

Litter Box Vent Fan - Eliminate Cat Litter Stink

by [engineerable](#) on September 17, 2008

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intro: Litter Box Vent Fan - Eliminate Cat Litter Stink

CAUTION: Following these simple instructions may lead you to forget that you own a litter box, and therefore neglect to clean it. Please proceed with care.

Flowcat:

I despise the smell of litter boxes. Even when cleaned well, the smell of cat litter can be overwhelming. It's ok if you live in a large house where you can dedicate a utility room, garage, or basement to the litter box. In an apartment, it is often impossible to keep a litter box out of smells reach.

For that reason, I made this simple litter box exhaust, which draws a small amount of air out of a covered litter box, and blows it outside. The computer fan draws just enough air to keep odors from escaping the box. The hot/cold air loss to the exterior seemed to be pretty minimal, because there is no noticeable change in heating/cooling costs. It works so well that people would be surprised that there were cats in the apartment.

The computer fan is rated at 0.13A, so it could easily be run off batteries being charged from a small solar panel outside. This instructable shows how to do just that: <http://www.instructables.com/id/The-Amazing-Solar-Powered-Fan-A-Green-Gadget/>

Cats are generally freaked out by noise and weird stuff in the litter box. The fan is so quiet, and far enough away from the litter box, that the cats did not care in the least bit. They were actually a little curious as to the dryer hose sticking in the box.

I built this system years ago, but was prompted to put it up after seeing this: <http://hackaday.com/2008/09/16/hack-your-littler-box/>
The bathroom fan seems like overkill, especially considering the fact that they cannot leave it on all the time.

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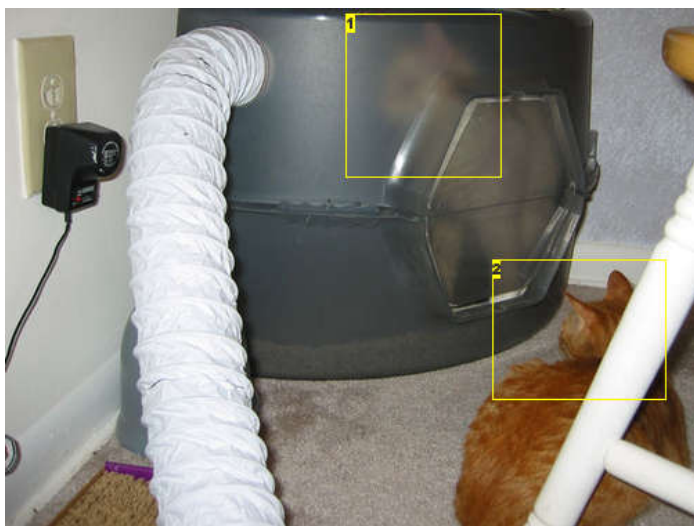


Image Notes

1. AAhhhhhh... So Fresh, So Clean.
2. Are you done yet in there?? Don't take all day!

step 1: Materials

1. Computer Fan
2. Plastic dryer hose
3. Sheet of Lexan
4. 2 Plastic cups that fit about 3/4 of the way into the dryer hose
5. Outdoor electrical junction box (which computer fan fits inside of)
6. Screws
7. Glue
8. 12 Volt wall power adapter



step 2: Fan Box Construction

The fan housing consists of an electrical utility box.

1. Cut a square hole in the bottom of the box to accommodate the size of the fan.
2. The fan is mounted to the back using screws at the corners of the hole.
3. Since the back of the box will be facing the exterior, a screen is placed across the hole to prevent the entry of bugs.
4. A circle is cut in the cover of the electrical box (fan box) to accommodate one of the plastic cups.
5. Cut the bottom off the plastic cup, and push the cup through the hole of the electrical box cover. Glue in place.

