

DuPont™ Tyvek® HomeWrap®

BUILDING SCIENCE BULLETIN

The world's leading housewrap, with more than 25 years performance on millions of homes.



DuPont™ Tyvek® HomeWrap® helps builders protect the homes they construct.

DuPont created DuPont™ Tyvek® HomeWrap® to have the optimum balance of properties for superior performance against the elements and the competition. When choosing DuPont™ Tyvek® HomeWrap®, you can be assured you are using the leading brand of water-resistive barriers.

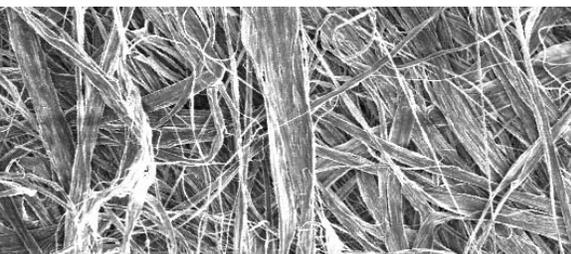
A water-resistive barrier is a home's main protection against the damaging effects of the elements. The optimal water-resistive barrier must include four key properties:

- Air resistance to help prevent the flow of air through wall cavities and reduce drafts.
- Moisture resistance to help protect the wall cavity from water that gets behind the cladding.
- Moisture vapor permeability to promote drying of wall systems.
- Durability to withstand the rigors of the construction site and to continue performing once construction is completed.

A balance of these four properties is crucial in helping to maintain the protection, comfort and efficiency of a home.

Defining the difference

DuPont™ Tyvek® HomeWrap® is a nonwoven, nonperforated sheet made by spinning extremely fine, continuous, high-density polyethylene (HDPE) fibers that are fused together to form a strong, uniform web. The fibrous structure is engineered to create millions of microscopic pores that resist bulk water and air penetration while allowing moisture vapor to pass through. DuPont™ Tyvek® HomeWrap® is the only product manufactured using this unique process; therefore, only DuPont™ Tyvek® HomeWrap® achieves the optimal balance of air resistance, water resistance and moisture vapor permeability. Other water-resistive barriers compromise such features as bulk water hold-out for vapor permeability, or vapor permeability for air resistance.



DuPont™ Tyvek® at 75x magnification. The microscopic pores in DuPont™ Tyvek® HomeWrap® help keep water from infiltrating the wall cavity.



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Air penetration resistance

One basic function of a water-resistive barrier is to help insulation maintain its R-value by keeping air from infiltrating the wall system. The ability of a water-resistive barrier in helping to prevent air infiltration directly relates to the energy costs of heating and cooling a home. Many housewraps fail to meet the basic air barrier requirement of < 0.06 cfm/ft². The high air resistance level of DuPont™ Tyvek® HomeWrap® allows insulation to be more effective, helping to lower energy costs. (Figure 1)

Bulk water hold-out and vapor permeability

The building industry continues to face challenges with moisture-related issues resulting from wall systems that failed to manage the incidental moisture that enters and cannot escape a wall cavity. High bulk water resistance and high drying potential are key components of creating the optimal wall system. DuPont™ Tyvek® HomeWrap® has a high resistance to bulk water penetration, helping to reduce the damaging effects of moisture penetration. (Figure 2)

At the same time, the high Moisture Vapor Transmission Rate (MVTR) of DuPont™ Tyvek® HomeWrap® ensures that water vapor does not linger in the walls, but passes to the outside where it belongs (Figure 2). A water-resistive barrier should have a high perm rating so that the natural ability of a wall system to dry out is not impeded. The excellent moisture vapor permeability of DuPont™ Tyvek® HomeWrap® helps prevent moisture accumulation in walls which can lead to the formation of mold, mildew and wood rot.

Durability

DuPont™ Tyvek® HomeWrap® provides excellent tear strength and good wet strength combined with a superior UV resistance of 120 days. Conscientious builders choose DuPont™ Tyvek® HomeWrap® over any other product because it withstands the rigors of the construction site and offers an easy solution to protect the homes they build from the harmful effects of the elements once construction is completed.

Figure 1: Installed R-value at 9 mph wind pressure with and without DuPont™ Tyvek® HomeWrap®

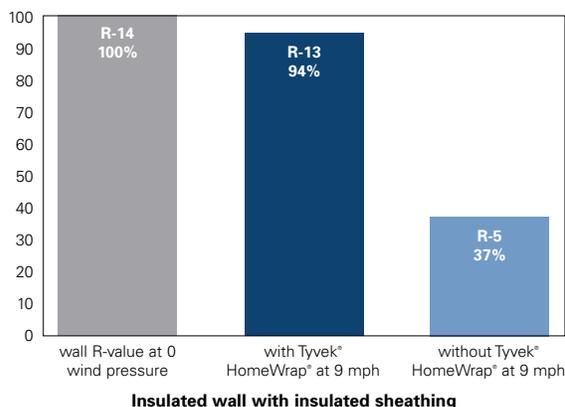
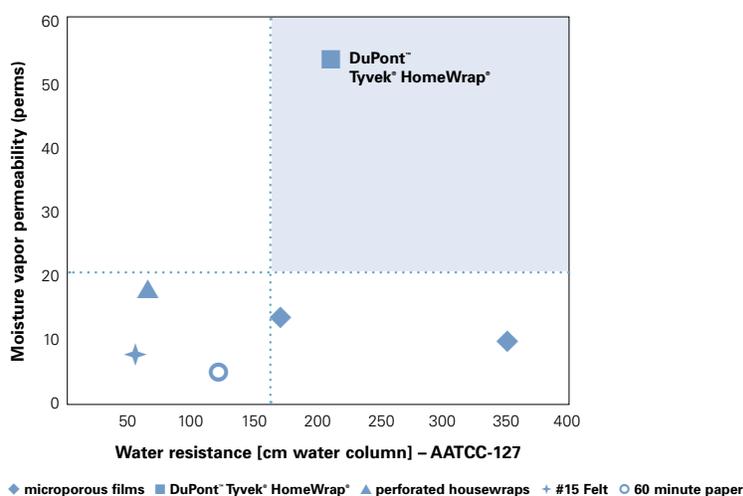


Figure 2: Water resistance and moisture vapor permeability graph



The ability to hold out bulk water is one of the most basic and important requirements of any water-resistive barrier. Allowing moisture vapor to escape the wall system is also crucial to managing moisture.

DuPont Residential Warranty

DuPont™ Tyvek® Weatherization Systems come backed by a 10-year limited warranty, providing added assurance that the homes builders construct will continue to protect the homeowner's investment for years to come.

Our Specialist Network

A national group of over 180 highly-trained field representatives is available to assist you with your installations. From the latest updates on building codes, to on-site consulting and training, your local DuPont™ Tyvek® Specialist will help make sure the job gets done right.



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For more information, please call
1-800-44-Tyvek or visit
www.Construction.Tyvek.com