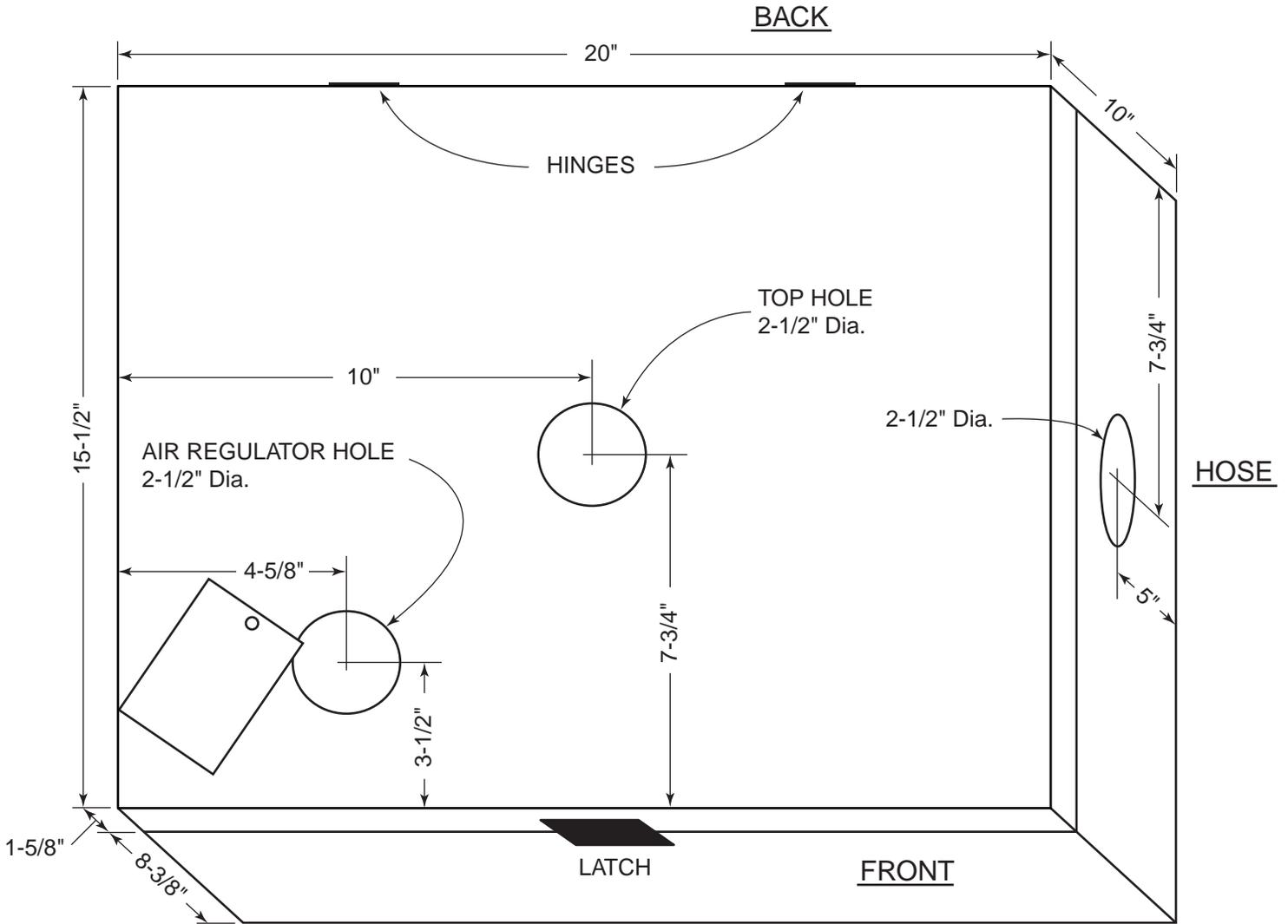


# BeeVac - Outer Box



## Dimensions - (if using butt joints)

### •Top

Top - 1/2" Plywood - 20" x 15-1/2"

Front & Back - 1/2" Plywood - 20" x 1-1/8"

