Vol 4 Number 12 http://www.themakerbarn.org

NEWSLETTER December 2021

"The MakerBarn is a member-driven family-friendly makerspace that exists to provide a place for our members to envision, design, and realize creative projects. We are dedicated to building a creative maker community among our membership and the community at large."

I hope everyone had a good Thanksgiving, now it's Christmas light hanging time.

A lot has been going on at both the Lab and Shop. I want to highlight four new additions to the Barn which are described in more detail elsewhere in the newsletter:

- We received the new **12" jointer** from Laguna. It is a very smooth operating machine, and the woodworkers seem to be enjoying it.

- We also have a new **powder coating system**. This is a rugged professional unit, quite a change from what we have been using.

- We also have a new **plane blade and chisel sharpening station**. Part of the program to bring more hand woodworking to the shop.

- Lastly, a **Dye Sublimation printer** for the Lab. Dye Sublimation is a process where the dye that has been printed on a special paper is transferred to an object using heat. The dye turns into a gas which permeates the surface and bond molecularly with the object. The color is brilliant and permanent. It especially works well with polyester fabrics.

The MakerBarn looks like Santa's workshop. Both the Shop and the Lab have been busy making decorations and presents. Come join in on the fun.

George Carlson
President, MakerBarn

New Sublimation Printer & Demonstration

Dye Sublimation is a process where dye that has been printed on a special carrier sheet, is transferred to an object using heat. In theory, the dry ink on the paper carrier sheet turns directly into a vapor that bonds to polymers on the surface of the object. The transfer is very durable. For instance most computer keyboard keys are printed using dye sublimation.

Materials that you would print on have to be carefully chosen for best results. Fabric made of 100% polyester work wonderfully, 65% polyester, 35% cotton works, but the colors are not nearly as brilliant. Fabric of 100% cotton does not accept the dyes, although I did see a spray-on liquid that helps solve that problem.

The neat thing is that we are not limited to fabrics, other materials can also be printed on. Oracal 651 vinyl can be printed on and used as stickers or decals. The vinyl can also be attached to glass and printed on, making translucent images for lamps and artwork. Wood can be printed on by first use laminating film to cover the wood, then dye-sub on the film. Acrylic can also be printed on with the dye-sub process.

MakerBarn member Candida has produced some beautiful objects using the dye sublimation process and she will be doing a class showing how to use the equipment we have. See box below for information on to join her class.

Even guys are capable of doing this. Greg and George made this Peanuts transfer using the Epson ET-2800 dye sublimation printer, photoshop, and a little luck.

Date: Tuesday, December 7th
Time: 6:30 pm at The Lab

MakerBarn member Candida will demo sublimation on a fabric substrate (shirt or other), and on hardboard unisub that you can cut on the laser and personalize.

OPTIONAL bring a 65%-100% WHITE or LIGHT GREY polyester shirt and an image of your choice to take home a personalized shirt for yourself or as a gift! Higher polyester count is better. Other options: socks, dish cloth, headband. Remember: high polyester count is key as dye sublimation is a chemical process. I personally don't use anything below 90%.

New Sharpening Station & Demonstration

We talked in the past about having a class on Hand Cut Dovetail Joints. But that may be putting the cart before the horse. So let's start out learning how to sharpen our tools so that we can chop those joints and smooth them out.

The sharpening station consists of a Wen wet grinding wheel and stropping wheel. The grinding wheel is used to put the primary bevel edge of the chisel or plane iron. It can also be used to sharpen other items such as knives and scissors (with the proper attachments). The stropping wheel is used to quickly refine and polish an edge.

The station also has a diamond plate that can be used to flatten the back of the chisel or plane iron using the 400 grit side of the plate. The 1000 grit side is used to create the secondary bevel on an edge, the key to a razor-sharp tool.

To finish the edge, you can use either the stropping wheel, or a flat leather stropping board. The stropping board is a piece of leather glued down to a flat piece of plywood. A bit of super fine stropping paste is applied to the leather. Dragging the edge along the leather, much like a barber uses his leather strop, the edge will become hair-splitting sharp.

