

DuPont™ Tyvek® Water-Resistive Barriers vs. black paper

TECH TALK

The superior performance of DuPont™ Tyvek® provides durability and energy efficiency.



DuPont™ Tyvek® WRBs help prevent water damage to homes and they stand up to the rigors of a construction site.

Trusted by quality building professionals everywhere, DuPont™ Tyvek® Water-Resistive Barriers (WRBs) offer superior performance compared to asphalt-impregnated black paper, giving you the durability and performance needed to build more comfortable, more energy-efficient living spaces.

The primary purpose of a house wrap is to help prevent water damage to the homes you build. In order to accomplish this, products need to survive the rigors of the construction process and perform to specification after installation. WRBs should:

- be *durable* enough to withstand job-site challenges during installation
- *manage water* that may enter the wall system after installation
- promote better *energy efficiency* by providing an air barrier in the wall system, and
- help you maintain a *healthy environment* for installers and homeowners

Greater durability

DuPont™ Tyvek® WRBs are engineered to withstand the rugged conditions encountered on construction job sites. Consider the threats to WRBs—you need protection from tearing and UV weathering. When DuPont™ Tyvek® WRBs are tested against black paper, they far exceed the results of paper, as illustrated in the charts on the next page.



The miracles of science™

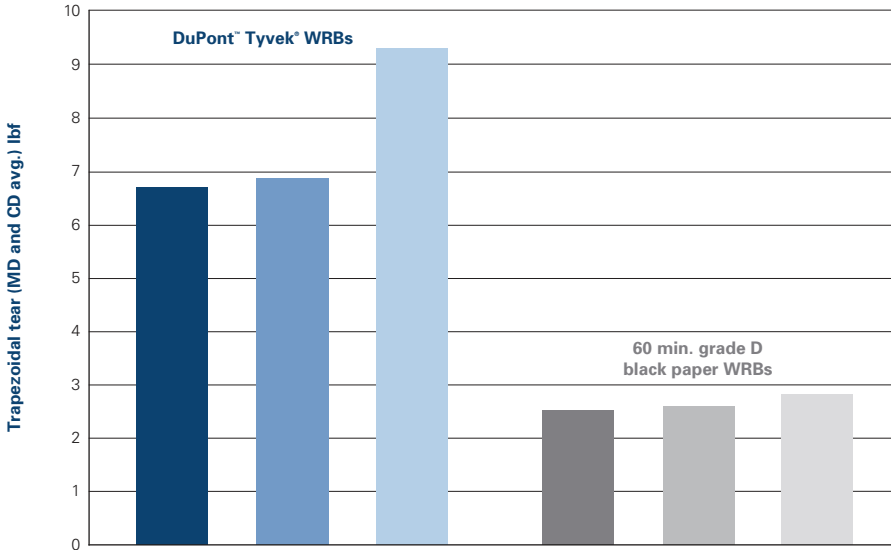
DuPont™
Tyvek®



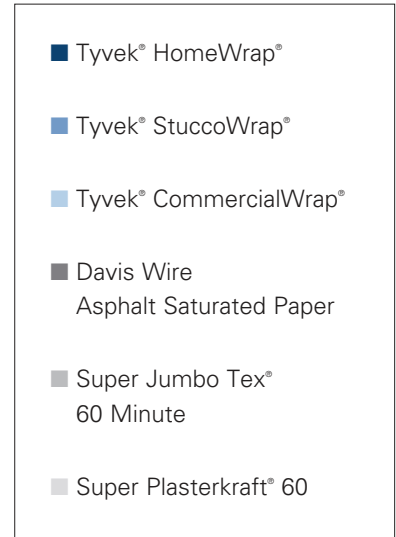
Tear resistance

DuPont™ Tyvek® WRBs have more than twice the tear strength of 60 minute grade D paper, providing you with a forgiving product on the job site. If punctured or torn, DuPont™ Tyvek® WRBs are easily repaired with DuPont™ Tyvek® Tape compared to paper products which are not readily repairable with tape. Consequently, torn or punctured areas of black paper must be replaced, slowing construction and requiring more material.

