All the News that fits

Southwest Louisiana Woodworkers Club January 2021

Mentoring Program - If you have a project, a problem in any woodworking area, these members have volenteered to help. Give them a call. Frank Tartarmella 802-8989; John Marcon: 478-0646; Eltee Thibodeaux: 436-1997; Ray Kebodeaux: 583-2378. Each have years of experience and knowledge.

No December Highlights -- Again

Happy New Year with a new year, with a new President and Vice-President but old Covid-19. Perhaps we are fortunate to survive all of this plus two hurricanes and the Fall elections -- so far. My wife and I are in the tier 1b group as we are teachers and if you are over 75 years of age, so are you presuming you can get in the line.

Our home repairs goes slowly. The bulk of the work of repair was done (rafters, roof (one for Laura and a partial for Delta), then the contractor bailed. Mark Poole Painting apparently got the Memorial job and abandned everyone else. We are filing a complaint with the Louisiana State Board of Licensing for Contractors Board and more. BTW, the contractor left his trailer in my driveway -- want it? Trying to find a local contractor to finish the work. We hope every one of you are doing better.

Magnetocuring: Curing Epoxy With a Magnetic Field

Who doesn't like epoxy? Epoxy resins, also known as polyepoxides, are an essential are an essential adhesive for woodworking and much more in many applications, both consumer and in industrial and at many small scales as well. Some epoxies for consumer use as well as many for 300 commercial applications require the application of heat (around 150 C° (i.e.300 F) in order to cure and thus harden. This can complicate the process when the resin is applied to or inside layers of temperature sensitive materials, including wood.

Now researchers at Nanyang Technological University in Singapore have found a way to heat up resins using an alternating magnetic field and it is so-called magnetocuring.

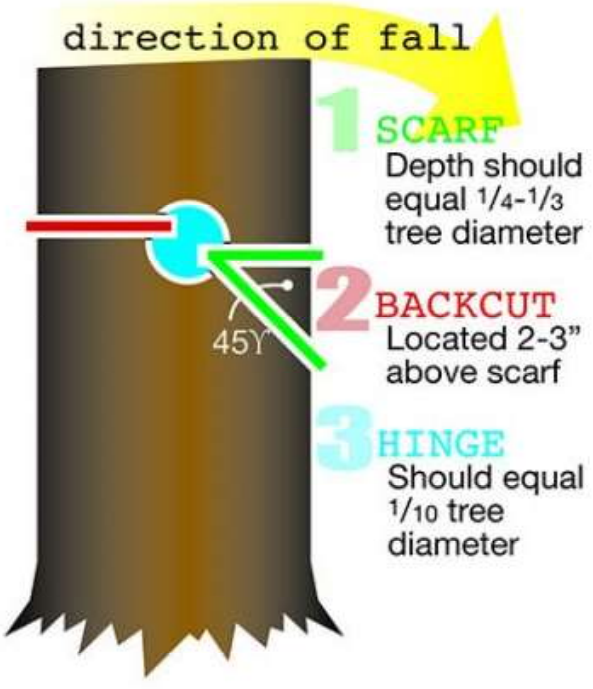
In a detailed research article by R. Chduhary. et al, (see Magnetcuring of failsafe epoxy adhesives in Applied Matrerials Today (something John Marcon, Robin Richard and other members likely read each month!) they used consumer and commercially available epoxy and added nano particles of a $Mn_xZn_{1-x}Fe_2O_4$.

This mixture is then exposed to an alternating magnetic field to induce currents in the nano particles and subsequently produce heat that served to raise the resin to cure. What is great is that there is no risk of overheating our workpiece. The nano particles are engineered to reach their Curie temperature, at which point the magnetic field no longer affects them. The exact Curie temperature was tweaked by changing the amount of manganese and zinc in the alloy.

After trying a number of different formulations, they settled on the $Mn_xZn_{1-x}Fe_2O_4$ mix as the optimal formulation at which no resin scorching occurred/ As with all research, it's hard to tell when (and if) it will make it into commercial applications, but if this type of technology works out, we could be gluing our workpieces together using epoxy resin and an EM field instead of fumbling with the joys of two-component epoxy.

