabs and edgings. The slabs, edgings, sawdust, bark, and other debris are left on site. The logs should be in an accessible site, with all branches, bumps, crotches, and large butt flares removed. The logs should be lined up in a neat row. Remember, the logs are rolled onto the mill or the loader arms. Irregularities in the log will increase the difficulty of this job, and they may also prevent the log from laying flat on the mill bed.

Boards with bark on the edge are usually ripped to width on the portable sawmill. This works well when only a few logs are being processed. Portable edgers are available, and some operators may use them on larger jobs.

Some operators process logs at their mill site. This procedure eliminates travel time for the sawyer and the equipment, and it also gets the waste wood, sawdust, and other debris away from the original site. The log owner needs a way to load and transport the logs, as well as to pick up the lumber when processed.

### Uses and Applications

When just a tree or two is being processed, the lumber is generally used in the home woodshop for various projects. Where larger quantities are being cut, the lumber can be used for general construction purposes. For construction applications, care should be exercised.

Construction lumber available at the local lumberyard is graded at the producing mill and stamped. The “grade stamp” provides important information, and its presence is required by building codes. Before processing logs into construction lumber, be sure to check with local code officials to determine if it will be acceptable. Green lumber must also be air-dried. This is accomplished by stacking the lumber in coarses. Several boards are usually used to make up one coarse of lumber about 4 feet wide. Stickers, which measure about  $\frac{3}{4}$  inch thick by  $1\frac{1}{2}$  inches wide by a uniform length, are placed at the very end of each coarse and on 2 foot or even 18-inch centers between the ends. A second coarse is added and another coarse of stickers is placed directly above the first coarse. When the stack is complete, it is best to cover it with tin sheets rather than plastic and with as much heavy weight as possible. Plastic tends to hold the water in the lumber and the weight helps keep the top coarses of lumber flat. The stack must be kept perfectly level with no twist from corner to corner and off the ground at least six inches.

For complete information on drying lumber, see FNR-37 *Drying Small Quantities of Hardwood Lumber*.

### Locating Sawyers and Other Wood Utilization Specialists.

Sawyers can be difficult to locate. They are small businesses and often do not advertise. Check with equipment manufacturers; some keep a list of individuals who do custom sawing. Check with local foresters, district foresters, extension educators, and others associated with the growing and management of timber, about purchasing timber, or other wood uses. They will usually know who can help.

In summary, trees that are part of an urban landscape can be a valuable resource. This is especially true if the landowner has a use for the lumber. It may be more difficult to find someone who has a need for this resource. Even so, there is an increasing woodcrafters market, but it may take a bit of research on your part.

