



## Valor Mold Removal Info Series - 4

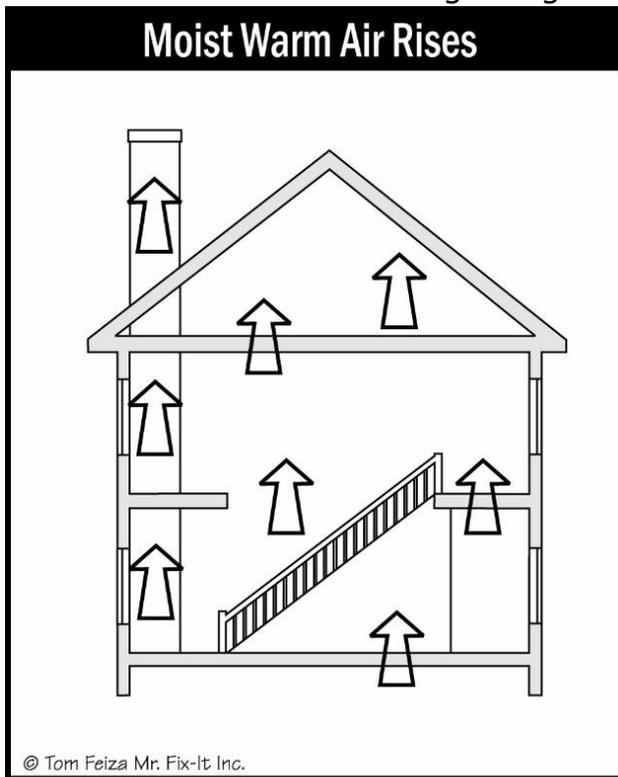
by David Myrick, CMRS, AMRT, MRS (david@dcmetromold.com)

### Why is my roof moldy?

Mold grows whenever there is water. Roofs get moldy in the DC metro area because warm and humid "house" air leaks into the attic in the winter. The core problem is something called dew point.

#### What's Dew Point?

It's the temperature at which water (dew) forms out of thin air like magic. But first let's start at the beginning. Basements are humid. We generate



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moisture by just existing. Breathing, cooking, showering, washing clothes and exercising all create moisture.

If you've never heard of the phrase, "hot air rises," then you have now. In winter, moist warm air from the house floats into the attic and meets the cold roof. What happens when warm air meets a cold surface? Dew. Like when you take a cold can of soda outside in the summer - water droplets form on the can.

Let's say your attic is 45 degrees with 35% humidity. A dew point calculator will say the dew point is

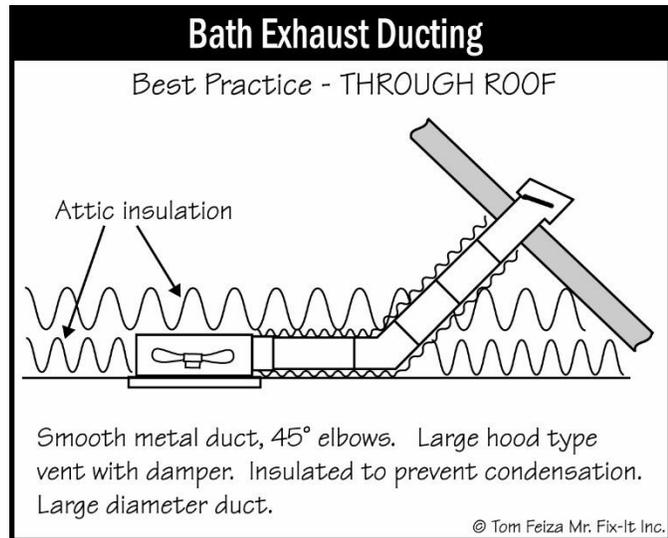
18 degrees. So what, right? Well, if it's 18 degrees outside, then your roof is saturated with water and the shingle nails are dripping. Your attic is now a rain forest.

## Lovely. How Do I Keep The Attic Cold And Dry?

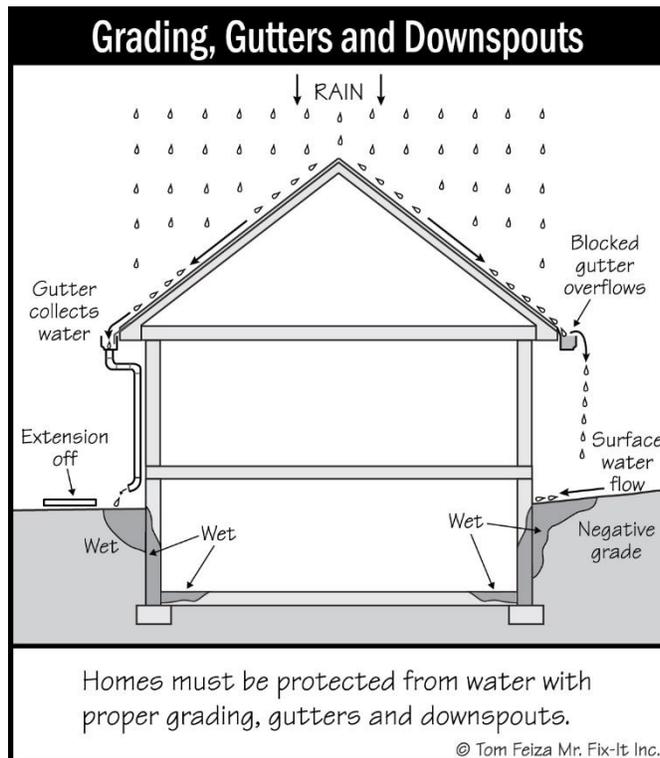
In order of importance:

1.) Bathroom exhaust fans and any dryer vent must be ducted out through the roof. Not up to the ridge vent. Not up to the edge of the gable vent. I'm talking – cut a hole in the roof, stick the duct outside, then seal it all up.

