

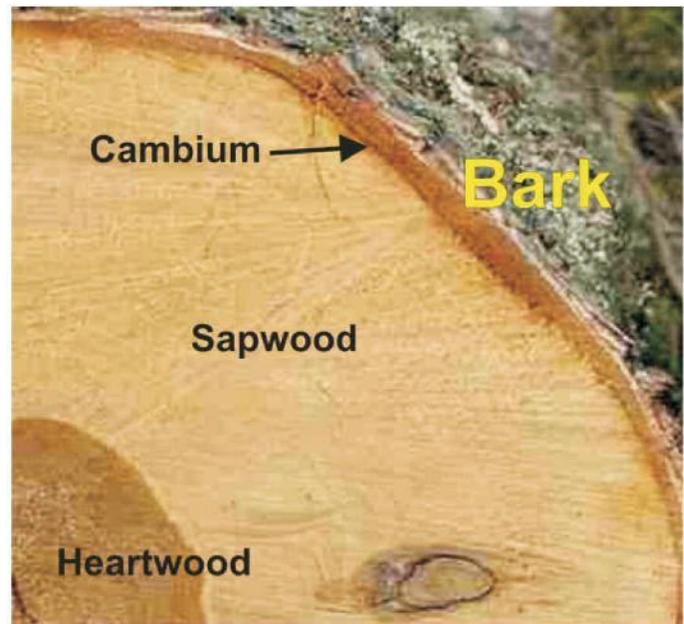
Technical Tip Wood Terms

Hardwood and Softwoods

Trees are typically categorized into two major families, hardwood species and softwood species. Hardwood refers to trees like oak, poplar, maple walnut, etc. that have broad leaves which usually drop off the tree in the winter. Softwood trees like spruce, pine, hemlock, fir, etc. have needle-like leaves all year round, the reason they are also called evergreen trees. On average, wood from hardwood trees has a higher density and hardness than that from softwoods, but there is considerable variation in actual wood hardness in both groups and some hardwoods are considerably softer than some softwoods. A bit confusing, isn't it?

Bark, Cambium, Sapwood and Heartwood

If we take a look at the cross-section of a tree we can usually see four discernable layers (there are more but four will do for our purposes). The outer layer is the bark which helps protect the tree from fire and insects (injuries) and helps the tree maintain moisture. Under the bark is a thin layer called the cambium. It is typically green and is responsible for most of the growth of the diameter of the tree. Bark and cambium should always be removed from logs used in the construction of log homes. If left intact they can provide a home and food for a wide variety of pests and their presence hinders the drying process. We next encounter sapwood, living wood in a growing tree. All wood in a tree is first formed as sapwood. Its function is to conduct water from the roots to the leaves and to store nutrients generated by the leaves. Since sapwood is moist and contains many nutrients, it is the section of the tree that is most susceptible to decay and insect attack.



In the center of older trees we'll find heartwood, wood that is no longer living. Heartwood is typically resistant to decay and insects, since it contains a high concentration of naturally occurring pesticides. In some tree species it may appear in a cross-section as a discolored circle, following annual rings in shape. Usually the older a tree is the more heartwood it will contain. Years ago few people constructed a log home using sapwood. They only harvested older large diameter trees and then hewed off all of the sapwood. That's how the log home "hand hewn" look came about. The heartwood, being naturally resistant to insects and decay, was used to construct the home which is why many of the log homes constructed in the 18th and 19th centuries still exist. Today, it's virtually impossible to obtain logs with a significant amount of heartwood. That's why our borate products play such an important role in the preservation of a modern log home today.