Sides - (2 pc.) - 1/2" Plywood - 14-1/2" x 1-1/8"

### •Bottom

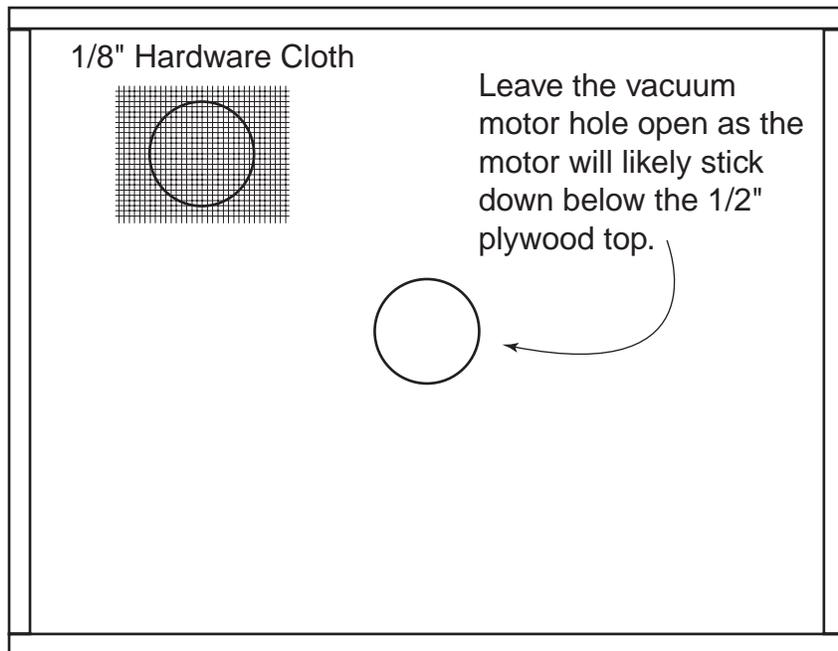
Bottom - 1/2" Plywood - 20" x 15-1/2"

Front & Back - 1/2" Plywood - 20" x 7-7/8"

Sides - (2 pc.) - 1/2" Plywood - 14-1/2" x 7-7/8"

- Use a 2.5" (64mm) fine-tooth hole-saw to cut the holes (or rough-tooth in reverse).
- Rubber/foam weatherstripping is place between the top & bottom.
- Use silicone & mount the 2-1/2" to 2-1/4" vacuum hose adapter (or common vacuum hose coupler). Once dry, break loose the attachment with a twist. The silicone should remain on the wood for a good seal.
- Sand & coat all surfaces with varnish or poly finish for easy cleaning.

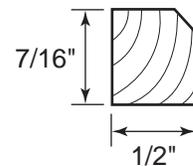
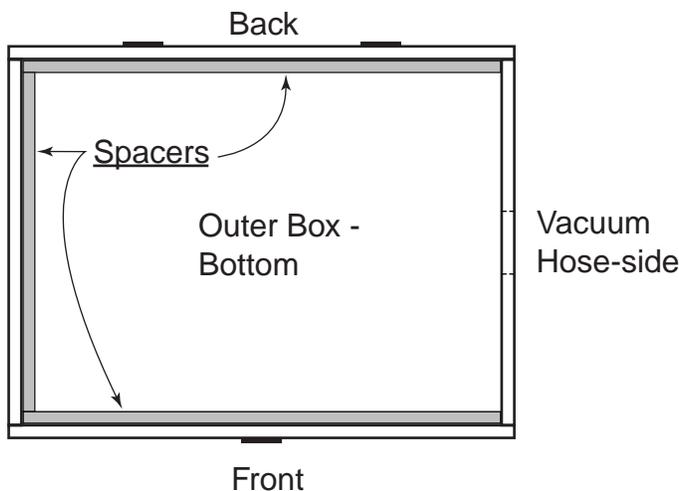
# BeeVac Outer Box - Underside of Top



-1/8" Hardware Cloth - staple to underside of top surrounding air-regulator to keep bees outside the box from getting sucked into the box and into the vacuum.

