

## Why Doesn't My Bath Fan Work?

### **What's it rated?**

Fans are given CFM ratings—a rating of how many Cubic Feet per Minute of air a fan will move—during production. However, without proper installation, a fan may not pull as much air as its rating indicates for the reasons addressed below. As a rule of thumb, to ensure that your bath fan will pull a minimum of 50 CFM once it is installed, install a fan rated for 70 CFM.

### **Is it turned the right way?**

The fan's outlet should always be oriented so the duct will have the shortest and straightest route to the outside of the house. Install the fan with the outlet pointed "out!"

### **Did you take the tape off?**

Bath fans come installed with a back-draft damper to keep outside air from drafting back into the bathroom. Bath fans also come with tape on the damper to protect the mechanism during shipping. In many cases the person responsible for installing the duct forgets to remove the tape, rendering the fan almost useless. Check that tape!

### **Can the door open?**

Another common problem involving the damper occurs when the duct is installed too tightly around the outlet of the fan. The duct is squeezed just so, and the damper may only be able to open part-way before it hits the constricted duct. Take care with that duct—attach the inner liner tightly with a zip tie and mastic to the collar without getting in the way of the damper.

### **How long is your duct?**

Have you ever used all 25' of a box of flex when 10' would have worked? Excess ductwork—along with curves, crimping, and unnecessary length—may dramatically reduce an exhaust fan's flow. Take care with the duct run and go easy on the flex.

### **Too many curves?**

Each 90 degree bend in flex duct is roughly equivalent to adding 10' of ductwork. If at all possible, sharp bends and sharp curves should be avoided and replaced with more free-flowing, gradual curves.

### **Stuffing instead of cutting?**

Once the duct is taken to the outside of the home and there are a few feet hanging down through the soffit or out through the roof, do you cut it to size or do you stuff the unneeded length back in? Cut the duct to size to eliminate the possibility of unnecessary restrictions.

### **Where's the plastic?**

Was the inner-liner of the flex duct pulled all the way through the insulation to the fan collar and exhaust termination? Check to ensure that the inner liner is not tucked inside the insulation liner—connect that inner-liner!

### **How restrictive is your termination?**

The final piece of a properly functioning exhaust fan is the termination. The termination should be one with little to no restriction, with the exception of a metal screen to keep bugs out of the house...and don't forget to remove any tape. Check that termination!

### **Is it outside?**

The ductwork must terminate outside of the building! This step is often overlooked when the soffit is installed without the duct connected to the termination. Connect that duct!

### **Holes to the house?**

Finally, in the bath once the ceiling is in, are there holes in the fan box or a gap between the fan box and the drywall? If so, when the fan is turned on it will pull air (and sometimes even insulation) from places other than the bathroom. Caulk those holes and the drywall gap.

If all of the above recommendations are followed your bath fan will be more than just a noise-maker! Check your work with the toilet paper test.