

Bubba Cheramie, President  
Dick Hopes, Sec. / Treasurer

Officers and Directors

Barry Humphus, Editor, Brent Evans  
George Kuffel, John Marcon, Chuck Middleton

### APRIL HIGHLIGHTS

Knotwood Vinyl Products, owned and managed by Judy and Ray Wood, were our hosts and presenters this month. Knotwood Vinyl Products fabricates fencing and posts to build high quality surrounds for your home. During the past three years they've been in operation, they've learned a lot and even come up with innovative designs on their own. The vinyl product they use is from Kroy, located in York, Nebraska.

Kroy supplies many different post, rail and fill designs which the Woods then custom design and fit to the homeowner's requirements. The Woods also fabricate decks, porches and docks to specification.

Kroy can also supply fiberglass versions of decorative "iron" fencing.

Ray talked about the different quality of vinyl products. The best, which they use, is co-extruded with a surface layer containing environmentally friendly titanium oxide as a UV inhibitor. This layer insures that the vinyl can live outdoors for as long as 60 years. Of course, vinyl fencing does not rot or get termites. Most of the vinyl used is white and does not need painting. Kroy can also supply "stained" versions.

The stain is actually part of the vinyl. In fact, Kroy will not warranty the product if painted.

Ray explained that the fence component fittings must be precise yet allow for expansion and contraction during weather changes. The product is flexible by design, providing for high wind resistance. Posts are set in concrete with an aluminum extrusion inside the corner posts for added rigidity. The product are ridged enough to form a 6 foot wide gate and Ray believes he could do an 8 foot if required.

Assembly and fabrication is straight forward,

using standard woodworking tools such as a large chop saw and router for precision cuts. The peices are notched to lock together so do not need screws which could fail over time.

Judy Wood has designed several sizes of wishing wells from the vinyl and they are planning to expand this construction in the near future.

Show and Tell brought us several interesting items. New member Edwin Blessing brought a wonderful child's rocker built of plywood from his copyrighted design. Rod Nunally showed off two scrollwork items: a regious picture and a scrollwork memorial.

Dick Hopes brought one of his great children's toys—a duck on a stick. John Leonard Fontenot showed us a turned flower vase (he didn't make the flowers).

Gary Rock told us about a great source of hardwood—the DeQuincy Sawmill. The Sawmill makes railroad crossties out of gum, oak, ash and even walnut. You can purchase their cutoffs (8" x 8" and the slabs from the sides). The cost is outstanding at \$10 per pickup truck load and you can pick and chose from the large piles. To get there, turn right (East) off Hwy 27 at the main DeQuincy intersection onto Hwy 12. The Sawmill is on the left before you get to the curve. Gary uses the wood in his fireplace but selects the most interesting pieces for bowl turning and other projects. See the S & T items on our website at <http://woodworkers.lightwire.net>.

Coming Up... Saturday, May 10, 9:00 a.m. Steve LeGrue of Houston's The Cutting Edge will show us what he knows about routers at the studio of John Marcon.



## THE AMAZING SWEETWOOD

Over the past several months, we've seen several wonderful examples of bowls from Gary Rock. Barry Humphus has also brought a few as well to our Show and Tell sessions. The wood they have been using is *liquidambar styraciflua*, better known as sweetgum.

There is much confusion about sweetgum as it is sold under a couple of different names. The sapwood is often marketed as sapgum while the heartwood is sold as tupelo, redgum or blackgum. In fact they are the same tree. The sapwood is usually a very light color, sort of a creamy white, whereas the heartwood is typically a very complex combination of reddish-brown and sometimes a grayish hue with streaks of black and deeper red. The bark produces a resin called liquidambar balm (sold as Storax) that has important uses in medicine and perfumery though it takes a good size tree to produce an ounce.

What is great about this wood is that it can take a large range of stains, especially the sapwood. It can be stained to resemble cherry, oak and even black walnut. It's density is such that it can also pass as mahogany. Sweetgum is a great way to counterfeit other woods, especially when you need secondary wood to fill interiors of cabinets, drawers bottoms and sides or even act as primary woods on your project.

While sweetgum and tupelo are similar in texture and density, they are not related (except as both being trees). Tupelo is from the Nyssacate family (akin to dogwood) while sweetgum belongs to the witch-hazel family.

When grown in dense forests, it is a magnificent timber tree capable of attaining heights well in excess of 100 ft. and diameters of up to about 5 ft. It has bright green, star-shaped leaves, that turn vivid red in the fall (at least in our neighborhood). The seeds are encased in small, 1-in.-dia. woody burs vaguely similar to those of sycamore. The tree is very attractive and is a popular cultivar wherever it can be grown and landscapers have managed to push its range as far north as extreme southern Ontario (but where it seldom attains a significant size).

In the 19th century, vast forests of sweetgum and sapgum were used for railroad crossties. It is mostly used today for pallets, crating and plywood. From about 1900 through the 1930s, sweetgum was

used as primary low-cost, paintable hardwood for interior trim. As supplies diminished and prices rose, this has largely shifted to white and yellow poplar.

