

## *Build a Low-Cost Finishing Room*

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Like many woodturners, I have a dilemma when I put a finish on my work. The shop gets dusty and this dust can get into the finish as it dries. If I put the work in my house someone will complain about the smell. In the past I used a large Rubbermaid garden closet to put my work in as it dried but then the fumes would still permeate the shop. Then I started spraying lacquer and the fumes became a more serious problem because those fumes are toxic.

But I like the look of lacquer finishes on my woodturnings. So I built a small walk-in closet in my shop and outfitted it with inexpensive stuff, most of which was sitting in my garage unused.

The most expensive item is typically the spark-free exhaust fan. I bought an engine room exhaust fan from a marine supply for \$20 that moves 235 cfm. It requires 12V, 5A DC which can be supplied by a plug-in power source from RadioShack. I used an old lab power supply I had on hand. I don't think a battery is a good idea because the fan runs for hours at a time to remove the fumes from the finishing room while drawing 4.3A.

The diagram on the following page shows the finishing room layout (figure 1). For a work counter I used a recycled bathroom vanity. The sink opening was modified slightly to allow a large dust collection cone to be inserted with a plastic screen cover (figure 2). The materials to connect the fan and ductwork is shown in figure 3. Not shown is a 4" exhaust vent that runs through the wall and is mounted on the exterior wall. The installation is shown in figure 4. All the ductwork connections are reinforced with metallic duct tape. No supporting framework was required as the fan is lightweight.

I use a plug-in thermostat connected to a small heater/fan to preheat the work space to 70F for about 1 hour before I start spraying. This gets the lacquer and space up to an ideal temperature.

A small dedicated compressor is used with a HVLP spray gun. It's risky to use a compressor that is also used with pneumatic tools as the tool oil can get into the compressor line then into the lacquer spray.

The door has a foam seal to make a pretty good air-tight seal. As the exhaust fan operates, shop air enters the finishing room through two 12" x 24" furnace filters built into the shop wall. Wire shelves positioned above my head provide a place to store work before and after spraying (figure 5).

I use a good quality respirator that covers my entire face. I also always wear hearing protection as the small compressor runs a lot and the exhaust fan is noisy. From outdoors though the noise is minimal since the walls and ceiling are insulated.

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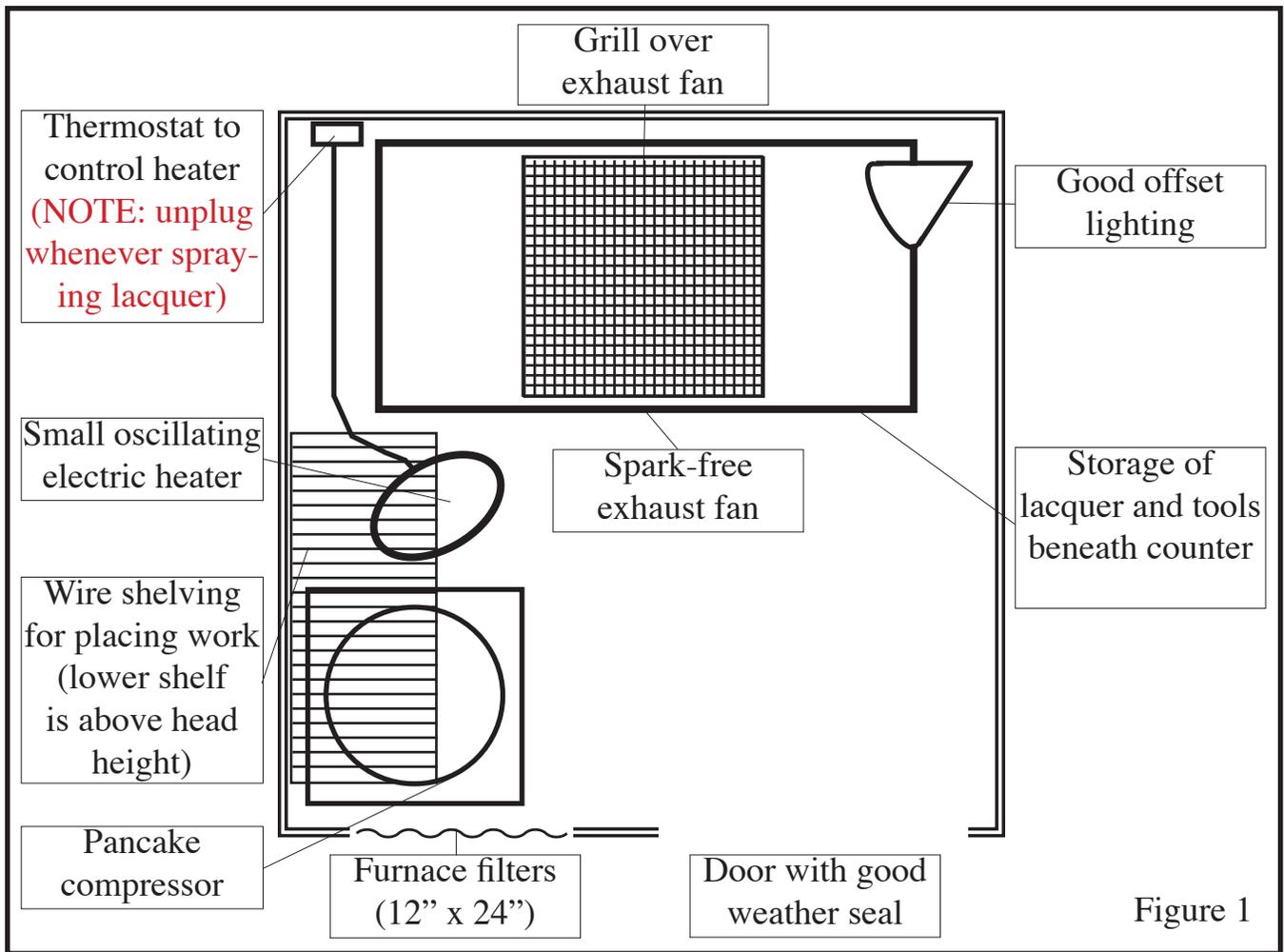