Graph 1: Trapezoidal tear (MD and CD average)



Key to graphs 1 and 2



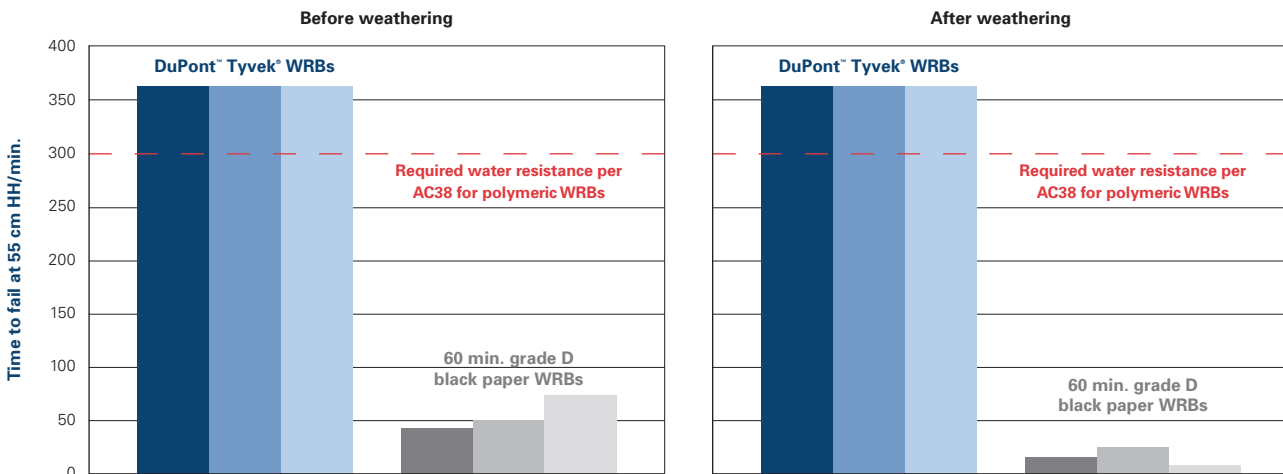
UV resistance

Protection from UV damage is critical. Cladding is frequently installed several days, or even weeks, after installation of the WRB. DuPont™ Tyvek® WRBs provide a minimum of 120 days UV resistance while still maintaining critical properties to qualify as a water-resistive barrier. Conversely, black paper manufacturers stipulate “cover as soon as possible” on their installation instructions because the asphalt (the protective element in paper products) begins to break down almost immediately after UV exposure.

The graph below illustrates the significant reduction in water hold-out properties after black paper is exposed to a standard industry test (AC38 Acceptance Criteria for Water-Resistive Barriers).

Note: DuPont™ Tyvek® products continue to perform above AC38 code threshold after exposure. Black paper products are not required to be tested against this standard as they are grandfathered into building codes. When you use DuPont™ Tyvek® WRBs, you can be confident they will perform to specification even if the cladding will not be installed for several weeks. Black paper products typically do not afford you this flexibility.

Graph 2: Effect of weathering on water resistance



Water management

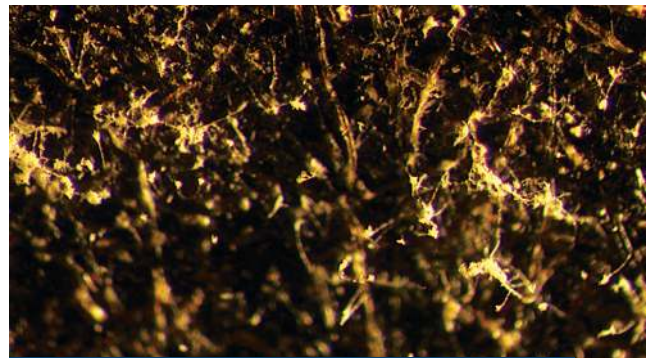
DuPont™ Tyvek® WRBs help to effectively manage water in your wall system. They have the optimum balance of properties for performance against the elements and the competition. When using DuPont™ Tyvek® WRBs you can be assured you are using the brand leader in water-resistant barriers. DuPont™ Tyvek® WRBs are comprised of a continuous filament barrier, precisely bonded, to provide bulk water hold-out and high breathability. When installed and integrated into a properly flashed wall system, DuPont™ Tyvek® WRBs help to guide water out of the wall and promote rapid drying.

