Ted Holochuk’s Painting and Finishing Models – Part 2

Well here we are again. This time we will talk about another "non-modeling" expense, an exhaust system. We will refer to it as a spray booth from here on. A spray booth is a good idea for all painting. Even water-based paints have chemicals in them that are not too good for you. I use mostly solvent-based materials; lacquers and enamels and I think a spray booth is necessary. Now that I've said that, I can't resist sharing a little story. I am amazed at the quality of work done without a spray booth. It sort of makes a mockery of my ideas. Did you know that one of our finest modelers who will go nameless, (*lest he try to hurt me*) paints by spraying with a one-lunger compressor into a wastebasket? Oh my! So much for my brilliant ramblings. However, he is in the process of change. For a start I know that he got himself a carbon dioxide cylinder air supply system.

Anyway, some system to exhaust those smelly, harmful fumes from your spraying area is well worth your consideration. A number of commercial units are available. Finescale Modeler Magazine reviewed six commercial units in February 1992 (*p34*) and March 1992 (*p68*). The prices ranged from $80 to $395 in 1992. The most expensive and best unit, with an excellent review is priced today at $475. The results of those reviews were interesting. As I stated, the most expensive unit was rated as excellent. The second most expensive unit was rated good. One was sort of OK and three were rated not adequate. The inexpensive units are not worth spending your money on - my opinion.

When you take a look at any spray booth you will see that they are nothing more than a box with an exhaust fan, filter and sometimes a light. Well heck I can build that without spending $475. Help and

information came about building a spray booth came from an excellent article in Model Railroader Magazine from Jan 1988. Finescale Modeler had a brief article in February 1993 (*p38*) that also gives some information. Upon request I can provide a copy of the 1988 Model Railroader article. Why not build a good safe, easy to use system that you can custom design to fit your needs?

How To

Begin by determining the location and size of your booth. Decide where the fan and exhaust vent will be located as well as the most direct "path" to your electric power supply. The Model Railroader article had you build the box out of sheet metal. Me not being a metal worker, and not wanting to pay for one, I looked for alternatives. I found a good substitute by using a 5/8" particleboard faced on both sides with melamine, a plastic laminate that really helps with lighting and clean up. Remember always have a clean neat workshop, right? This product is a shelving item and is available at most large lumber supply stores. A list of items required, prices and sources is at the end of this article.

The recommended light is a GE Britestick as used in the $475 unit. The exhaust fan, the heart of the system is a Dayton unit, also the same one used in the $475 unit. It is a squirrel cage blower with the motor outside of the airflow. It is rated at 495 CFM (*cubic feet per minute*) and will "pull the paint right off your models". In addition you will need some scrap plywood pieces, foam carpet scraps, electrical cord, switches, boxes & outlets as well as a dryer ducting flapper vent and adapter. Believe me it is not as difficult as it sounds.

Building The Box

Here is how. To begin with you will have to cut the melamine board to sizes required. The dimensions in Figure 1 are only examples and can be changed to suit your needs. The use of a table saw is really helpful although a circular saw or saber saw can be used. Look at Figures 1 and 2 To get an idea of the design and size. Adjust sizes to your needs.

Cut the top, bottom and side panels. Pilot drill all holes and screw panels together using coarse thread sheet rock screws (*best for particle board*). Cut the 3/4" square stock (*fir or pine*) to fit all four panels, inside the box. Cut a back panel to a snug fit inside the box. After completing installation of the light and fan, screw the back panel to the 3/4" square stock strips from the inside. Incidentally, I have used some 1/4" Masonite with a vinyl covering for a back panel instead of the 5/8" melamine. Feel free to scrounge and substitute. A valance about 2 1/2" wide should be cut and screwed to the inside, top edge of the box. This cuts down on the glare from the light.

Mounting The Light

Using the GE Britestick instructions, mount the light inside, behind the valence. Check which side of the box you want to mount the electrical. On that end drill a 1" hole for the light cord and line up the hole with the end of the light. While we are on the electrical, you may as well complete the wiring. Again, you can design whatever you want. I kept it simple, by making a "switched" 2 plug extension cord and just plugged the light and fan into the box.

