

Wood and Birch Bark

Found in such items as furniture, bowls, boats, baskets, and scrolls

Identification and General Information

A wide variety of items are made from wood and tree bark. The types of tree bark commonly used are birch and black ash. Because these are similar, only birch bark will be discussed here. The suggestions made for birch bark apply to black ash as well. Wood and birch bark are composed primarily of *cellulose* and *lignin*, with minor amounts of waxes and oils. The quantity of lignin, a structural polymer, in both bark and wood, varies widely from one type of tree to another. Typically, lignin is found in higher quantities in the bark of trees than in the wood. For example, birch bark contains higher levels of lignin, and waxes than most types of wood.

The way a tree grows creates the patterns that make up the *grain* of the wood. Wood has more strength across the grain. When stress is placed on wooden items parallel to the grain, they are more likely to split.

Recently cut wood is considered “wet” or “green” and usually requires six months to a year before it dries out. As it dries, it shrinks slightly and changes shape. These changes will often cause cracks and splits to form in the wood. After wood ages for several years, this process stops, and new cracks are unlikely to form unless the wood is exposed to high or low humidity. Even after wood dries, it can still absorb and lose moisture and will expand and contract as the temperature and humidity change.

Items made up of many pieces of wood are particularly prone to damage from expansion and contraction. Within a few years of manufacture, these items usually show distortion unless the construction allows the pieces of wood to move independently.

Birch bark is composed of many thin sheets or layers, which are adhered together. When

the layers expand and contract at different rates, they curl. This is a particular problem with birch-bark items, and frequently they are found tightly curled in rolls or damaged because they were prevented from curling and the stress placed on them made them split.

Basic Care and Storage

Wood and birch bark attract mold, insects, and other pests. To avoid these pests, wood items are best stored in an environment that discourages the pests, that is, cool temperatures and a relative humidity below 60 percent. When stored at a relative humidity below 30 percent, wood can split and crack, and birch bark can curl and may split into layers. A fluctuating environment harms wood and birch-bark items that are held together with adhesives, stitching, nails, dowels, or other joining methods; these may become loose, and the items can fall apart. Keeping temperature and moisture levels stable will help to prevent these structural problems.

Wood is often painted or coated with resin or varnish. These applied layers are more fragile than the wood, often decomposing, fading, and flaking. When painted wood is in this condition, avoid moving it. It should be handled very carefully, kept in a stable environment, and exposed to as little light as possible.

Avoid the use of commercial wood waxes and polishes because these can damage the wood finish and leave layers of residue that are difficult to remove. Many commercial waxes today use silicone, and this is nearly impossible to remove.

Special Pest Concerns

Many insects, such as powder post beetles, silverfish, and cockroaches, may feed on items made of wood and birch bark. Some traditional paints are made of natural products and may make these items even more attractive to insects. The key to controlling pests is to control the

environment. Keep the relative humidity under 60 percent, and you will prevent mold from growing and discourage most insects.

Routine Handling

Wear clean gloves made of cotton, nitrile or latex when handling items made of wood and birch bark. Because they are highly porous, wood and birch bark easily absorb hand oils when they are touched. The resulting stains can be difficult if not impossible to remove. Additionally, layers of paint may be friable (powdery) and should be handled as little as possible to reduce the chance that they will be damaged.

Display Issues

Wood and birch bark are easily degraded by overexposure to light and may darken or yellow. The paint on wood or birch-bark items is easily faded by exposure to light. For this reason, light levels should be minimized, and display times kept as short as possible. Follow the temperature and humidity recommendations specified in the Basic Care and Storage section.