Date: Saturday, December 4th
Time: 9:00 am at The Lab

We will have a class at the Lab showing how to use the new sharpening station. At that time, we will cover some of the finer details of sharpening and setting up the tools. After that the station will be moved to the Shop.

More New Equipment at the Barn!

MB woodworkers are enjoying the new 12" jointer Laguna model delivered from Rockler Woodworking. PLEASE do not attempt to maintain this equipment (or any other woodworking tool) without approval of the Woodworking Area Manager - currently Jim Baron.

We are now proud owners of a "Hyper-Smooth 02 Basic Gun System" from Columbia Coatings. You can read all about it at https://www.columbiacoatings.com/HS02-BASIC

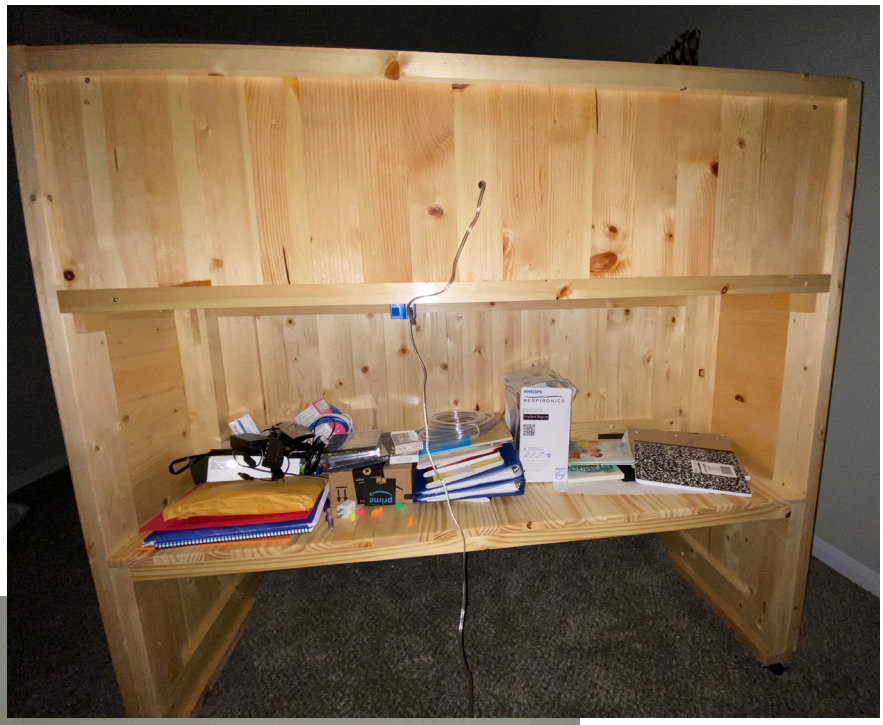
Please read the instruction manual for this new powder coating gun BEFORE you make use of it. The manual is on top of the control unit.

the YMCA™

On Wednesday December 1 from 10 AM until 2:30 PM the YMCA BrightLife group will hold their Christmas Art Sale in the lobby of the Branch Crossing YMCA at 8100 Ashlane Way in The Woodlands. Come see what the amazing BrightLifers have done with all the wood blanks we make for them. ... and let's do this again in January!

MADE AT MAKERBARN!

Benjamin Zama built a full size bed for his son. He used the Jointer, Table Saw, Planer, Mitre Saw and Sanding machine. The bed is on wheels and has a bookshelf, reading light and two outlets for charging on the front. The back has a storage shelf as shown.



MADE AT MAKERBARN!

Candida Wolfram made a framed picture using 1/4" plywood on the laser and frame made on the dado saw at the shop.

