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# What is a Vapor Barrier?

## Vapor Barriers

*By: Patrick Breen*

Many of the residential properties I inspect are either built with a crawl space, or have at some point undergone an expansion that is built over a crawl space. Most often, in either situation, this void under your house consists of bare earth and does not have the recommended protective vapor barrier installed.

A vapor barrier, or sometimes referred to as a vapor retarder, is any material that will prevent the transference of moisture and humid air from circulating within the environment of your building envelope. This includes the underside of your home. Many homeowners believe that since this crawl space is moist only certain times of the year that it's nothing to be concerned about. The problem lies in the fact that regular annual exposure to moisture will eventually compromise the integrity of almost every kind of building material. Wood begins to mold and rot; and metal will start to rust and deteriorate.

In many instances I have found rolled insulation falling down from between the floor joists. The common culprit is moisture due to lack of vapor barrier covering the ground coupled with the fact that the insulation has been installed incorrectly - with the paper backing facing out.

Rolled insulation comes in two forms; either with a paper backing or without, and is referred to as faced or unfaced. The faced insulation does in fact act as a vapor barrier, but when installed improperly this facing will trap moisture between the joists and begin degrading the insulation along with the structure.

The most common ground covering used as a vapor barrier is plastic sheeting, but other products such as asphalt paper will work just as well. The advantage of rolled polyethylene is that it comes in a variety of widths and mil thicknesses making it easy to install over a large surface area.

The most effective means of protecting the underside of your home with a vapor barrier, as well as keep it energy efficient, is to implement three separate barrier systems. The first is to cover the exposed earthen ground with a large sheet of polyethylene plastic. Extend this sheet all the way to the foundation perimeter. The second step is to insulate the underside of the living space floor with insulation. If you choose to use rolled 'faced' insulation make sure you install it with the paper side up against the heated floor side of the structure and not facing out.

The last step in protecting your crawl space from moisture is to install some cross ventilation so that any moisture that does find a way in can be vented out and not trapped inside. It is recommended with a vapor barrier in place you have 1 square foot of cross ventilation per 1500 square foot of floor space.