Felling Trees Safely

Although the specific technique that professionals use to fell a tree can vary from region to region and even species to species, it generally has three components—THE SCARF, THE BACKCUT, and THE HINGE, as shown in the drawing.



Contines

Felling Trees Safey continues

Before making any part of the felling cut, plan ahead for where you want the tree to fall—never into other trees or fallen timber. Also look for obstacles that might block its fall or change its direction, and remove them. "It's a good idea to fell a tree in the direction of its lean, too, if it has any," says Mike Bounds, Director of Product Safety for Poulan chainsaws at the company's Engineering Innovation Center in Texarkana, Arkansas. "But you need to use something to verify how the tree is standing. A tree could look like its leaning because it's on uneven ground, yet be growing straight. To check for lean, take an ax and set it on the ground head down and see how it lines up with the tree."

Next, check your escape route. It should be 45° to the rear of the expected direction of fall. Clear the path of undergrowth, fallen branches, and anything else that could trip you. Then, and only then, determine where the scarf should go, cut it, and remove the resulting triangle-shaped piece of wood.

Finally, do the back cut, making sure you leave a hinge. "The angled cut of the scarf should leave the hinge intact as the tree falls all the way to the ground, providing the most control," notes Bounds. "Cutting less of a scarf to conserve wood in the butt of the tree lessons control and the tree can twist and change direction as it falls. After you've made the back cut, shut off the saw, place it on the ground, and move quickly—but don't run—down your excape rout".

According to safety experts at Oregon Cutting Systems, a leading manufacturer of saw chains and guidebars, bar-nose kickback ranks as one of the major causes of serious chainsaw injury, and Mike Bounds agrees. "Kickback is the instantaneous reverse reaction that kicks the guide bar up and backward toward the operator when the moving chain at the top tip of the guide bar touches an object, or when the wood closes in and pinches the chain at that spot," he explains.

"A chain brake won't prevent kickback," Bounds continues. "It only stops the chain from moving." Those exper enced with chainsaw operation call the area of the guidebar highlighted in the photo at left the "kickback zone," and avoid making cuts with that portion.

A chainsaw that reduces fatigue—the factor behind many accidents—has the lightest weight for the amount of engine size needed for the job. It also should feature a system to reduce the amount of vibration delivered to the handles, as well as a reliable chain brake, reduced-kickback guidebar, and low-kickback saw chain.

To guard against injury, the Occupational Safety and Health Administration requires that chainsaw operators employed by logging companies wear: Pants or chaps made from chainsaw-resistant material; afety glasses or goggles' Hearing protection (NRR of 23-25 dB)' Hard hat.

For only occasional chainsawing, though, you might not want to go to the expense of chainsaw-resistant chaps, but do plan on wearing the other items. And to those add steel-toed boots or shoes, and non-slip gloves. (Cut-resistant ones are available, and can be combined with forearm-protecting sleeves.) Then, keep on your toes to avoid injury.

After the tree hits the ground, look for any probable hazards that it may have created. Dead or broken-off limbs overhead in a nearby tree might fall due to the activity. Small saplings bent to the ground by the fallen tree can spring back when you relieve the pressure through further sawing for limbing and bucking (crosscutting the trunk into manageable log lengths).

When putting the debris on the curb, at least in Lake Charles, the city requires that the large pieces be no longer than two feet.

A fallen tree has stresses created by its fall. You must be aware of these when limbing and make your chainsaw cuts accordingly. For instance, on a limb sticking straight out from the trunk, you'd make your first cut on the side facing the ground. This relieves compression stress. Your second cut, on top of the limb and slightly offset from the first, relieves tension as it frees the limb. Remember, that the first cut is always on the compression side.

Following limbing comes bucking the trunk. For large-diameter trunks intended for further milling into boards, you must determine the length of the logs you can or want to handle based on any visible defects. That is, a big knot or rotten burl shouldn't end up in the middle of what will eventually become a board. And because the trunk rests directly on the ground, you have to saw through from the top, beginning at the butt (lower end).