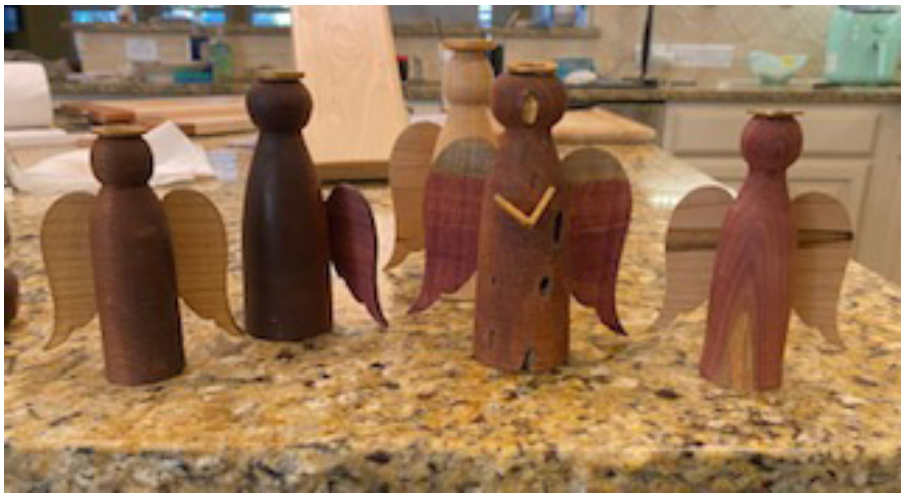
Candida Wolfram made an ornament for a Pet (in heaven) ornament using 1/8" plywood.

Colleen Helz made a whole forest of Christmas trees on the lathe to celebrate the season

MADE AT MAKERBARN!

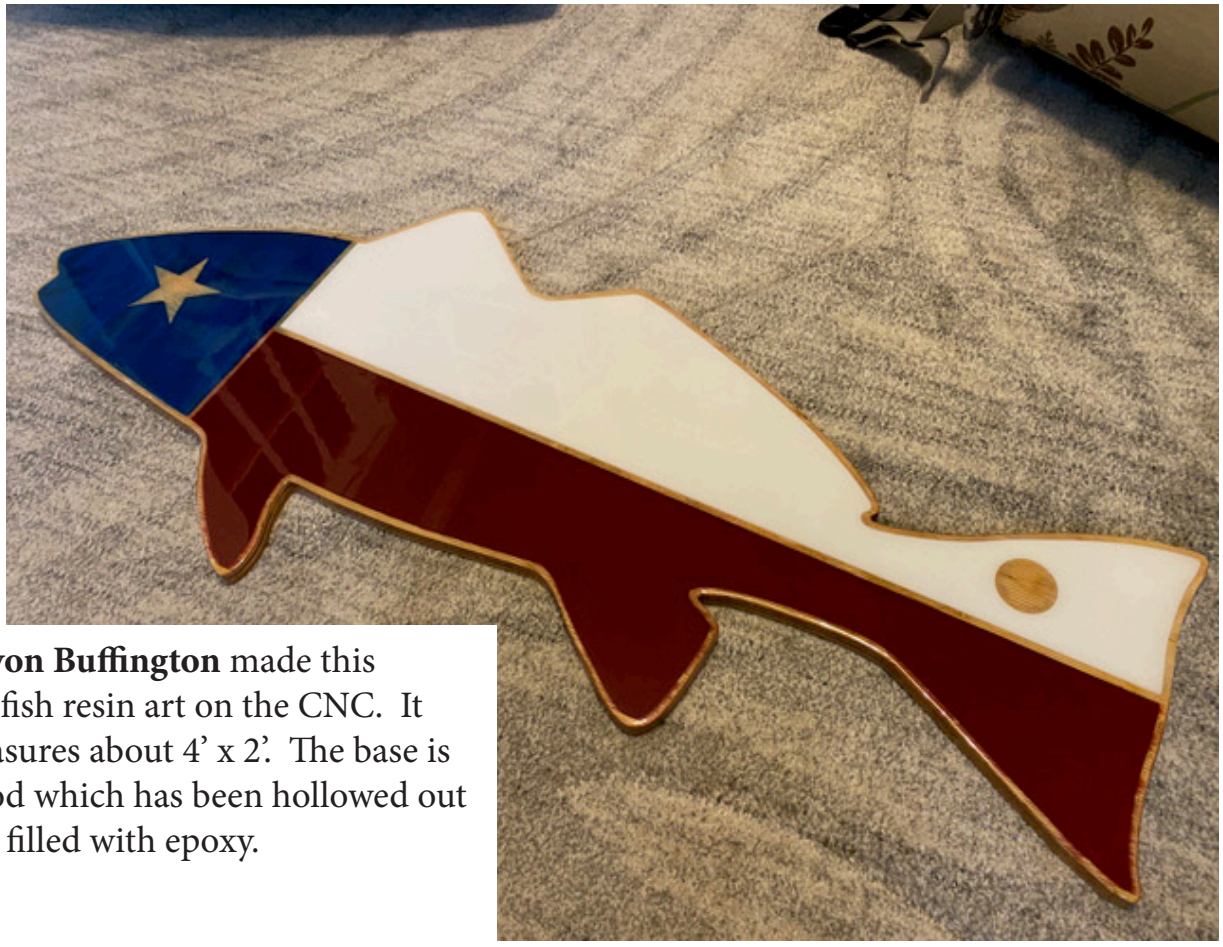
Candida Wolfram made her very first woodworking project; a 3’ x 4’ x 20” stand for her home laser.