You now have the spray booth built. All that is left is mounting the fan and ductwork.

Locate the place for the fan, (*top, side or back*). Cut a 6 1/2" hole through the box panel for the "exhaust in". Instead of mounting the fan right to the box, cut a plywood panel slightly larger than the fan housing and cut a 6 1/2" hole for the "exhaust in". Using sheet metal screws mount this panel to the fan. Make sure the screws are not too long and jam the squirrel cage. Now, drill holes in the outer edge of this panel, cut a piece of foam carpet padding (*for noise and vibration insulation*) and screw this panel to the box, making sure you first line up the "exhaust in" holes. Also cut the hole in rubber carpet pad. Refer to Figure 4.

Now the other end or "exhaust out". This is a flanged rectangular opening. Cut a 4" hole in the center of this panel and fit and fasten a metal dryer duct adapter into the hole. Now screw the panel to the "exhaust out" flange refer to Figure 5. You now should have the box, light electrical and fan installed. Now remember, that back panel, set it in place and fasten it in place.

The Filter

Lets make a filter holder and install it. See Figure 6. I use filter material that I buy in bulk, and then cut to size as I need it. To make a filter holder you can use a heavy gage wire material called "Hardware cloth" or "utility fence material". You can buy a small piece at McClendon's Hardware or scrounge up some. Make the filter holder about 8" square. You will need a piece of screen 8" x 17". Bend it into a "u" shape with the long legs at 8" and about 3/4" in thickness. Cut filter material to fit and sandwich it between the top and bottom of the holder. Pretty clever eh? (*A Canadian term*). Now to hold this filter in place, cut 2 pieces of 3/4" stock and fasten them inside the box, parallel to each other on either side of the 61/2" hole for the "exhaust

in". Make 3 or for metal tabs from plumbers tape (*or buy those window screen holding doo-hickeys*) about 2" long and screw them to the wood stock. Insert the filter, twist these "doo-hickeys" and you are done.

The Exhaust

Oh I forgot. Where does the "exhaust out" go to? Well, that is up to you. Back in the room? No. Decide where you want to run the ductwork to the great outdoors; hole through the wall, a window or whatever. Hopefully it will be a semi-permanent unit that you can take to your dream workshop someday.

If a window is available you can cut a panel from exterior 1/2" ply to fit the window opening. Install the plywood, close the window on the panel and seal or caulk if you feel it is necessary. Now cut a 4" hole in the panel and install a dryer vent with flapper from the outside. Hook up the outside vent with the "exhaust out" on the booth using vinyl or aluminum flex dryer hose. See Figure 5. Clamps or duct tape can be used on the connections.

Also, keep the dryer hose run as short as possible and as straight as possible. Now plug in the electrical, flip on the switch, grab your airbrush and paint up a storm.

OOPS! Also for your information, all spray booths need a source of fresh air. That means an open window, door or whatever in order for the system to work. You cannot work in an airtight room. You need some cross ventilation. I will also mention masks (*for us ugly guy*s) or respirators. Some of you may still feel the need to wear a respirator even when using a spray booth. A dual cartridge respirator with

replaceable filters is recommended. One designed for use with paints and lacquers. Buy a good one.

I think that about does it and again, if you have any questions or comments please just ask away.

Next time we will talk about airbrushes and maybe start on the "materials" (*paint*) used by us mad modelers. Gotta go get started on the next part of this....

Material List:

I have purchased or priced all these materials and equipment during the last few months. Most items are available at stores like McClendon's Hardware, Home Depot, Eagle, Sherwin Williams Paint, or Rudd Paint in Seattle.

Grainger Industrial and Commercial Company will usually only sell to businesses, however some hardware stores (*McClendon's*) will order parts from the Grainger catalog for you. If you have any problems with this item contact me and I can help out.

The total cost for this project should be about $165.