Lake Charles Woodworkers Club, Inc. May 2007

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George Kuffel, John Marcon, Chuck Middleton

APRIL MEETING HIGHLIGHTS

The shop of Charlene and Chuck Middleton was our meeting place and they were our hosts in their newly completed shop.

The general discussion about how the Middleton's were going to treat the roof deck insofar as insulation was interesting. Several suggestions were made including foil-coated ridgid insulation or radiant barried paint products. So much so, that we've included some insights about roof deck insulation in an article starting on page 2.

Gary Rock started the Show and Tell with several items including a large laminated pine bowl, very cute cedar and mahogany 'hedgehog' figures, a tray made of pear and a small cottonwood hollow form vase. In addition, there was a small box of silver maple. He also showed off a tall cottonwood blow-out vase. Like all turners, you go back to do that final little touch with the gouge to get it just right and bang, the parts go flying. I recently did this to two redwood bowls designated as gifts for a neighbor who donated the wood. She's just going to have to wait for that bowl on her mantle.

Larry Eagle says that the planning continues on his art shop project. But he also brought a couple of marvelous candle holders of a unique design. To understand them, you just have to go to the website to see. Larry used cooper and silver leafing on the two holders and discussed how the material is applied and finished.

Our host Chuck Middleton showed some of his past work with Intarsia including a great car model, his famous pelican plus a wind vane and a cane head. He also brought out a couple of very old jointer planes that were his grandfather's. Chuck can see how to remove all of the rust yet leave that old patina in the short article on page 3.

Speaking of old tools, Jim Anderson mentioned that he checked out another Marples brace from an antique store in Texas. It was not in as good a shap as the one he got a year or so ago, so he passed. But Jim did bring a cedar cane with an antler handle that looked great.

If you are interested in buying an old tool, make sure you research the market before wandering in an antique shop. Go to eBay or other online auction stores and search for old tools, especially noting the closing price of the items. With this sort of information in hand, you are better prepared to negotiate with the antique dealer. Of course, you could also ask Jim, as he has considerable experience finding, evaluating and buying old tools.

George Giltner brough an interesting wooden puzzle made of balsa. and no one but George knows how it works. It consists of a block of balsa wood with a large nail through the center tendon. There are no obvious joints. He has promised that he'll reveal the mystery at the May meeting.

Note that Gary Rock will likely not join us for the May meeting as he will have just got out of the hospital. Wish him your best.

At the May meeting, Dick will be presenting more on jointery. Dick will show off more techniques using a hollowing mortiser. These are a must for anyone wanting to make a clean mortise fast. I have one that fits my Delta drill press and I love it.

Also, we decided on the future locations of meeting for the next several months: Dick Trouth, Pie Sonnier, Eltee Thibodeaux, John Marcon and Jeff Cormier for the next five months. Check the web site for details.

Coming Up . . . Saturday, May 12, 9:00 a.m at the Shop of Dick Trouth: Joints and Show & Tell.

RADIANT BARRIER PRODUCTS

At our recent meeting at Chuck & Charlene Middleton's shop, we discussed various products that they could apply to the underside of the new shop roof. While there were many products discussed, several present a better solution to their needs (and to yours). Each of these can apply to both your home and shop.

Radiant barriers are materials that are installed in buildings to reduce summer heat gain and winter heat loss, and hence to reduce building heating and cooling energy usage. The potential benefit of radiant barriers is primarily in reducing air-conditioning cooling loads in climates such as SW Louisiana. Radiant barriers usually consist of a thin sheet or coating of a highly reflective material, usually aluminum, applied to one or both sides of a number of substrate materials. These substrates include Kraft paper, plastic films, cardboard, plywood sheathing, air infiltration barrier material and even paint. Some products are fiber reinforced to increase the durability and ease of handling (e.g., rigid foam).

Radiant barriers may be installed in attics in several configurations. The simplest is to lay the radiant barrier directly on top of existing attic insulation, with the **reflective side up**. This is often called the attic floor application. Another way to install a radiant barrier is to attach it near the roof. The roof application has several variations. One variation is to attach the radiant barrier to the bottom surfaces of the attic truss chords or rafter framing. Another is to drape the radiant barrier over the tops of the rafters before the roof deck is applied. Still another variation is to attach the radiant barrier directly to the underside of the roof deck with a small air space between the insulation and the roof.

