**Weather Barriers vs. Vapor Barriers**

People often confuse the difference between an air barrier, or water resistive barrier, and a vapor barrier. Building codes often require vapor barriers on the inside of wall systems in cold climates. The concept is that you are trying to keep that moisture laden air that is inside the building from permeating through this vapor retarder and getting it into the insulation. But the difference between a vapor retarder and an air barrier is that you want the air barrier on the outside of the building and you want that to be breathable.

This lab experiment can demonstrate the difference between a vapor retarder and a breathable air barrier. What we have here are two beakers. One is covered with polyethylene and the other is covered with Tyvek, which is a breathable air barrier. We have those beakers basically boiling water. Now, when I take a piece of glass and I go over the Tyvek covered beaker, you can see that the moisture vapor is basically permeating through that Tyvek and condensing on the bottom of the glass. But, when I take the glass and go over to where the plastic vapor retarder is at, no moisture vapor is getting through. The reason this is important is that we wouldn’t want to put a vapor retarder on the exterior of our walls, because that could actually trap moisture in the wall system. I’m a big believer that you really don’t put vapor retarders anywhere in the structure unless it’s required by code because when the wall system gets wet, you want it to dry out as fast as possible. If you have breathable materials, that allows that to happen. And that’s why it’s important that we make sure that this building is watertight, with a complete weatherization system, before the cladding ever goes on.