-Leave the hole to the wet-vac motor open as the edges of the motor will likely stick down below the 1/2" plywood top. As long as the 'inner box' is solidly 'bee-proof', no bees should be sucked up through the vacuum.

## BeeVac Outer Box - spacers to hold inner box:



Cross section - round off corner on inside edges of spacer.

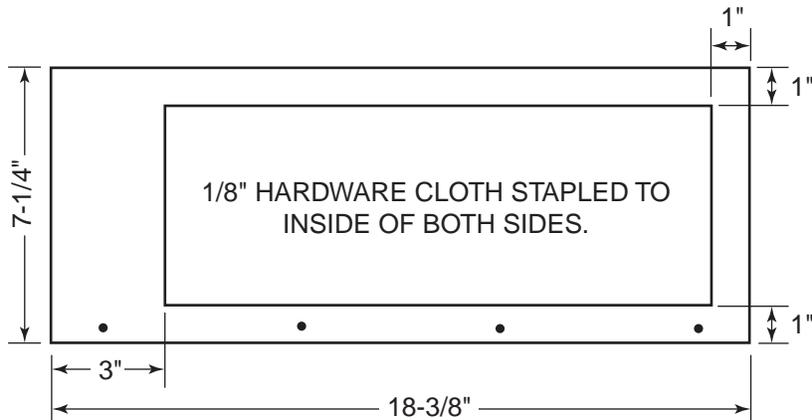
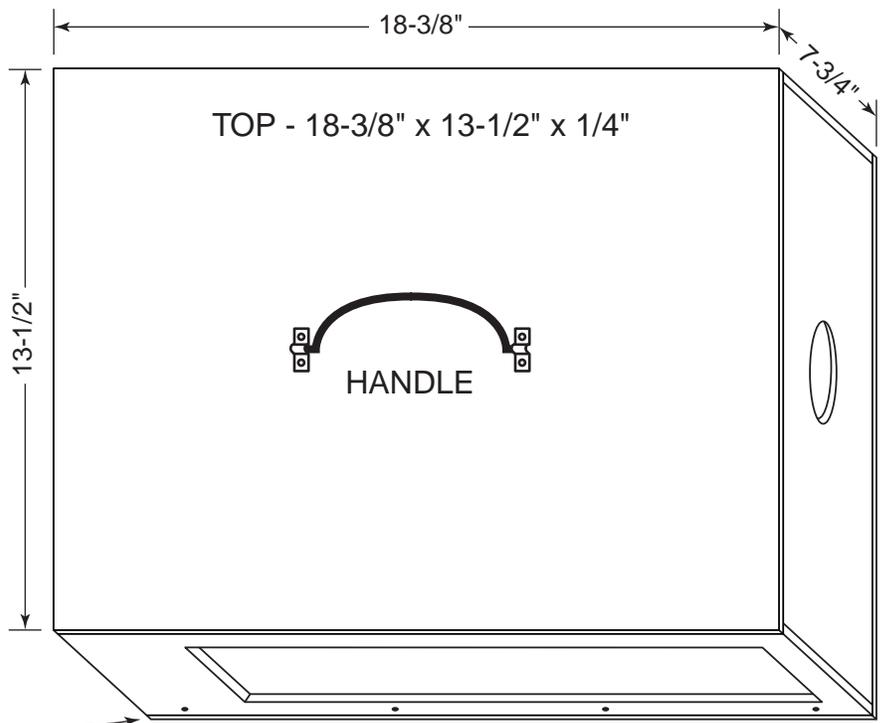
Front & Back - Qty(2) - 1/2" x 7/16" x 19"  
Side - 1/2" x 7/16" x 13-1/2"

©.1999.BeeSource.com/Matthew Westall - All Rights Reserved.  
info@beesource.com/www.beesource.com  
Matthew Westall: fltdeck1@ix.netcom.com  
Reproduction for personal and non-profit use only.

