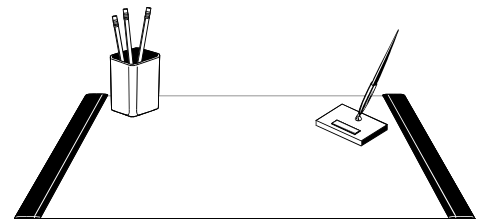


WE RELY ON WHAT OUR FORESTS PRODUCE

People love wood products, and Pennsylvania produces about \$5.5 billion worth of them each year. Sometimes people are unaware a product is made from wood, like the parmesan cheese that uses cellulose to keep it from getting lumpy.



Each year, the average American uses 200 board feet of lumber, 160 square feet of wood panels and 650 pounds of paper – the equivalent of a 100-foot-tall tree. About 75 percent of the wood used is softwood (such as pine), which is heavily used for home construction and for some furniture and other products.

Pennsylvania is famous for its hardwood products, which are recognized as some of the finest in the world. The high commercial value of Pennsylvania's forest resource derives from consumer demand for the species that predominate in today's forests.

The clearcutting of the forest one hundred years ago created environmental conditions under which these species thrive. For example, the environmental conditions favorable to black cherry are found almost exclusively on the Allegheny Plateau in northwestern Pennsylvania and southwestern New York. That is why Kane, PA is known worldwide for its black cherry lumber and wood products.

In the manufacturing process a typical hardwood tree may yield:

- sawlogs
- pulpwood
- bark
- woodchips
- sawdust
- cellulose
- lignin

Most of the trees harvested in Pennsylvania (95 percent) are used for sawlogs, or lumber production (boards), which returns the highest value from the tree. Sawlogs are usually derived from trees at least 12 inches dbh (diameter at breast height) and are used to make lumber for solid wood products, such as:

- furniture
- moldings
- flooring
- paneling
- cabinets
- decking
- tool handles
- utility poles
- railroad ties
- pallets (lumber and plywood shipping containers)
- veneer ($\frac{1}{4}$ inch or less thin sheets of wood)
- plywood (combined sheets of veneer)
- pilings, which is treated with creosote and used in bridge, docks, wharves, foundations and other general construction
- cooperage (material used for barrels, baskets and boxes)
- baseball bats
- toothpicks
- musical instruments
- boats

-over-

Smaller diameter trees or lower grade species are considered pulpwood and used mostly in paper making. Bark is used for garden and landscaping mulch as well as a source of resins and other compounds used in a wide range of products, including pharmaceuticals. Sawdust and chips may be used in papermaking and the manufacture of particle and fiber board.

Other common wood products include:

- cardboard
- ceiling tile
- engineered wood beams
- Masonite
- medium density fiberboard (MDF)
- paper
- particle board
- shingles
- siding
- strand board
- wood charcoal

Industrial chemists have been able to convert wood fibers and paper-pulping residues into a wealth of wood by-products. Cellulose and lignin, the structural substances that support a tree, are derived from the pulping process. When wood fibers are cooked, cellulose separates from the lignin and is used to make paper. Lignin is used to make a variety of chemicals, such as polymers and resins that go into cosmetics, medicines and foods. Tannin is also derived from the chemical breakdown of wood and is used to process and soften leather.

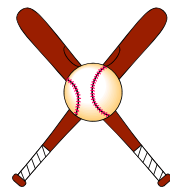
Wood by-products are essential components of:

- adhesives
- aspirin
- carpets
- cellophane
- chewing gum
- cosmetics
- diapers
- football helmets
- goggles
- imitation leather
- inks
- lacquer
- medicines
- paint thinner
- photographic film
- rayon cloth
- sausage casing
- shampoo
- soaps
- steering wheels
- toothpaste
- turpentine
- wigs

Pennsylvania hardwood products like Pennsylvania House and Amish hand-crafted furniture are popular here and abroad. Pennsylvania also has a thriving woodcraft industry that attracts upscale furniture and home accessories shoppers to events like the Philadelphia Furniture Show.

Many of America's most famous musicians use guitars made in Nazareth, PA by Martin Guitars. Dating back to 1833, Martin creates instruments that are the standard for acoustic guitars. A few famous customers are Eric Clapton, Willy Nelson, Roy Clark, and Paul McCartney.

Pennsylvania Ash provides the wood for Louisville Slugger baseball bats, as well as hockey sticks.



Bridges also are made from hardwoods. New types of hybrid bridges incorporate red maple into their structure, and of course, Pennsylvania's historic covered bridges are a dramatic example of hardwood beauty and durability.