Colleen Helz made a set of angels from wood using the lathe.



MADE AT MAKERBARN!

Colleen Helz made these rolling pins using the lathe.



Devon Buffington made this Redfish resin art on the CNC. It measures about 4' x 2'. The base is wood which has been hollowed out and filled with epoxy.

MADE AT MAKERBARN!

Ed Fraini made a tongue drum for his daughter. It is a mitered box measuring 8" x 16", made of maple with walnut splines. The top and bottom are padauk. The density of padauk wood makes for pleasing sounds.

Karla Zielke used the Silhouette machine and heat press to make Christmas shirts for the whole family- including their dog!

MADE AT MAKERBARN!

Gary Walz made an endgrain cutting board from scrap walnut and maple. He used a 60 degree V-carve on the CNC. It required about 2.5 hours to cut out the female portion of the inlay and 3 hours for the male inlay given the detail.

MADE AT MAKERBARN!

John Buckley made the base and support structure of a 9 1/2 foot Christmas tree at the barn using woodworking tools. The rest is 1,050 addressable LED's under the control of a four port Falcon controller and xLights open source software.

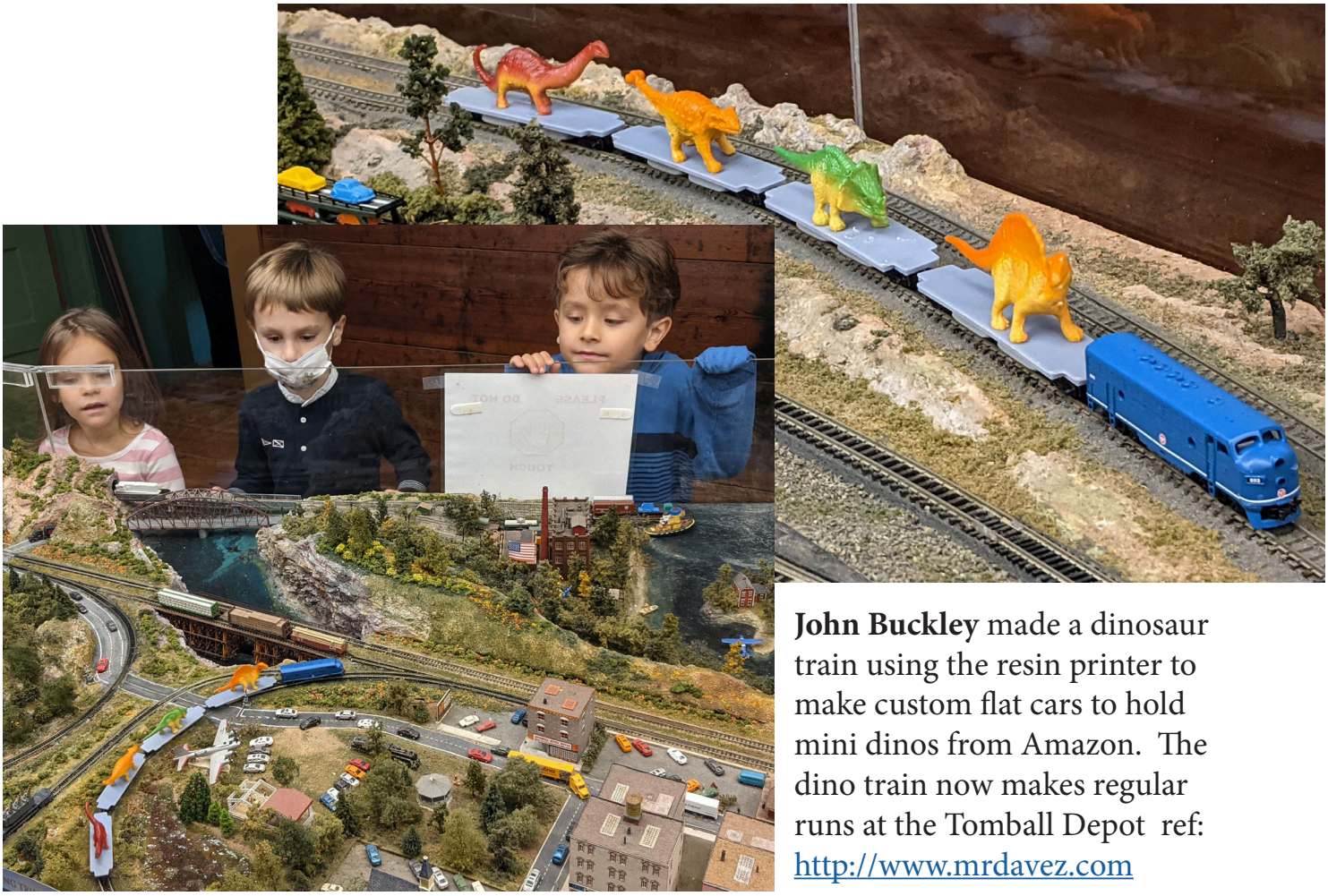
Fred Morales made French rolling pins to give as Christmas gifts. All but the two on the far left are maple and walnut.

MADE AT MAKERBARN!

Fred Morales made super comfortable Adirondack chairs using pressure treated wood and many woodworking tools at the Barn. He worked from an online plan.

Kevin Laird made a white oak end grain cutting board.

MADE AT MAKERBARN!



John Buckley made a dinosaur train using the resin printer to make custom flat cars to hold mini dinos from Amazon. The dino train now makes regular runs at the Tomball Depot ref: http://www.mrdavez.com

Kevin Laird made nine foot utility room cabinets for a friend.