# BeeVac - Inner Box

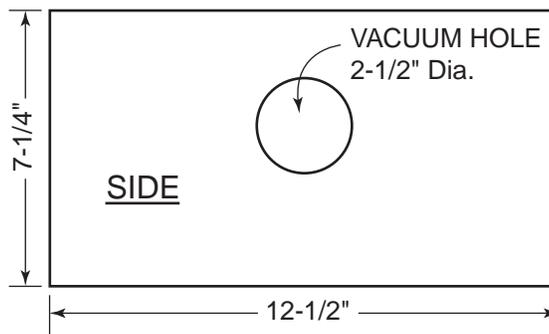
Bottom panel -  
 18-3/8" x 13-7/16" x 1/4"  
 (round edges for smooth  
 movement)

Attach " L " shaped plaster  
 edging to the bottom of both  
 front & back with 3/8" clearance  
 to allow bottom to slide off.  
 See: <http://www.beesource.com/plans/beevac/306.htm> for photo of detail.



Front & Back - Qty(2)  
 18-3/8" x 7-1/4" x 1/2"

Sides - Qty(2)  
 (hose side shown  
 - no hole on  
 opposing side)  
 12-1/2" x 7-1/4" x 1/2"



Note:  
 For a precise match,  
 drill the vacuum hole  
 while the inner box  
 is mounted in the  
 outer box (with spacers  
 in place) using the  
 outer vacuum hole as  
 a guide. If the bit 'bites'  
 too much try cutting by  
 reversing the bit.

# Bee Vac Notes

by Matthew Westall

These are really easy to make and are COMPLETELY invaluable in catching hard-to reach swarms or removing existing hives.

I've modified the design of another beekeeper to accept most any wet-vac or other vacuum to hook up to the box. The most important thing with bee-vacuums is that you need to regulate the pressure so it doesn't whip the bees into the inside 'bee-catcher' box (which has sidewall vents made of hardware mesh and allows air to pass & suck up into the vacuum, trapping the bees behind the mesh inside the box). If they hit the inside box too hard, they'll die. It's a very depressing feeling to find thousands of dead bees inside the vacuum so please pay close attention to the amount of suction. If you have too much, you'll feel their bodies bump hard down the vacuum hose - just the right amount & you can barely feel them fly down the hose. All you need is just enough suction to make it halfway annoying (to you & the bees) on trying to vacuum them off their comb (or tree...etc). Too much & they'll rip right off their comb (& rip the bees off nearby comb) but you'll find them all dead inside the box. Just the right amount lets a few try to hang onto the inside top-edge of the hose for a second...before getting sucked into the inside box.

Thinking of building your own?

If you catch swarms or wish to pull feral hives, you'll absolutely want to buy or build a bee-vacuum (provided electricity is close by).

## **Here's the idea:**

Inside box - rectangular shape box with a removable bottom (mine slides on & off) and has hardware mesh on either side. Cut a single 2" hole to match up to a vacuum hose which is inserted through both the vacuum box & this box.....i.e..direct connection to the outside vacuum hose.

Vacuum box: - holds the inside box which contain the bees. You'll cut two openings: first for the outside hose to attach to the inside box and second to attach to any vacuum device (I use a 1.5 hp wet-vac which I removed off the top of a \$30 vac from Wal-mart - this is removable and you can insert a 2" hose from another wet-vac if you need more pressure - ...any vacuum device which hooks up to the 2" hole I've cut at the top.

Inside this vacuum box, you'll need to brace the inside box to keep it from being sucked up to the vacuum (I use a couple 1" wood blocks). As well, you need about 1/2" to 1" around the two wire-mesh sides of the inside box so air flow can get sucked out (leaving the bees contained).

The kicker is the regulation of the air-flow.....all you need to do is cut a 2-1/2" or so hole on the top of the box (at least 6" away from the vacuum) and use wire-mesh to keep nearby bees from entering. To regulate the pressure, cut a piece of plastic, tin, tape...anything and mount it to a screw above the hole. This way you can move the piece in front of the hole in varying degrees and it'll cut off outside air from entering as it forces more air to pull through the vacuum hose.

Any dimensions will work. I've read of one beekeeper using a lunch box to catch bees. (Though I've rarely seen the opportunity to catch such a small bunch of bees....nor would I want to). During swarm season, you might need several inside boxes.....when one gets full, just pull it out of the vacuum box & insert another (tape the exposed hole on the full box, or use a square piece of something which swivels open & closed manually).