Sweetgum heartwood (often called redgum), has continued in the furniture industry as a popular secondary wood. It is substantially stronger than poplar and in the hands of a skilled finisher can simulate many other primary woods. The application of brown stains allows it to pass well for the less noticeable parts of walnut furniture. Red stains make it a good counterfeit for cherry. The sapwood is a good blond-wood substitute in maple or birch furniture.

It turns out that European furniture makers have long used the sap- and heart-wood as primary wood in fine furniture. In fact Europe imports tons of the wood each year. In England, the heartwood is often sold as satin walnut. While redgum can be finished to approximate the appearance of black walnut, its actual color is almost identical to English walnut—a long scarce and very expensive wood there.

Redgum's working characteristics are almost identical to cherry. Like cherry, it contains natural gum which gives it a satiny surface but is not high enough to cause serious friction burns. You can often smell its sweetish odor when sawing or turning the wood. Quartersawn stock often yields a ribbon-like appearance that is especially showy.

The downside of sweetgum is its poor resistance to decay and lack of stability (16% shrinkage from wet to kiln dry). This can present a challenge when used in furniture. It can also be interesting if you turn it wet. One of my strange bowls was a wet turned chunk that when dry became very boat-shaped! *Barry Humphus*.



$$\frac{\text{AMPS X VOLTS X PF X EFF}}{746}$$

We'll get to the above formula a little later but first remember the last time you looked for a shop vacume. You looked at the adds and visited the stores. Most of them show on the side of the vacume, in large numbers, the Horsepower. In smaller letters you read Peak or Maximum. While horsepower rating shown in these terms are not down right lies, they are not very meaningful either.

Let's say you have a vacume, router and compressor rated at 3HP, 3.5HP and 5HP respectively. All of these are intended to plug into a standard 15 amp house circuit. If you wired your circuit breaker so it wouldn't throw and ran them under full load, they might acheive the rated hp before they went up in smoke.

Power woodworking equipment is not designed to run NASCAR races. They are designed to operate at sedan crusing speeds with only an occastional burst of power. So when shopping for power tools, take a look at the printing on the motor labels and apply the formula in the title.

All electric motors convert electrical energy into rotation. The amount of current used by the motor determines, at least partly, how much horsepower it develops. Horsepower is defined as 746 watts according the IEEE. A watt is a measure of electrical power—the stuff that your house electric meter measures.

Amps are the volume of current while a volt is the pressure. One amp at 1 volt equals 1/746 hp. Which brings us to a simpler equation for figuring out horsepower:

$$\text{amps x volts} \div 746 = \text{hp.}$$

Two other factors also affect the equation: power factor (pf) and efficiency (eff). These have to do with how the motor is built and how much current goes into creating motion. The power factor and efficiency ratings vary between motors but they are not what the dealers talk about. Power factoor and efficiency rating of between 10% and 30% are common and you may have to contact the manufacturers technical support department to find out about yours.

Almost any motor name plate will give you two essential numbers: amps and volts. Volts can vary slightly from 110 to 120. Most consumer motors will

run fine anywhere within this range. When doing the calculation, just assume its 115 volts.

Horsepower rating of electrical motors are not regulated like amperage ratings and some manufacturers make interesting claims about hp.

For example, take that 3.5 hp router that's rated for 13 amps and do the math:

$$13 \text{ amps} \times 115 \text{ volts} \div 746 = 2\text{hp}$$

Power factor and efficiency ratings lower that to about 1.5hp which is the most continuous horse-power you can expect from any tool that you plug into a 115 volt, 15 amp household circuit. The equation for continuous horsepower looks like this:

$$\text{volts} \times \text{amps} \times \text{pf} \times \text{eff} \div 746 = \text{horsepower}$$

If fact many motors will survive a surge in amps under a heavy load and produce extra horse-power. It's like over-reving your car engine before shifting gears. You can get away with it only so long before the engine fails. Overheating a motor more than about 10° can cut its life in half according to Delta Tools. At normal load, a well built motor can last 40 years. Overheat the motor several times could cut that to 2 or 3 years. So overload protection circuits are a very good feature to look for in a motor.

Another factor is the wiring you use, including the length of wire between the the circuit breaker and the tool, the number of other tools connected, the gage of extension cords used and the condition of the switches and motor bearings. Always use 12 gage wiring if possible as it can easily handle up to 20 amps.

For a very comprehensive look at everything you always wanted to know about electric motors, check out: [http://moose.ca/~slowzuki/slowzuki/tech\\_info/shop\\_wiring](http://moose.ca/~slowzuki/slowzuki/tech_info/shop_wiring). *Barry Humphus*

SINGLE PHASE	
CAT NO	1234567
SPEC	36CD1-201
FRAME	1827
H.P.	3
VOLTS	115 / 220
AMPS	15 -14.5
R..P.M.	3450
HZ	60
EFF /	76 %   P.F. 87 %