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psd-dude



I want to buy an air purifier, what should I be looking at?

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I live in a big city and have a big problem with dust accumulating each day in my apartment (I scrape about a fist-full of dust each day off the floors)

I also have a problem with a smell that accumulates when closing all the windows for more than half a day - sort of a faint moist cardboard smell.

I'd like to buy an air purifier and have a budget of around 3-400\$ that would help reduce the dust and smell problems

What specs should I look for when buying and any brand/model suggestions are welcome

thanks in advance,

.John

232

268



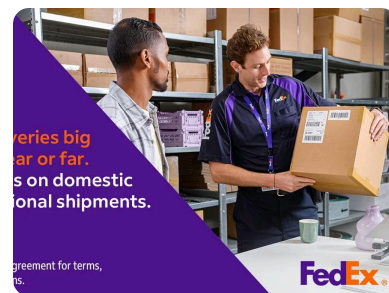
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Air purifiers are simply air filters - they filter out particulates if their filter hole sizes are small enough (look for true HEPA filters), and they filter gases (generally VOC's, or volatile organic compounds) if their media (typically activated carbon) is "sticky" enough to catch them. Allergy sufferers are typically looking for just particulate removal, with VOC's being less of a concern, unless the air purifier is going to be used in a setting with very high VOC's. The EPA has a [list of common sources of VOC's](#), and I'll list them here:

- Paints, paint strippers and other solvents
- Wood preservatives
- Aerosol sprays
- Cleansers and disinfectants
- Moth repellents and air fresheners
- Stored fuels and automotive products
- Hobby supplies
- Dry-cleaned clothing
- Pesticides
- Building materials and furnishings
- Office equipment such as copiers and printers, correction fluids and carbonless copy paper
- Graphics and craft materials including glues and adhesives, permanent markers and photographic solutions.

Unless you expect to be exposed to a large quantity of the items listed above, it doesn't make sense to focus on gas filtration, in which case you should focus on particle filtration. Whether or not you've determined if VOC filtration is a big thing for you, you now need to calculate the required air flow you want your air purifier to treat, and if the air purifiers you're interested in are big enough capacity-wise to handle that air flow. If the air purifier you're interested can't treat the amount of air flow you want it to, you're going to need to buy another one. So how do you start?

You look at the number of air changes per hour (ACH) needed, since you're trying to make sure that the air in your room passes through the air purifier filter as many times as possible. The more times that air passes through the filter, the more particulates the filter will catch, and the less particulates that will make it into your nose. This concept is called air changes, and it's typically measured as air changes per hour (ACH). It's generally recommended that there be at least 2 air changes per hour for general scenarios and 4 air changes per hour for allergy sufferers, so these are probably baseline numbers you want to keep in mind. You now need to find out the following:

- Can whatever room you're putting the air purifier in be isolated from other rooms by closing doors? If not, then you're probably going to need more air purifiers, to get enough air changes to account for air coming from outside that room. One air purifier will likely not be enough in that scenario.
- If that room *can* be isolated from other rooms, what is the approximate length, width, and height of the room? You're going to be using that to calculate the volume of that room - length times width times height = volume in feet cubed (ft³).
- What is the amount of air flow that the air purifiers you're interested in getting are specified for? A lot of air purifier descriptions say that they can treat "x" amount of square feet, but *be careful!* By saying that, they may make a lot of assumptions that may not be applicable for your situation, such as assuming only 2 air changes per hour or that your room is 8 or 10 feet tall. What you want to know from the

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descriptions.

To determine the total cfm needed from your air purifiers, here are some sample calculations. I'm not trying to assume your level of mathematical aptitude, so I apologize in advance if I seem like I'm being patronizing.

- Let's say you measure your room with some measuring tape and find out that your living room is 10 feet long, 10 feet wide, and 10 feet tall. This comes out to a volume of 10 feet x 10 feet x 10 feet = 1000 feet cubed (ft³).
- If you want 4 air changes per hour (ACH), then the air purifier(s) must be able to push 1000 ft³ of air through the filter 4 times in one hour (hr). That means that it should be able to push 4000 ft³ (4 times 1000 ft³) of air per hour.
- If manufacturers provide the specified flow of their air purifier, it's typically in cubic feet per minute (cfm), so convert 4000 ft³/hr into cfm. All you have to is divide 4000 ft³/hr by 60 (60 minutes per hour), which would be 67 ft³/min.
- Thus, for a room with a volume of 1000 feet cubed that can be isolated from all other rooms, you would need an air purifier that is specified for 67 ft³/min.

Just do the calculations above and determine which tradeoffs you're willing to deal with, and you should be able to narrow down the list of air purifier or air purifiers that satisfy your needs.

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BorgBorg10 • 4y ago

Damn. Whether or not it is OP, someone somewhere will come across this post and read everything they need to know when they're about to pull the trigger on air filters. Kudos to you

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I would recommend checking out [r/AskConsumerAdvice](#). There is a lot of great reviews of coffee makers, and they can help you find the best one for your needs

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Look for models that use common filters. This way, if the manufacturer stops making that model purifier, you can still get replacement filters for it.

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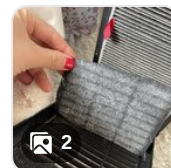
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