Mine cost around \$140 with fine 1/2" pressboard flamed maple and clear-coat. If I used 1/2" plywood, I could have built the thing for \$20-\$30 (plus another \$30-\$35 for the 2hp vacuum, if needed). The inside boxes can be constructed of most any sturdy material.

## **Other particulars:**

Cardboard won't work (I've tried) as the force of suction from even a 1 hp motor will crumple the box into nothing. 1/2" wood is what I used for the outside box and 1/8" for the inside boxes. Plastic edge-guard (normally used on drywall) is good material for the rails on the bottom of the inside boxes, so you could simply slide open the bottom of the box & knock the bees out into a hive. My outside box has a hinged top & bottom so I can quickly remove the inside boxes. Any method of removing the inside box (& bees) is fine.

This idea has saved me hundreds of stings and saved the lives of alot of bees (I wouldn't pull feral hives without one). If you've ever tried to remove an existing feral hive without a bee-vacuum, I'm sure you've sworn off ever doing it again. Try it by vacuuming off the majority of bees first - then remove the comb one by one & vacuum the bees off each comb as you go. With less bees in the air & on the ground you'll have less of a chance at any unhappy bee-meeting. Plus the bees seem to know they're in trouble when you vacuum off most of their population - the rest will likely remain extremely timid. At the end of the day you'll have more salvageable comb (put back into empty frames and tie with cotton string or rubber-bands) cleaner honey (without 1000's of bee-parts) and a bunch more live bees.

The idea behind the 'bee-vacuum' is exceptionally simple in design and you'll have much more fun in retrieving swarms or hives. Good luck.

## **Other Notes:**

- 1) My inside boxes fit tightly into the BeeVac. If the spacers don't grip the sides firmly, the builder will need to place a wooden spacer bar (1" or so) to the top cover on the inside cover of the BeeVac to keep the inside box from sucking up to the bottom of the vacuum.
- 2) You'll find making multiple inside boxes isn't difficult or expensive. Having two or more on hand will come in VERY handy when picking up several swarms or one large one on the same day.
- 3) When you've collected the bees, just place the box on top of a hive, pull out the bottom & hit the top to knock the bees out into your hive.
- 4) During operation, the MOST important feature is the airflow regulator. With the 1.5hp motor pictured, I'll usually close the regulator down to 2/3 to 3/4 closed. If you feel the bees 'bumping' down the hose - you're likely killing them. Only enough pressure should be used that the bees are almost able to grip the hose end. An improvement over this BeeVac would be the use of a smoothbore vacuum hose (which won't collapse with suction) - such as pool pressure-capable hose commonly found at Home Depot.
- 5) The inside box in these pictures has a piece of rubber carpet padding toward the back of the box so bees have a softer landing. If you use anything to soften their landing, it should be made of something durable & washable.
- 6) The vacuum in this BeeVac was purchased for \$35 from WalMart and easily disassembled to mount onto the outside box. I've never had the occasion to need more vacuum pressure, but this BeeVac will accept any Wet-Vac with a 2" hose simply by removing the BeeVac from the top (attached by whatever means you choose....I leave mine un-attached as the suction alone will keep it on the box).
- 7) To get the inside box to easily install & remove, round off the inside edges of the spacers a bit - especially to the rear.
- 8) This box weighs approx 25 lbs. complete, using 1/2" Birch plywood. 3/4" plywood will make the box stronger (unnecessary unless you plan on dropping the thing from trees) but the weight will prove uncomfortable in tight situations. I plan on constructing a 'flexible', smaller version of this vacuum out of 1/4" plywood so I can strap it to my back in retrieving bees from high trees & houses. The use of clear plastic might be interesting to beekeepers & bystanders alike to see the bees being vacuumed up.

©.1999.BeeSource.com/Matthew Westall - All Rights Reserved.  
info@beesource.com/www.beesource.com  
Matthew Westall: fltdeck1@ix.netcom.com  
Reproduction for personal and non-profit use only.