"Keep in mind that the most common injury in logging comes from getting hit by a branch or part of the bucked log as it rolls," says Poulan's safety director. "So just as in felling the tree, you must calculate what each piece of wood will do when it is free of the tree. And during the limbing and bucking process, never let the saw chain contact the ground. It travels faster than 50 mph and will immediately dull."

Lithium Battery Safety

In general, well-made lithium-Ion batteries are safe to use in power tools.While there have been instances of these catching on fire, it is rare: 1 in 10 million according to Cadex Electronics, a manufacturer of battery charging and testing equip

Lithium Battery continues

ment). In other words, the odds of a properly manufactured Li-Ion battery catching fire are 14 times less likely than you being struck by lightning in a given year (1 in 700,000).

The electrolite in these batteries contain a lot of oxygen. If the batery has a dead short, it heats to combustion very rapidly and when the metal lithium catches fire, it is extremely difficult to put out because they self-feed. The nearest fire department that has extinguishers for lithium fires are the local airports.

Know that problems with early cell phones and laptops have been resolved. Hoverboard fires resulted from the use of poorly made or improperly installed cells. Bear in mind, too, that power tools use rugged construction formats, Li-Ion chemical formulations, and charging-management systems different from those found in personal electronic devices, according to Sean Fitzgibbons, senior product manager for the battery category at DeWalt.

Though the odds of one of your power-tool Li-Ion batteries catching fire are incredibly remote, it still pays to follow safe practices. Use original-equipment-manufactured replacement batteries designed for specific tools and chargers. As Ridgid's development team told us in a statement, "Many counterfeit batteries and inferior designs don't invest in the [safety] protocols that we do." Do not impact or damage a battery by using it as a mallet, and never use one that appears compromised in any way. Don't expose batteries to temperatures above 104°F or below 32°F, or charge them in direct sunlight. If you exceed those parameters, the equipment should prevent damage. "Our batteries work as a system with tools and chargers to monitor temperatures and shut down operation at temperature extremes," according to DeWalt's Fitzgibbons.

Don't store or transport a battery in a container with loose metal objects that could contact the terminals and cause a short circuit. Also, avoid exposure to liquids, including rain, oils, and solvents. Finally, never disassemble, modify, or tamper with a battery. If it appears damaged, replace it. Many retailers (Home Depot and Lowes locally) will accept your batteries for free recycling. Do Not put them in your trash.

Electrical Labels Decoded

We purchased a home in Austin where we will move to in a couple of years. I had an electrician inspect my future shop and asked about using my home-built dust system in that small shop. She said that my dust filter would not do when the electrical inspector came out as it would not be UL labled.

But most air cleaners are not UL lack certification from the Underwriters Laboratories or any other testing service recognized by a majority of the state or local building codes modeled after the International Residential Code.

Different states have different requirements concerning the sale and use of noncertified electrical devices in home workshops, so the only sure way to know what's allowed where you live is to contact your local building department. In Louisiana, all electrical devices must be evaluated for safety by a qualified testing service recognized by the state. In addition to UL, those include the Canadian Standards Association (CSA) and Intertek Testing Services, which uses the ETL logo. Check for either logo, shown below, as well as the UL mark when shopping for equipment.

The bottom line: Your building inspector enforces that state law and has absolute authority to say what electrical devices can be installed. So while an uncertified air cleaner may still be safe, it may not be legal in your state. For example, not in Austin, TX where we will move in a few years.

If you're wondering why all equipment—not just air cleaners—doesn't carry some testing service logo, it's because product testing and certification can be expensive. One manufacturer estimates that initial testing and certification costs exceed $10,000 per product, not including annual certification maintenance costs. You can do a quick check of the stationary and benchtop machines in the WOOD magazine workshop, two-thirds lacked any certification, and none carried a UL label.

What Did You Get for Christmas? Me Either!

No Meeting Location

Just stay safe.

January 2021

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