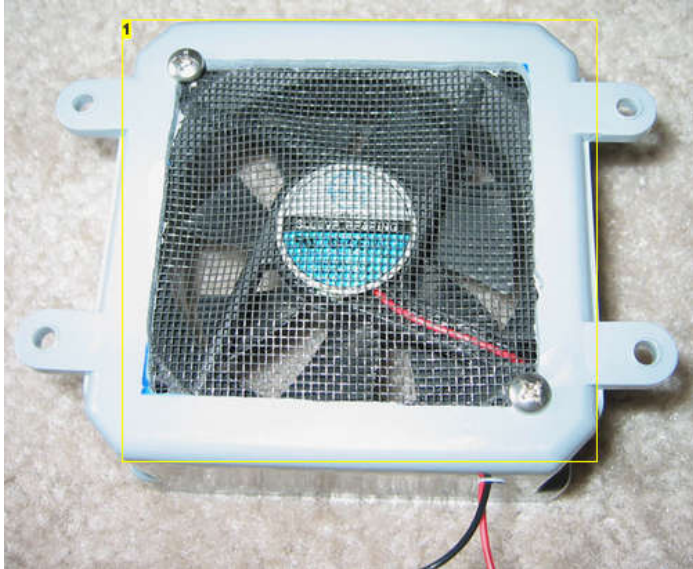


Image Notes

1. Cut hole in junction box. Use screws in corners to hold the fan in place.

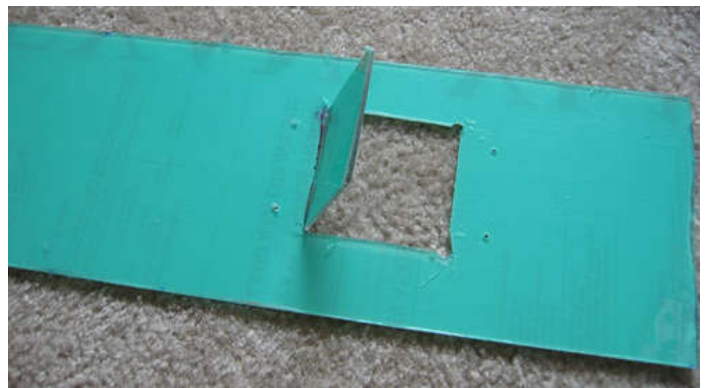




step 3: Mount Fan Box in Window

I mounted the fan box in a sliding window. There are many other ways to mount the fan box. If you want it to be permanent, you could just mount it through the wall using standard dryer fixtures. This just gives you an idea of one way to do it.

1. Cut a piece of Lexan to the appropriate size to fit in the window.
2. Cut a square hole in the Lexan. The hole should be the same size as the hole that was cut in the electrical box. I only cut 3 sides of the hole, bending the center piece out to create a mini awning to protect the fan from rain, etc.
3. Screw the electrical box to the Lexan window.
4. Mount the Lexan and fan box assembly in the window. (The pictures below show it with the dryer hose already installed)







step 4: Install Dryer Hose on Fan Box

Slide the dryer hose over the plastic cup. It should get tighter as you slide it up further. Apply tape if it is too loose to stay on.





step 5: Install Dryer Hose in Litter Box

1. Cut a round hole in the litter box lid. You should be only able to slide the plastic cup 3/4 of the way in. This will allow you to wedge the dryer hose in between the cup and the hole.
2. Pass the end of the dryer hose into the hole in the box.
3. From the inside, push the plastic cup into the dryer hose. Push far enough to wedge it tightly.
4. I covered the top of the cup with a screen to try to keep cat hair out of the fan. You could also use a filter, because the dust still goes through the screen. But the dust never damaged the fan, and computer fans are cheap.



step 6: Power it up, and Test it Out

To power the fan, use a 12 Volt power adapter, and connect the leads to the computer fan leads.

Hope this improves your air quality, and leads to a healthier life. Enjoy!

