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DIY Tube Traps

Given the level of interest in these DIY tube traps I put together a brief tutorial for the relatively simple process for constructing these excellent tube traps. While I obtained good results I am in no means an expert on this subject so don't hesitate to experiment or make changes. The original concept for building these traps was [published by Jon Gale](#).

Materials & Tools

- Compressed fiberglass pipe wrap
- Particle board, MDF or hardboard 1/4 to 1/2" thick.
- Construction adhesive (Liquid nails or equiv.)
- Caulking gun
- Router or saber saw
- Staple gun and lots of staples
- 2-3 mil plastic film
- Fabric of your choice
- Replacement vinyl vertical blind slats - Optional



The compressed fiberglass is the only item that may be difficult to locate. The fiberglass I used was manufactured by Knauf and they apparently have distributors in most major cities. I suggest going to the [Knauf website](#) to contact Knauf about the location of local distributor. International Technifab is the distributor in the Denver area. The folks at both Knauf and International Technifab were accommodating and helpful.

The pipe wrap from Knauf is only available in 36 inch lengths but a wide variety of diameters. The diameter is specified by the inside diameter of the pipe it is normally used on. This makes it a bit confusing to figure out what size you need for a given outside diameter. The pipe wrap is available in a variety of wall thicknesses and the 1 inch thickness is recommended.

The top and bottom of the fiberglass tubes need to be covered but it's not clear how rigid the cover needs to be. For smaller traps I selected 3/8" particle board and 1/2" particle board for large (16+ inches) traps. In retrospect thinner material probably would have been sufficient, but there is no harm in making them more rigid than necessary.

I also had some question about what thickness of plastic film to use. The plastic film acts as a low pass filter, allowing low frequencies pass into and be absorbed by the trap while reflecting the higher frequency energy. The thickness of the film affects the frequency of the filter. I used 2mil film and was happy enough with the results that I never experimented with any other thicknesses. If you are thrown by the name "plastic film", it's just the cheap vinyl used as a drop cloth for painting and available at hardware stores.

Since the tube traps are designed to reflect higher frequency energy the choice of fabric is relatively unimportant from a sonic perspective. Heavy fabrics, like burlap, will be far more difficult to wrap around the traps. I selected an inexpensive muslin that had the appearance and price that I liked.

To finish the trap edges and joints vinyl slats from vertical blinds may be used. I found packages of 2-1/2 inch wide replacement slats for \$10 at a Home Depot store.

Procedure

1. The first step is to cut round circles to go over the top and bottom of the fiberglass tubes. This may be done with a saber saw or better yet a [circle cutter](#) fitted to a router. Where a number of traps are being constructed a router circle cutter makes this process quick and easy. Make the circles the same diameter as the measured outside diameter of the pipe wrap.
2. Place a bead of construction adhesive along the entire length of the open seam on the pipe wrap. Be that the adhesive extend to each end and does not have any gaps. Press the seam together to get a good seal.



3. Place a bead of construction adhesive around the end of the pipe wrap. As with the seam make sure that there are no gaps. Place the end cap in place and insure that a good seal is obtained.



4. Carefully remove the paper pipe wrap covering. Some fiberglass will come off with the covering but try to keep this to a minimum.
5. Using a staple gun attach plastic film to the trap so that it covers half of the circumference of the trap.



6. The next step is to wrap the trap with fabric. There are lots of ways to do this. With a little practice and experimentation you will be able to refine a technique that result in a smooth nice looking covering. What worked well for me was to stretch the fabric along one edge and staple on the top and bottom. Then alternating between the top and bottom, pull the fabric tight in both directions (along the length of the trap and also around the trap) and staple.
7. To create a nice looking finished edge I used 2-1/2" wide vinyl slats from vertical blinds. Just cut the slats to length and make a loop around the trap and join the ends with clear packaging tape. Make the vinyl

loops so that they fit snugly around the end of the traps. Using these vinyl loops at the joint of two stacked traps makes them a bit more stable. For trap ends that will be visible cut an extra end cap and wrap it with fabric. The fabric wrapped end cap may then be glued to the end of a trap with construction adhesive and the joint covered with a vinyl loop.



Placement

An excellent discussion of tube [trap theory and placement](#) is available from [Ariel Audio](#). My experience with optimizing the traps follows very closely with what is laid out in this article. At first I thought that the recommendation of placing traps every 3 to 4 feet was excessive. However, this produces excellent results and it is clearly audible to remove a single trap. I currently am using a total of 32, 3 foot tall traps (4-22", 2-16", 20-9" and 6-16" half rounds). Not pictured is a single row of three traps across the ceiling at the first reflection point. On the back wall I use a pair of 16" full rounds in the center flanked on both sides with 2 high 9" traps. The rear corners are occupied with a door and a desk otherwise I would also place traps there.



Accurately placing and rotating the traps makes a significant difference. I was surprised at how sensitive both placement and rotation are. Also it is quite important to place the traps so that there is accurate left to right symmetry. Use lots of traps and get real anal about how they are placed and you will love what these things will do for your system.