A mystery member made these beautiful cutting boards, but the MakerBarn newsletter editor has misplaced his or her name from all the wonderful submissions that came in this month! He is very sorry & promises to give complete credit to whoever these belong to in the January newsletter. Apologies! - JB

Happy Thanksgiving to you and your family! We hope it's filled with good food and good times with those you love. And football.

As with any organization that is completely run by volunteers, the MakerBarn has a wish-list this holiday season. Should any Black Friday deals catch your eye, and you have a few extra dollars in your budget, we invite you to take a look at the Amazon link below.
https://www.amazon.com/hz/wishlist/ls/1MM1T0YQZB9Z9/ref=hz_ls_biz_ex

We appreciate you as a MakerBarn member and wish you continued enjoyment in making whatever inspires you this holiday season.

CAD/CAM GCode Maker Barn Software Explained

The purpose of this document is verify where to find and how to use appropriate software for each CAD/CAM machine at MakerBarn. NOTE: This paper is current as of the date listed above. Please be sure you are reading the most current version for the most up to date information

At MakerBarn we are fortunate to have a number of machines that are capable of using computer generated code to drive the manufacture of an object. This type of configuration (computer + machine) is relatively new and has often been called Computer Aided Design (CAD) for the computer software side and Computer Aided Manufacturing (CAM) for the hardware machine side. This combination is often abbreviated as simply CAD/CAM.

CAD/CAM software typically outputs a special set of instructions for each manufacturing machine it supports. These instructions are called "generated code" or "G-code" and they are of a specific type for each supported manufacturer's machine.