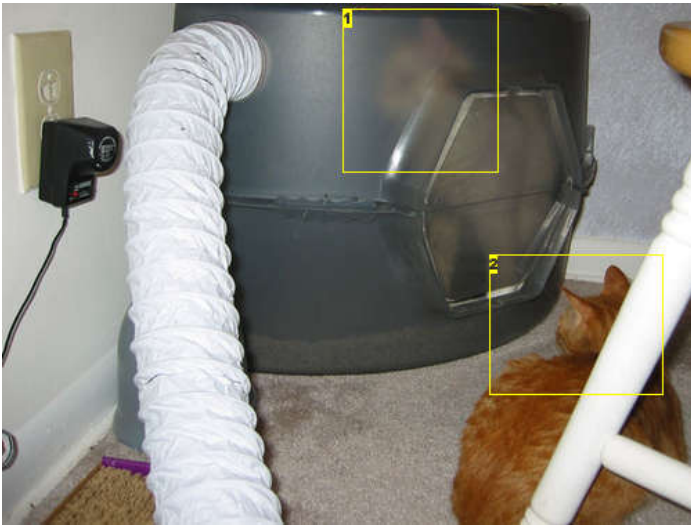


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Comments


[24 comments](#) [Add Comment](#)

 **evldrac76** says: Mar 17, 2009. 4:35 PM [REPLY](#)
I was wondering where the "optimal" placement of the fan would be.... on the litter box or by the window.... to blow out the undesirable odors. Would there be a difference?

 **TXTCLA55** says: Mar 13, 2009. 5:38 PM [REPLY](#)
what if you were to attach the hose to a dryer, so when the fan is on the air from the litter would escape through the dryer hose and ergo outside. however you would have to create a device that would allow air to leave the dryer but not allow cat litter air to stink up your clothes that are just sitting in the dryer.....hmmm...

 **Justdoofus** says: Feb 28, 2009. 5:27 PM [REPLY](#)
So won't the cat suffocate to death if it's "sealed" and air is being Sucked out of the cat box?

 **Justdoofus** says: Feb 28, 2009. 5:28 PM [REPLY](#)
oh my gosh, didn't realize how old this post was! 0.o

 **amyers57** says: Jan 23, 2009. 1:28 PM [REPLY](#)
This sounds great. With 6 cats I need to give it a try. Question, where did you get that litter box? Did you make it? I use one of those big plastic clear tubs as one of litter boxes and this would work great with that since it has a removable lid, but I like the corner unit you have.

 **engineerable** says: Jan 30, 2009. 5:01 AM [REPLY](#)
The cat litter box came from PetSmart.



Thundertydus says:

Feb 22, 2009. 10:33 AM [REPLY](#)

I've never quite understood that, is it the Pets Mart, or is it implying that the store it self is very pet smart? i think i found a conspiracy here



crsereda says:

Feb 26, 2009. 2:54 PM [REPLY](#)

Didn't you ever see the commercial that has all the animals going to petsmart? Then at the end of the commercial they say petsmart is pet smart?



see-saw says:

Nov 17, 2008. 2:15 AM [REPLY](#)

If you want it to be more efficient, you could rig up a motion detector to strike up the fan or a switch on the tray door or at a push even a pressure pad under the tray



engineerable says:

Nov 17, 2008. 10:49 AM [REPLY](#)

Nice suggestion, and it would probably work if the litter box was well sealed, but the problem is that cat crap doesn't stop smelling until it's dried up and fossilized. So turning the fan on during and for a period of time after the cat has done its business only removes some of the smell... granted it's better then nothing. It will continue to permeate into the surroundings. So ideally, the fan should run all the time, but move just enough air to keep the smell from escaping into the room.



rick.leasure says:

Feb 5, 2009. 10:33 AM [REPLY](#)

Exactly.

