

Ask Jon Eakes

What is the maximum duct length from a bathroom fan?

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Mike writes: "I'm renovating my bathroom and plan to install a fan. The shower is on one side of the room and the bath is on the opposite wall so I plan to put the fan in the middle of the room. What is the maximum amount of hose I can use to vent outside?"

You shouldn't have any problem going 5 or 8 feet further to reach the centre of a room. The real answer is how powerful the fan motor is, and how you lay out the ducting. The photo shows a few examples of what we call "equivalent duct lengths", how long a duct appears to the fan motor. Every little roughness on the inside of the duct makes it harder to get air to flow, so flex duct with ridges on the inside is twice as long as smooth ridged ducting -- at least as far as the fan motor is concerned. Then each elbow slows things as well. Hard turns slow things down much more than smooth slow curves.

The moral? The best air flow will be had with rigid metal ducting that has as few elbows as possible. Then make sure that all of this is insulated and because despite the insulation there will still be some condensation inside this duct, slope it so that it will drain outdoors. If you are using plastic flex duct and you allow it to have sags, these will collect water and grow strange stuff. If you go through the roof, you can't help but have some condensation drip back into the duct and perhaps into the bathroom. All of those "impossible to solve perfectly" condensation problems is why I prefer to go through an inside wall, down into the basement and out through the bottom of the house. Everything is warm, drains to the outdoors and I can put an in-line fan quietly in the basement so I vent the bathroom in peace and quiet.

For information on one of the quietest in-line fans, one that can even be used to extend the run of a clothes dryer despite the lint, check out www.ContinentalFan.com.

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