Ask Jon Eakes

Vapour barrier paint -- it does exist -- it does work.

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Kyle from Fort Erie, Ontario, has a vapour barrier question. "We have a house, 80-90 years old, with no insulation in the attic. The house is a 1-1/2 story building with sloped ceilings on the second floor to the outside walls. Our ceilings are plaster. Can we lay insulation in the attic without adding a vapour barrier? If not, what is the best way to do so without a major renovation?"
This is really a big topic and I refer you to many database entries that can help you to understand both Vapour Barriers and Air Barriers. Here, I want to give you some technical details which will help out Kyle directly.
Yes you need a vapour barrier if you add insulation. But just what is a vapour barrier? And maybe you already have one without knowing it.

Code requirements for vapour retarders
According to the building code there are two types of vapour retarders (commonly called vapour barriers): Type 1 : that have to really restrict the passage of moisture in a major way, defined as not allowing more than 15 ng/(P.s.m2) (metric) or 0.26 Perms (Imperial) of moisture passage. These are required where there is cladding on the house that doesn't breath well. Type 2 : the common vapour barrier for ordinary conditions is defined as not allowing more than 60 ng/(P.s.m2) or 1 perm after ageing, of moisture passage. That's the technical stuff, but it is easy to remember that less than 1 Perm is a functioning vapour barrier.

So what makes a vapour barrier
Now the application of that is very interesting. Plastic and aluminium sheets are well under 1 Perm. Two coats of a good oil paint will provide a vapour barrier of less than 1 Perm as well. There are even some latex vapour barrier primers that will do the job. It is funny that the paint companies themselves back off from promising that it will do the job, only because they are not really familiar with the building code, but their technical specifications show that they have been tested to less than 1 Perm, making them a legitimate Type 2 vapour barrier.

Products on the market
This is a moving target. I used a latex vapour barrier paint years ago, then lost track of it because not many people used it so it disappeared from most paint stores. In 2012 one reader located a new ICI latex vapour barrier paint -- but today ICI no longer sells in Canada. What we need to satisfy the building code for vapour barriers is that the material data sheet shows that if you apply it according to instructions, it has a permeance of less than 1 Perm. The problem is that no paint company markets it well and the guys in the store don't know what you are talking about. Often you have to buy a minimum of 4 gallons at a time if they don't stock it. In 2017 Dalia Kaminski of Montreal needed some and has shared with me some very thorough research: Benjamin Moore has a "Super Spec" primer K206-00 that is a latex paint and comes in at less than 0.5 perms; Sherwin Williams has a "Moisture Vapor Barrier" latex paint B72W00001 that comes in at less than 1 perm. Others look promising but the data sheets don't list perm ratings.
The company Zinsser makes a shellac based white primer called BIN that is primarially used for hiding difficult stains, but it too rates in at less than 1 perm and this company, depending who is working in their labeling department this month, occasionally identifies it as a "vapour barrier paint". Although more expensive per gallon, you can easily find this product in most paint departments.

Don't forget: two coats of oil paint is a vapour barrier -- you may already have one.
However Kyle, with that 80 year old house, don't bother. I can almost guarantee you that there are at least 5 coats of oil paint on that plaster and lathe ceiling. You already have a very good vapour barrier as it takes only 2 coats of standard oil paint to create a vapour barrier. But don't forget to read up on Air Barriers. Holes into the attic can cause lots of problems after you add insulation because they allow large quantities of warm moist air into the attic. The photo above shows how the plastic sheet is not just a plastic sheet in a newly constructed ceiling, but is sealed air tight around all the penetrations creating an air barrier as well. In that old house, there is a lot of work to be done to seal up around the plumbing stack, the electrical outlets, etc. Your advantage is that you have no insulation yet -- so you can do all the sealing from the top, working in the attic. Once every hole and crack between the house and the attic is sealed air tight, simply add your insulation -- but don't block the ventilation at the soffits!

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