I like this idea. I've been thinking about the same thing for awhile, but all the ideas didn't coalesce as efficiently as yours.



moshbox says:

Jan 7, 2009. 5:05 PM [REPLY](#)

I've got three cats. To say litter/odour control has been an issue is an understatement. I've gone through all sorts of contraptions from automatic rake systems to macerating cat toilets. This is a clever idea, but may not be suited well to multi-cat households where several boxes are required.

I solved my problem with a simple change in litter formulation. I found a wheat-based litter that claims the natural enzymes break down the stank, and it does a great job. It doesn't clump well and one of the three won't use an all-wheat box, so I've found a mix of 1 part clay litter to 2 parts wheat litter is the perfect medium between happy cats, easy cleanup, and odour control. The only time I smell anything is if they don't bury it, which usually means I've missed a cleaning so I take that as a feline post-it note to clean the box.



sensemilla says:

Dec 31, 2008. 9:57 AM [REPLY](#)

Where did you find the large enclosure? Is it available online? I can only find ones with large holes as doorways.



ax89 says:

Nov 29, 2008. 6:14 PM [REPLY](#)

Great idea. Do you have sharp ends of the screws sticking out on the outside of the lexan? Is this window large enough that this is a security concern?

For others considering this but have a longer distance hose, I suggest using the solid duct pipe, 4" or whatever, because it will have less friction to the air and therefore will be more effective.



engineerable says:

Nov 30, 2008. 10:57 AM [REPLY](#)

Thanks! This was on the 3rd story, so I just left the screws sticking out, and safety was not a concern. However, the window is small enough that I wouldn't be concerned about security. The sliding window was screwed into place to keep it from opening any more.



mpmayer says:

Nov 22, 2008. 5:04 PM [REPLY](#)

dude great idea!! mont the fan on the litter box and add a carbon and hepa filter you got a gadget that'll make ron popiel jealous!!



webman3802 says:

Nov 18, 2008. 6:51 AM [REPLY](#)

Add a small solar panel to the system and you won't need to worry about the power bill.

How does this system affect your heating and cooling costs in winter and summer? It seems like a fan continuously blowing air from the house to outside would cause some heat/cool air loss.



Calorie says:

Oct 8, 2008. 9:57 AM [REPLY](#)

Great idea. I lived in a very small apartment. When my cat pooped it was disgusting beyond all belief. It got to the point where I would shoot up out of bed if I heard her in the litter box. I would clean it immediately because there was no way to ignore that stench.

I would like to point out that I meticulously clean the box several times a day. That is, I scoop out clumped litter and feces as soon as I hear my cat in the utility room. I'm always surprised that people allow their boxed to fill up. My cat actually comes and retrieves me if I somehow miss the noise of her in the box.



get to da parakeet says:
good job

Sep 29, 2008. 4:51 PM **REPLY**



coffekid says:
Grate job!!!!
ppppppppppppppppppppppp!

Sep 23, 2008. 1:58 PM **REPLY**



martydad says:
Hi, I had our litter box set up with a computer fan, specifically the processor fan which runs much leaner than the larger power adapter fan. Going 24 hours a day, for well over 6 months, our electricity bill in the bay area was no more than \$9 a month. And that's including all of our own power usage in a one bedroom apartment. Worked really well, but yes you do have to be careful to remember that it is still there and needs changing! Poor kitty.

Sep 20, 2008. 8:43 AM **REPLY**



Guy.Fawkes says:
An AC-powered exhaust fan will draw around 30 watts (or more, depending on design). The computer fan pulls about 1.6 watts. You can run the computer fan for 2 1/2 weeks for the same amount of current used for the bathroom exhaust fan in just 1 day.

Sep 19, 2008. 2:46 PM **REPLY**



shooby says:
How is it energy efficient to run a fan 24/7, no matter what the size?

Sep 18, 2008. 8:53 AM **REPLY**



engineerable says:
I meant to say, energy efficient in comparison to a bathroom vent fan, which the link at the bottom uses, in which case they only run the fan intermittently.

Sep 18, 2008. 11:41 AM **REPLY**
