

Thursday, March 20, 2008

## Folding Wall-Hung Spray Booth Chapter VI: Plumbing, Wiring, and Finishing Touches

Dear Friends and Family,

I think it's fair to call this project "complete." As you can see, I've added a throttle valve and discharge pipe, and installed a new switched outlet for power:

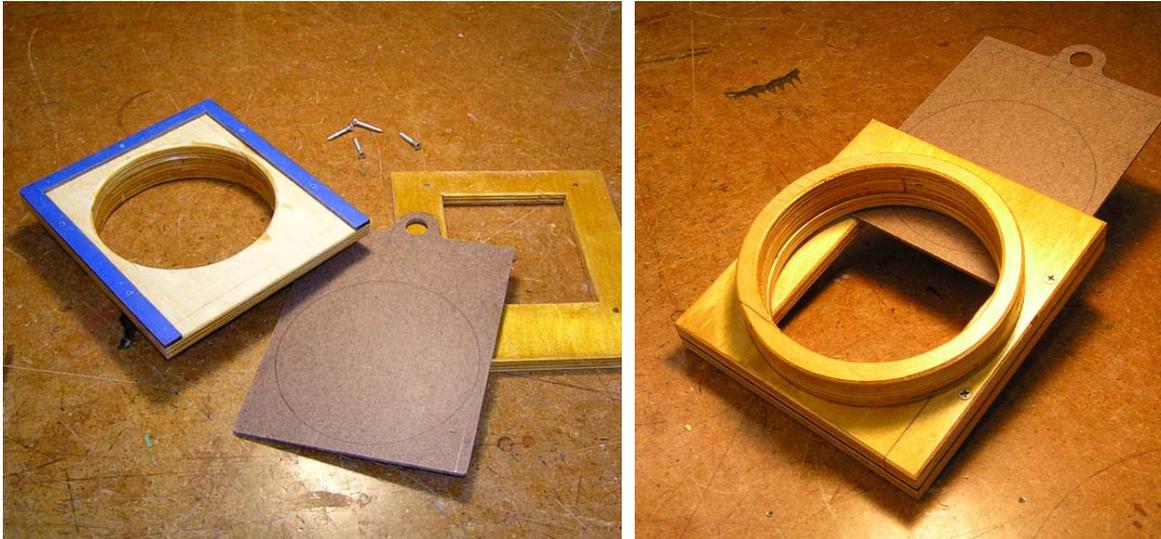


The throttle valve amounts to a tempered hardboard slider captured between two pieces of birch plywood.<sup>1</sup> The input opening is rectangular to match the blower; the output

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<sup>1</sup> Not *Baltic birch* plywood, unfortunately. Once again, I got sucked in by Home Depot's specials on "birch handy panels" and wish I hadn't. The handy panels look nice and fit easily into my rig. To bring 5 x 5 Baltic birch sheets home from the lumberyard, I would have had to hitch up the trailer and...well, suffice it to say, *sloth doth not pay!* What's wrong with ordinary birch plywood? Two things: the inner plies have voids located right where I intend to cut; and the outer veneers are *microscopically* thin, making sanding a chancy business indeed. The sanded-through-and-patched areas are visible at left in the right-hand picture (next page).

opening is round to match the discharge pipe. One or two layers of blue painter's tape applied to the internal spacers provides sufficient clearance for easy sliding without slop:



The discharge pipe is a length of 5" diameter stovepipe. The crimped end was too long to seat fully in the throttle valve, so I trimmed it to length with a cutoff disk in the Dremel tool.<sup>2</sup> Here's the setup:



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<sup>2</sup>Funny how “trimming” things seems be the only use I’ve found for my Dremel tool in, oh, I dunno how many years it’s been since I bought it. But at that task, it excels. I’ve trimmed off embedded foundation bolts, reshaped a machete blade, shortened innumerable screws, drill bits, etc, and now, cut off stovepipe. Love that abrasive cutoff wheel! I’ve worn out wheel after wheel after wheel, while the other 79 accessories in the 80 accessory kit have just sat, forlorn, hoping for the opportunity to justify their existence someday.

The discharge pipe runs directly up through the ceiling, and through the pink fluff above. After the weather warms up, I will decide whether to extend the exhaust ducting up through the roof, or out through the gable wall. But for now, the booth just vents into my well-ventilated attic:



I fabricated a simple screen for the discharge pipe from two rings of birch plywood and a little  $\frac{1}{4}$ -inch mesh hardware cloth. This should keep the larger “critters” out; anything small enough to get through the mesh will be in for a bit of a surprise when the blower fires up:



To complete the electrical supply, it was easy enough to drop metallic conduit, install a switched outlet, and wire a short pigtail to the blower motor:



At this point, the booth was completely functional. Only a few little “naggers” remained to be cleaned up. I added a top mounting tab to stabilize the venturi against the shop wall; it’s very secure now:



A scrap wood strip along the bottom of the cabinet baffles the crack that opens along the hinge line when the platform is lowered. This should protect my shop wall from escaping paint:



The oak spring catch that held the platform in upright and locked position abruptly failed, so I replaced it with this simple turn button:



And finally, a simple trim ring finishes off the opening in the ceiling:



That's about it for construction. I may add a postscript if and when I get around to making quantitative airflow measurements, or I may not. My rough-and-ready flow tests with candle smoke and strips of tissue paper suggest I have more than enough capture velocity for my purpose. The proof of concept, of course, will be in the painting!

Enough of this....