HUMIDITY IN THE WOOD SHOP

Have you ever wondered why you have had no rust problems in your wood shop? Until one day you go out and find all of your tools have rust on them, and you haven't done anything differently. It has to do with humidity vs. temperature.

Your garage or shop floor wants to hold a temperature of 50 degrees, and if you keep the temperature at 45 degrees in the winter like I do when you are not in the shop this can cause a potential rust problem in the spring.

So you have your first spring day of 60 degrees, you want to throw open your doors and windows, and let the warm air in. Is this a good Idea? Some days it is, and some days it's not. How do you know?

Iron starts to rust at 50% humidity, and different steels start to rust at between 65 to 80% humidity. This depends on contaminates that are in the air.

This has bothered me over the last few years, and I have found a simple rule that seems to work.

For every 1 degree the temperature drops the humidity rises 2%.

For example if the temperature outside is 60 degrees with a relative humidity of 30%, and the shop is 45 degrees, when you open the windows you may end up with a humidity level of 60%. But if the humidity outside is 45% you will end up with a humidity level in the garage of 75%, and you have a rust problem.

Here is a simple formula that seems to work under normal temperature and humidity levels in a workshop.

Outdoor temp – Indoor temp = (temp delta) times 2 = A %H
A %H + Outdoor %H = Indoor humidity level

60 – 45 = 15(temp delta) times 2 = 30 % H
30 %H + outdoor 45%H = indoor 75%H

Fortunately in the spring the humidity level is usually fairly low, but when July comes the outdoor humidity level rises a lot. The temperature differential goes down, but the humidity differential goes up.

Using this rule has helped me get the wood shop warmed up without running the heater, and protecting it from rust. I have a real problem with this when I should be able to just open the windows, and doors, and let the fresh air in.

This is the first revision so if you see an error or have a question. Please feel free to contact me.

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