

# Selecting Wood Species:

## *Characteristics and HeartWood™ Standards*

*Statement of Policy: HeartWood™ utilizes lumber exhibiting the highest resistance to decay for our exterior products. South American Mahogany (Sweetenia macrophylla), therefore, is utilized more often than any other species, both for its resistance as well as its relative stability.*

Listed below are the wood materials most commonly specified and utilized by HeartWood™, along with their relative decay resistance category:

<b>Resistant-Very Resistant</b>	<b>Moderately Resistant</b>	<b>Slightly Non-resistant</b>
Cherry, Black	Douglas Fir	Maple
Walnut, Black	Pine, Eastern White <sup>1</sup>	Poplar
Oak, White	Spanish Cedar	Oak, Red
Mahogany, American		

<sup>1</sup> Eastern Pines are largely second growth with a large proportion of sapwood. Only small quantities of heartwood lumber are available.

Source: US Department of Agriculture, Forest Products Laboratory (Excerpt)

## **Characteristics of Commonly-Used Species:**

### **American Black Cherry**

Cherry is a fine and especially stable close-grained cabinet and veneer wood. Its heartwood color ranges from light to medium reddish brown. Cherry is characterized by the presence of dark gum flecks which, when sound, are not considered defects, but add character to the wood. It is most generally available in plain sawn or plain sliced veneer.

### **Mahogany (Genuine, South American, "Honduras")**

Mahogany is a semi-open grain wood, with its heartwood color ranging from light tan to a rich golden brown. The color depends to some extent on the country of origin (Peru, Mexico, Brazil, and countries of Central America). The wood has unusual stability and decay resistance, making it particularly useful for exterior applications. It is most generally available as plain sawn lumber and plain sliced veneer.

### **Maple (Hard)**

Hard Maple is very similar in general characteristics to Yellow Birch. It is heavy, hard, strong, and resistant to shock and abrasion. The heartwood of the tree is reddish brown and its sapwood is near white with a slight reddish-brown tinge. Another natural characteristic is the prevalence of dark mineral streaks (predominantly in the heartwood), which can be minimized in the sapwood by selective cutting.

Like Birch, common usage of descriptive terms does occasion some confusion. The term "natural" or "unselected" maple indicates that the lumber or veneer may contain both the white sapwood and the darker heartwood. Unlike Birch, the heartwood is so low in content that no comparable selection is available. Maple's close identity with furniture and specialized industrial use overshadows its potential for architectural woodwork. Its modest cost, and pleasing, mild grain pattern warrants its consideration, especially on items subject to hard usage. General veneer availability is limited but increasing, and produced on special order.

### **Oak (Red)**

Red Oak is one of our most abundant domestic hardwoods. Its moderate, durability, strength, and appealing grain characteristics make its use widespread. Red Oak is open grained and in plain sawn form it expresses very strong "cathedral" grain pattern. The heartwood is reddish tan to brown and very uniform in color. This hardwood reacts with changes in environment and can go through a variety of colorations over its useful life.

### **Oak (White)**

White Oak is perhaps one of the best-known hardwoods in the world, and its use for architectural woodwork is widespread. Hard and strong, with good weathering in its heartwood, make its use appropriate for selected exterior applications. It is open-grained and highly figured in its plain sawn form. The heartwood varies considerably in color from grayish tan to brown, making maintenance of color consistency difficult. Sapwood is much lighter in color, is fairly prevalent, and can be eliminated by selective ripping.

White Oak is often rift sawn, producing a very straight-grained effect, or quarter sawn, producing straight grain, but with the "flake" of the medullary ray greatly pronounced. Both Red and White Oak frequently exhibit the characteristic of 'checking', which are hairline fractures along the grain pattern. Although every precaution is taken to eliminate this problem during manufacturing, the characteristic does develop. Checking can cause finish fractures, which is often mistaken for finish 'crazing'.

### **Pine (Eastern White)**

Eastern White Pine grows from Maine to northern Georgia and in the Lake States. Its heartwood is light brown, often with a reddish tinge. The wood has comparatively uniform texture and is straight grained. It is easily kiln-dried, has small shrinkage, and ranks high in stability. Eastern white pine is light in weight, moderately soft, moderately low in strength, and low in resistance to shock.

### **Poplar (Yellow)**

Yellow Poplar, sometimes incorrectly called "whitewood" is an extremely versatile and moderately priced hardwood that is well adapted to general interior woodwork usage. It is even textured, close-grained, stable, of medium hardness, and has an inconspicuous grain pattern. The heartwood is pale greenish yellow while the sapwood is white. Occasional dark purple streaks also occur. The tight, close grain results in outstanding paintability, while its modest figure and even texture permits staining to simulate more expensive hardwood. Due to its indistinct grain figure, it is seldom used for decorative veneered products. Poplar's white sapwood is inappropriate for exterior applications.

### **Spanish Cedar (Acajou Rouge)**

The sapwood is pinkish to white or pinkish beige in color, and is clearly demarcated from the heartwood. Timber from younger or fast-grown trees is commonly paler in color. The heartwood is pink to pale pink brown or reddish brown when freshly cut, darkening upon exposure to a dark reddish brown, sometimes with a purplish tinge. Resin marks may be present in the wood. The grain varies from straight to shallowly interlocked. The wood has moderate to high golden luster. The wood has a fragrant, cedar scent due to the presence of oil which may exude and appear on the surface of the timber as a sticky resin. The wood is moderately resistant to decay, has excellent resistance to harmful effects of the weather, and is highly suitable for use in exterior applications. It finishes and stains well, but pre-treatment of the grain is recommended to avoid oil and gum exudation.

## Walnut (American Black)

American Black Walnut is perhaps our most highly-prized domestic wood species. Its grain pattern variations are extensive and in veneered form produces, in addition to its normal plain sliced cut, quartered or "pencil striped" as well as specialty cuts such as crotches, swirls, burls, and others. Its heartwood color varies from gray brown to dark purplish brown. The sapwood, which is very prevalent in solid lumber, is cream colored and its complete elimination by selective cutting is very costly. Fortunately, if this natural effect is felt to be undesirable, its appearance can be neutralized by sap staining in the finishing process. The growth conditions of Walnut result in significant width and length limitations in lumber form. Its potential is best expressed in veneered products.

**Note: Aesthetic characteristics as they relate to finishing**

*It should be noted that the color of wood within a tree varies between the sapwood outer layers of the tree which continue to transport sap and the heartwood or inner layers in which the cells have become filled with natural deposits. The color can be much lighter at the outer extremes of the tree. This color variation and light versus dark condition can be evidenced after the finishing process has been completed. The charm of real wood is that this variation exists. Although the lumber sorting process excludes as much natural characteristics as possible for the grade of lumber being selected it is impossible to make a totally uniform finished product.*