Radiant barriers work by reducing heat transfer by thermal radiation across the air space between the roof deck and the floor. All materials give off, or emit, energy by thermal radiation as a result of their temperature. The amount of energy emitted depends on the surface temperature and a property called the "emissivity" (also called the "emittance"). The emissivity is a number between zero (0) and one (1). The higher the emissivity, the greater the emitted radiation.

A closely related material property is the "reflectivity" (also called the "reflectance"). This is a measure of how much radiant heat is reflected by a material. The reflectivity is a number between 0 and 1 (sometimes, it is given as a percentage, and then it is between 0 and 100%). For a material that is opaque (that is, it does not allow radiation to pass directly through it), when the emissivity and reflectivity are added together, the sum is one (1). Hence, a material with a high reflectivity has a low emissivity, and vice versa. Radiant barrier materials must have high reflectivity (usually 0.9, or 90%, or more) and low emissivity (usually 0.1 or less), and must face an open air space to perform properly.

On a sunny summer day, solar energy is absorbed by the roof, heating the roof sheathing and causing the underside of the sheathing and the roof framing to radiate heat downward toward the attic (or shop floor). When a radiant barrier is placed on the attic floor, much of the heat radiated from the hot roof is reflected back toward the roof. This makes the top surface of the insulation cooler than it would have been without a radiant barrier and thus reduces the amount of heat that moves through the insulation into the rooms below the ceiling.

Under the same conditions, a roof mounted radiant barrier works by reducing the amount of radiation incident on the insulation. Since the amount of radiation striking the top of the insulation is less than it would have been without a radiant barrier, the insulation surface temperature is lower and the heat flow through the insulation is reduced.

Radiant barriers perform a function that is similar to that of conventional insulation, in that they reduce the amount of heat that is transferred from the attic into the house or shop. They differ in the way they reduce the heat flow. A radiant barrier reduces the amount of heat radiated across an air space that is adjacent to the radiant barrier. The primary function of conventional insulation is to trap still air within the insulation, and hence reduce heat transfer by air movement (convection). The insulation fibers or particles also partially block radiation heat transfer through the space occupied by the insulation.

Conventional insulations are usually rated by their R-value. Since the performance of radiant barriers depends on many variables, simple R-value ratings have not been developed for them.

All radiant barriers have at least one reflective surface, usually a sheet or coating of aluminum. Some radiant barriers have a reflective surface on both sides. Both types work about equally well, but if a one-sided radiant barrier is used, the reflective surface **must face an open air space**. For example, if a one-sided radiant barrier is laid on top of the insulation with the reflective side facing down and touching the insulation, the radiant barrier will lose most of its effectiveness in reducing heating and cooling loads.

A radiant barrier used in the attic floor application must allow water vapor to pass through it. This is necessary because, during the winter, if there is no effective vapor retarder at the ceiling, water vapor from the living space may condense and even freeze on the under-

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side of a radiant barrier lying on the attic floor. While most uniform aluminum coatings do not allow water vapor to pass through them, many radiant barrier materials do allow passage of water vapor. Some allow water vapor passage through holes or perforations, while others have substrates that naturally allow water vapor passage without requiring holes. However, excessively large holes will increase the emissivity and cause a reduction in the radiant barrier performance. The ability to allow water vapor to pass through radiant barrier materials is not needed for a roof application.

So what is the best for your home or your shop? The easy answer is ridged foam insulation with an aluminum foil surface. Just tack it up on the underside of the roof with a small air space (1/4" to Ω") between the roof deck and the insulation material. Face the aluminum coating up toward the attic (only if you have provided a small air space between the foil and the roof deck). If you don't have an air space between the foil and the roof deck, face the foil side down toward the floor of the ceiling or shop floor. But the preferred way is to have that air space between the foil and the roof deck.