Exhaust ducts in the attic should be sealed with mastic. HVAC ducts in the attic *must* be sealed and insulated.



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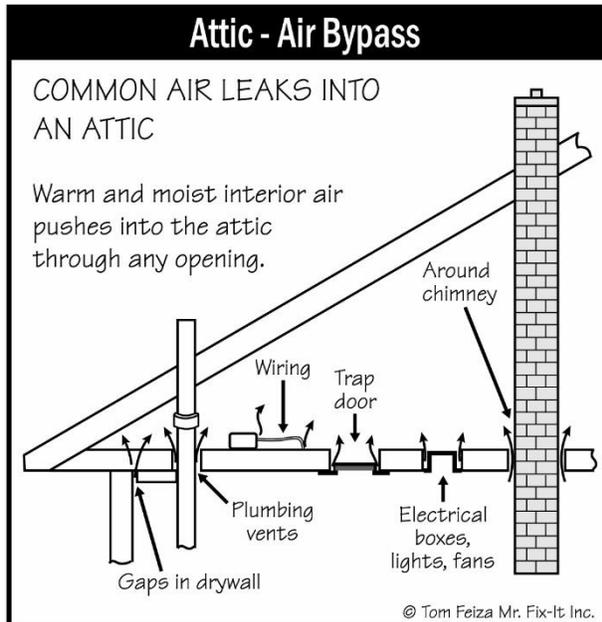


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2.) Wet basements or crawl spaces need to be dry. This is not only good for the attic but also your health, indoor air quality and prevents mold in the basement.

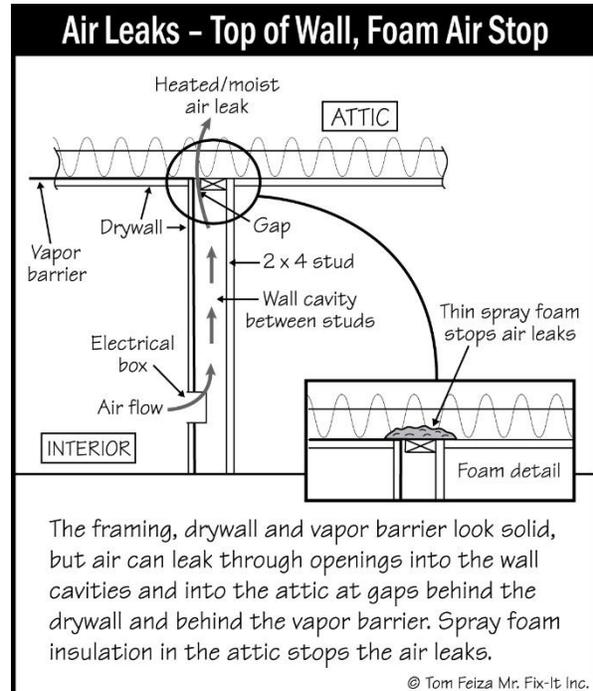
Sometimes the fixes are simple and easy, like cleaning the gutters, extending the gutter downspouts 10' into the yard or installing a dehumidifier. Sometimes it's expensive and unpleasant, like re-grading the yard or sealing the foundation. And unless you have a damn good reason to keep it running, *please* disable the HVAC humidifier. They're evil and totally unnecessary in the DC area.

3.) All the holes and penetrations in the attic “floor” must be sealed with caulk or spray foam insulation. Old, recessed ceiling lights may have to be replaced with newer air-tight models. Hire an insulator who knows what they’re doing. We have some good ones we can refer you.



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The framing, drywall and vapor barrier look solid, but air can leak through openings into the wall cavities and into the attic at gaps behind the drywall and behind the vapor barrier. Spray foam insulation in the attic stops the air leaks.

### Why is only half my roof moldy?

The moldy half is the north side (or it could be covered by trees). The sun’s arc goes east-south-west in winter. The north side is colder so it reaches dew point more often than the rest of the roof that’s warmed by the sun.

### Why does everyone else only talk about roof ventilation?

They’re quoting the International Residential Building Code (IRC). It says a ratio of 1 square foot of ventilation is needed for every 300 square feet of attic floor. Where did this code come from? The Federal Housing Authority proclaimed it in 1942 based on a frost study of 3 dog houses in Minnesota. And it’s been gospel ever since.

Improving the roof’s ventilation only helps a little bit – it’s merely fourth on the list of important things that prevent attic mold. A side note on roof ventilation: soffit-to-ridge ventilation is good. Attic fans are bad. Per building science expert Joe Lstiburek, “your attic floor has to be airtight for an attic fan to be effective. If your attic floor is airtight, you don’t need the attic fan.”