Mounts and Supports

Mounts should not prevent wooden items from expanding and contracting with changes in relative humidity, since the resulting stress can cause cracks to form in the wood. Birch bark must be adequately supported while on display and in storage. If not, it can warp and even crack over time. However, it should be allowed to move slightly to accommodate changes caused by temperature and relative humidity fluctuations. Items made from birch bark should be displayed as they were used. In other words, bark items should not be hung on a wall or propped up on edge, unless this is how they were used. Small three-dimensional items made of birch bark, like

small boxes, bowls, and baskets, can be supported with a soft foam pad, or a cloth pillow filled with polyester batting or raw cotton. Pads or pillows should be covered with a soft clean cloth to prevent the polyester or cotton fibers from snagging on the item.

Store birch-bark scrolls in shallow curved-bottomed trays. These can be made out of acid-free corrugated cardboard. Curved bottoms can be formed by carefully slitting along all the corrugations on one side of the three-ply corrugated acid-free cardboard. Cut in this manner, corrugated cardboard will flex in one direction to form a curved shape. This cut cardboard can be placed inside a tray, padded with polyethylene foam, polyester batting, or raw cotton, and covered with a soft, clean cloth.

Acid-free paper, mat board, or cardboard are the most affordable and compatible materials from which to make storage boxes, and even display supports, for wood and birch bark. The stable plastics discussed in *Storage Containers, Supports, and Mounts* are also good materials for display and storage supports, although they can be expensive.

Cleaning and Minor Repairs

Wooden and birch-bark items that need to be cleaned can be dusted lightly with a soft brush to remove dirt and debris. Beware of items that have loose or peeling bark or paint that might be removed by a brush. Avoid using water to clean these items, as it may stain or cause them to swell and then crack when dried. Solvents such as alcohol or acetone will not leave a mark on wood and can work well to remove oily or greasy deposits such as those left by hands. Acetone, however, is highly flammable and can irritate the eyes and skin. To avoid problems with solvents, be sure to use the precautions recommended by the manufacturer or supplier. The use of any solvent on birch bark should be considered very carefully. Because of its layered structure, solvents can affect the moisture content and cause it to dry out, crack, or curl. Avoid

wood cleaners, waxes, and polishes because they are so difficult to remove.

Warped or cracked wood cannot be brought back into its original shape without placing the item under a great deal of stress. Some furniture restorers use high pressure and steam to reshape wooden items into their original shape, but this will damage paint and other coatings and can also damage the wood by crushing the wooden fibers. Generally, conservators consider this type of treatment inappropriate.

A person skilled in making items out of birch bark may be the best person to repair these items when they are damaged, especially if they retain their general shape and only the structural joining elements have broken. However, one of the most common ways for birch bark to degrade is for the bark to curl, delaminate, and split. When this happens, repairs can be difficult for anyone to accomplish. Fresh birch bark can be almost “rubbery,” but as it ages it can become very brittle and prone to splitting and cracking. It might seem that soaking the bark in water would help it to relax and unroll. Water, however, will not relax the bark or restore it to a pliable state, and it may even damage it further. In some cases, solvent fumes can be used to relax curled birch bark. Consult a conservator for advice before attempting that kind of treatment. Simply adhering layers of split or separated birch bark together can actually cause greater damage than leaving them alone, as new stresses may build up.

Under no circumstances should any type of sticky tape, staples, or sewing thread be used to repair a wood or birch-bark item. Over time, most tapes do more harm than good. They cause deep stains that are difficult if not impossible to remove. Once the sticky adhesive dries up, the plastic or paper support can fall off, and the item can fall apart again. Staples can cause permanent damage. Because sewing thread is very thin and strong, it can literally cut through birch bark.

Sometimes, very old items made of wood or birch bark may be found in dry caves, very wet environments, underwater, or in a charred state on the ground. These items are usually weak, darkly stained, and brittle. Waterlogged items can be dried in a number of ways but require the expertise and equipment available to a conservator. If these items are simply left to air dry, they can completely disintegrate. If, however, the items are dry and still recognizable as wood or birch bark, they can be treated in the same way as other wooden or bark items. Be sure to handle them with great care, as they will be very fragile.