It is very important that you use a CAD software that generates the proper G-Code for the type and brand of machine you are using at MakerBarn!

There are three basic types of CAD/CAM available at MakerBarn: 1) Laser Cutting/Engraving, 2) Computer Numeric Control (CNC) and 3) 3D Printing.

Machine:	**Software:**	**Special Price***	**Contact**
LASER	Lightburn	Yes	Greg Radliff
CNC	Vectric VCarve Pro	Yes	Jim Barron
3D PRINTER	Fusion 360/Cura/Simplify3D/Prusa	No	Jody Cochran

*reduced price available for makerspaces like MakerBarn

SOFTWARE	**USED BY**	**MakerSpace Pricing**
LightBurn	LASER Thing One – The Lab LASER Thing Two – The Lab	LIGHTBURN is $20 for MakerBarn users by using the special license code. $30 per year for additional upgrades
VCarve PRO	CNC 4'x4' – The Shop CNC Carvey – The Lab CNC Mini for PCB – The Lab	VCARVE PRO Special Makerspace Client Edition is free by downloading the current version trial and then entering the special license code. Note that we keep a special Makerspace Master Edition at MakerBarn and only it can export code to CNC machines
AUTODESK® FUSION 360™	SPEC #1 – The Lab SPEC #2 – The Lab PRUSSA – The Lab TAZ – The Lab Resin 3D – The Lab	N/A

Meet The Area Managers!

	WOODWORKING & CNC **Jim Barron** has lots of experience with woodworking and CNC. He holds occasional CNC classes that demonstrate the Vectric VCarve Pro software we use. Jim can check you out on woodworking and CNC tools at the Barn. Contact him via SLACK.
	LASER PRINTING **Greg Radliff** is an artist and expert at using Laser Cutter and Engravers. Greg can show you the LightBurn software we use and can check you out for use of the Laser printers in the Lab. Contact him via SLACK
	3D PRINTING **Jody Cochran** is a graphic artist with deep experience in 3D printing and other graphics tools. Jody can show you slicer and other software used with the 3D printers. Contact him via SLACK.
	METALWORKING **Bryan Manka** is area manager for metalworking which includes the metal mill and the metal lathe at the Barn. He can check you out for use of either of these machines. Contact him via SLACK.
	ELECTRONICS **Raul Garcia** is area manager for electronics. More of a fixer than designer, but willing to help and learn together. See Raul for anything related to microcontrollers, electronic devices or other electronics related projects. Contact him via SLACK.
Daniel Claybaugh	WELDING **Daniel Claybaugh** is area manager for welding

For New Members

WELCOME to the wonderful world of making!! We know you'll come to love this place as much as we do. First and foremost, this place is about the people. We would like to encourage you to see yourself as more than just a member. We are a community. Because we don't have any employees, we rely heavily on our community to keep things running. So please join in, pitch in, and get involved. Ask lots of questions. We are a really friendly group and love to help one another. The MakerBarn is a fantastic community of makers and we are glad you are here!

Maker Barn: The Shop
28030 FM 2978, Suite 204 77354
Phone: 832-663-6377

MakerBarn: The Lab
28030 FM 2978 Suite 101 77354
Phone: 832-663-6377

MakerBarn Directors:
George Carlson, Director and President
Jeanie James, Director
Greg Radliff, Director

Executive Committee:
Kathy Barbieri - Procurement and acquisitions
Jody Cochran - Secretary
Raul Garcia - Member at Large
Jim Barron - Membership
Matt Folsom - IT
Daniel Cielecy - Treasurer
Doug Green - Web Site
John Buckley - Newsletter Editor

Area Managers: (Guru or Custodian)
Woodworking - Jim Baron
Lasers - Greg Radliff
3D Printing - Jody Cochran
Metalworking - Bryan Manka
Electronics - Raul Garcia

Our mailing address is:

MakerBarn Lab
28030 FM 2978 Suite 101
Magnolia, TX 77354

If you no longer wish to receive this newsletter please write to info@themakerbarn.org