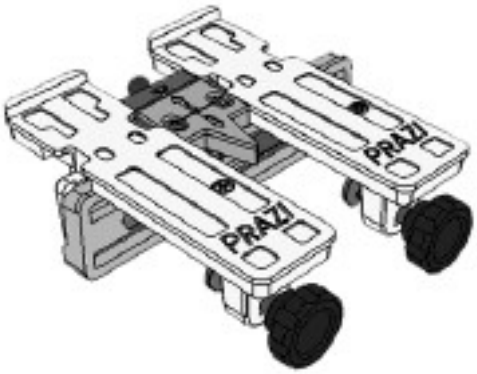
Another solution is to use a radiant barrier paint product. This is painted or sprayed onto the underside of the roof. In fact, you can use any paint you desire by adding a. 'micro-balloon' powder that also contains aluminum to the paint (available from several sources). While this is an easy task, it is not as effective as a ridged foam product with an aluminum foil coat on one or both sides. Barry Humphus.

CHESTMATE DOVETAIL JIG

For most woodworkers, obviously, one of the most important parts of their work is the joinery. This means that most of us are always looking for tricks and tools to make their favorite joints easier. Here's where the ChestMate Dovetail Jig from Prazi USA comes in.

The first thing that you will notice is that the ChestMate does not look like other dovetail jigs on the market. The claim to (hoped-for) fame of this particular dovetail jig is that it can be used with stock of any width. For stock thickness, it can accommodate one-half inch to one-inch boards. Choose your own stock, and choose your own dovetail arrangements, as well. You can make the joint placements symmetrical or asymmetrical as you wish, or you can create a repeating pattern of dovetail cuts with this simple jig. That is something that only the most expensive jigs can accommodate.

The instructions also claim that "when backed up properly and with the use of sharp cutter bits, the pins and tails will be splinter-free."



Other than that, it works in conjunction with your router very similarly to most other dovetail jigs, as the short and clear instructions explain. (Which means you should actually read them! I particularly appreciated the part on page 5 which notes that you should "wait until it stops" before removing your router after cutting the tails.)

The ChestMate sells for about $120 from many woodworking sources. You can find out more about it at http://www.praziusa.com/chestmate.html.

ELECTROLYTIC RUST REMOVAL

We keep getting asked about removing rust from ferros metals, especially steel. In fact, just this past weekend, a friend was visiting from Nashville, saw my rig and asked how it is done.

You need a few low-cost items to make this happen: a plastic container large enough to hold the item completely under water, a box of washing soda, i.e., sodium carbonate (20 Mule Team Borax), a battery charger (preferably one with an AMP meter), a piece of sheet metal (or any other large surface area steel), enough water to cover the rusted object and of course the rusted item.

Disolve a heaping tablespoon of sodium carbonate per gallon of water. You can substitute sodium bi-carbonate (baking soda) as well, but it is not as effective an electrolyte as sodium carbonate. Use enough water to completely submerge the rusted item.

I found through experimentation that sheet metal works best as an anode. It's cheap and has a large surface area. Insert the sheet metal into the bucket with the water. Attach (THIS IS IMPORTANT) the RED lead of the batter charger to the sheet metal such that the clip is above the water. If you submerge the red clip in the solution, it will be eaten away by the process. Attach the BLACK lead to the rusted item and submerge the whole thing into the solution. The black lead will not be harmed by the process. Place the rusted item close to the sheet metal, preferably, the sheet metal would surround the item. Just remember: Black Lead to Rust.

Now (and only now) plug in the charger. You should almost immediately see small bubbles coming off the item. This is oxygen and hydrogen gas. Goes POP with a spark, so do this outside. Leave the item in as long as necessary to remove the rust.

The great shop of Dick Trouth will be our meeting place this month. There you will find Show and Tell, shop safety briefings, good advice on tools and techniques and design plus lots of questions with answers to your wood working questions.

Come join us and bring a few items of your current work to show off.

To get there, go South off I-10 on Beglis Parkway (S. Arizona St.) in Sulphur. Turn left onto Ravia Rd. and take the third right onto Hadley. Dick's home and shop is about half way on your right at 4136 Hadley. If you need further directions, give Dick a call at 337-583-2683.

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