Figure 1 shows the layout of the finishing room. Most items were discussed on the previous page. In addition I have an offset light. This allows me to easily look at light reflected off the work and see if there are any problems occurring such as bubbles in the finish.

I keep a lidded metal trashcan to dispose of rags as needed. All lacquers and additives are stored in the room so they are at the same temperature.



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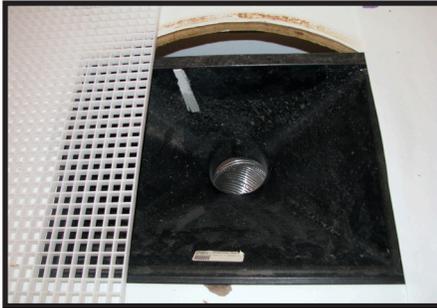


Figure 2 Dust collection cone and plastic screen.



Figure 3 Materials used to make the 235 cfm fume extractor.



Figure 5 Furnace filters provide air filtration.

Figure 4 Fume extractor installed inside the old bathroom vanity.



The list below shows the basic materials required to outfit this finishing room:

## **Materials List**

Dedicated Room (mine is 5 feet x 5 feet x 18" doorway).

Work bench or vanity about 4 feet wide x 1.5 feet deep.

Fume Exhaust:

Table top dust collector fitting (Rockler #26412, \$25)

Flexible 4" metal duct (Home Depot \$4)

Rule 4" in-line Blower for boats (many suppliers, \$20)

Aluminum dryer vent (Home Depot, \$7)

120VAC to 12V, 5A power supply (many suppliers, \$20)

Screen to cover exhaust port - anything handy.

Temperature Control (**unplug heat source when spraying lacquer**):

Lux WIN100 Programmable Outlet Thermostat (Amazon, \$32)

Oscillating heater/fan (Goodwill, \$5)

Air Filtration: Two 12" x 24" furnace filters (Home Depot, \$8)

Compressed Air:

1 gal. pancake compressor (Home Depot, \$65)

In-line filters for particles and water (Harbor Freight \$5)

Air hose with connectors (Harbor Freight, \$7)

HVLP Airgun: 1 qt siphon type (Harbor Freight \$20)

The above items total \$233. With tax and extras like shelving and lights plus the enclosure cost you can get by with about \$500 and a weekend of work.