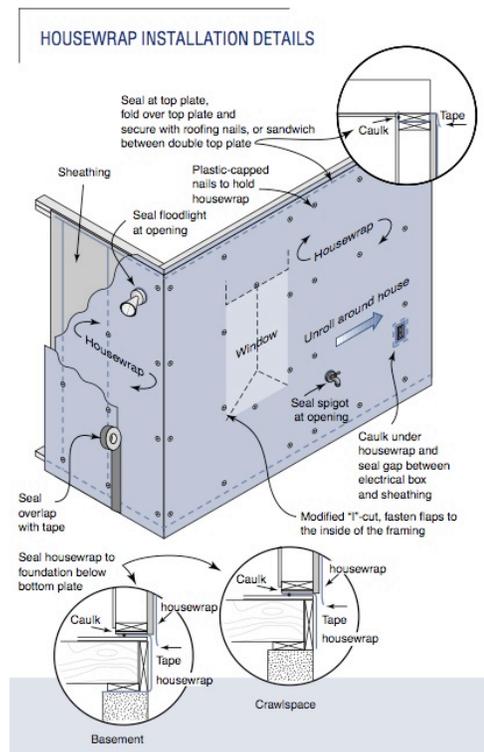


Inspecting Housewrap

By Ben Gromicko



In this article, we'll go over the function of housewrap, examine its attributes, and address common problems associated with its use.

Housewrap has two functions:

- to minimize airflow through a wall and
- to stop (and drain) liquid water that has penetrated through the siding.

Housewrap is not a vapor retarder. It is designed to allow water vapor to pass through.

The choice to use housewrap or building paper depends on the climate and on the preference of the installer/contactor or owner. Both materials can provide adequate protection.

Housewrap must be installed properly or it could be more detrimental than beneficial.

Proper installation, especially in lapping, is the key to using housewrap successfully.

Purpose of Housewrap

Housewrap serves as a dual-purpose weather barrier. It not only minimizes the flow of air in and out of a house, but also stops liquid water and acts as a drainage plane. Housewrap is not a vapor retarder. The unique characteristic of housewrap is that it allows water vapor to pass through it while blocking liquid water. This permits moist humid air to escape from the inside of the home, while preventing outside liquid water (rain) from entering the home.

Almost all exterior finishes allow at least some water penetration. If this water continually soaks the wall sheathing and framing members, problems such as rot and mold growth could occur. Housewrap stops water that passes through the siding and allows it to drain away from the structural members.

Humid Climates

In humid climates with heavy rainfall, housewrap is recommended to prevent water damage to the framing. Use in dryer climates may not be as critical, since materials are allowed to adequately dry, although housewrap also prevents air movement through the wall cavity, which is beneficial for insulating purposes.

Housewrap vs. Building Paper

It is important to know what attributes are most important for a particular climate. Five attributes associated with secondary weather barriers are:

- Air permeability – ability to allow air to pass through
- Vapor permeability – ability to allow water vapor (gaseous water) to pass through
- Water resistance – ability to prevent liquid water from passing through
- Repels moisture – ability to prevent moisture absorption
- Durability – resistance to tearing and deterioration

As shown in the following table, the climate where the house is located determines the importance of the attribute.

ATTRIBUTE	WHEN IT IS	BUILDING PAPER	HOUSEWRAP
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	IMPORTANT	PERFORMANCE	PERFORMANCE
Water resistance	Climates that are windy and rainy	Good	Excellent
Vapor permeability	Climates that are hot and humid	Fair	Good
Air permeability	Climates that are windy and cold	Fair	Good
Repels moisture	Climates with high rainfall	Good	Excellent
Durability	Climates that are windy, with exposure to weather	Fair	Good

Rule of Thumb

It is important to remember one rule of thumb related to moisture vapor transport in walls. Namely, any vapor retarder must be located on the warm-in-winter side of the wall (i.e., inside) in all climates except hot/humid climate where it should be placed on the warm-in-summer side of the wall (i.e., outside) if one is used at all.

Housewrap Installation

No matter what product is used (housewrap or building paper), neither will work effectively if not installed correctly. In fact, installing housewrap incorrectly could do more harm than not using it at all. Housewrap is often thought of and installed as if it were just an air retarder. But a housewrap will channel water and collect it whether the installer intends it to or not. This can lead to serious water damage if the housewrap is installed in a manner that does not allow the channeled water out of the wall system.

Inspection Tips for Housewrap

The following are inspection tips for checking successful installation of housewrap:

- manufacturers' instructions are followed
- housewrap is installed before windows and doors are installed
- the upper layer should always be lapped over the lower layer
- horizontal joints are lapped at least 6 inches
- vertical joints are lapped 6 to 12 inches (depending on potential wind-driven rain conditions)
- 1-inch minimum staples or roofing nails are used and spaced 12 to 18 inches on center throughout
- joints are taped with housewrap tape
- drainage provision is installed at the bottom of the siding
- housewrap is extended over the sill plate and foundation joint
- housewrap is installed such that water will never be allowed to flow to the inside of the wrap

Inspect For These Common Problems with Housewrap

Incomplete wrapping:

Gable ends are often left unwrapped, leaving a seam at the low end of the gable. This method works to prevent air intrusion, but water that gets past the siding will run down the unwrapped gable end and get behind the housewrap at the seam. Also, it is common for builders to pre-wrap a wall before standing it. If this is done, the band joist is left unwrapped. The band joist can be wrapped by inserting a strip 6-12 inches underneath the bottom edge of the wall wrap. In addition, outside corners are often missed.

Improper lapping:

This often occurs because the housewrap is thought of as an air retarder alone. When applying the housewrap, keep in mind that it will be used as a vertical drainage plane, just like the siding.

Doors and windows:

Improper integration with flashing around doors and windows