Unlike DuPont™ Tyvek® WRBs, black paper can absorb water, retaining some moisture in the wall system. In addition, black paper is made up of cellulosic fibers which can act as a food source for mold. The combination of a moist condition due to retained moisture and the presence of a food source make black paper susceptible to mold growth.

DuPont conducted tests on both Tyvek® HomeWrap® and black paper to determine susceptibility to mold growth, using the standard test method ASTM D-3273-94. The test specimens were inspected for any visible mold growth after 75 days of exposure. As shown in the following pictures, the Tyvek® HomeWrap® sample did not show any mold growth. In contrast, the sample of 60 minute black paper did show mold growth. This demonstrates that under hot, humid conditions, black paper is susceptible to mold growth. Help to protect your reputation by reducing the potential for mold growth in your walls by using DuPont™ Tyvek® WRBs.



Tyvek® HomeWrap®: no mold growth after 75 days.

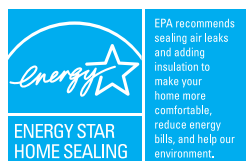


60 min. grade D black paper: mold growth after 75 days.

Energy efficiency

DuPont™ Tyvek® WRBs can be installed as air barriers per ASTM E-1677-95, thereby reducing energy consumption and contributing to sustainable building designs and practices. DuPont™ Tyvek® WRBs can contribute to LEED® credits in several categories including improved energy efficiency and indoor air quality. They meet new ENERGY STAR® Thermal Bypass Checklist requirements as an exterior air barrier and also qualify as an “air-retarding wrap” for the California Energy Commission (CEC) Title 24 Housewrap Credit.

Black paper generally does not comply with ASTM E-1677-95. Therefore, it does not qualify as an “air-retarding wrap” unless all horizontal and vertical seams are taped with a properly adhering tape.



Environmental consideration

Unlike DuPont™ Tyvek®, black paper WRBs are impregnated with asphalt—a known irritant. Following is an excerpt from *Building Materials for the Environmentally Hypersensitive*—CMHC, 1995:

“Asphalt is a strong irritant. It is not recommended for use in indoor spaces. Even when black paper is used outside the living space, heat may accelerate the release of odors, which can leak into the house or enter through ventilation openings.”

Superior products, unparalleled support

DuPont™ Tyvek® Specialist Network

DuPont™ Tyvek® WRBs are backed by over 35 years of innovative building science and a national group of over 180 highly-trained field representatives who are available to assist you with your installations. From the latest updates on building codes, to keeping up with current trends and challenges, your local DuPont™ Tyvek® Specialist can provide on-site consulting and training to help make sure the job gets done right.

DuPont™ Tyvek® Certified Installers

The DuPont™ Tyvek® Certified Installer Program is one more way to put the building science expertise of DuPont right at your fingertips. Your Certified Installer provides trained installation services to help seal the building envelope.

10-Year Limited Warranty

The complete line of DuPont™ Tyvek® WRBs, tapes, flashings and sealants integrate seamlessly to help you seal the building envelope so you can rest assured that the homes you build are more energy efficient and better protected. To back it up, DuPont™ Tyvek® also offers a 10-year limited warranty. Please refer to: www.Construction.Tyvek.com for warranty details.

Continuing Education Units

To help you stay current on building practices and specifications, your local DuPont™ Tyvek® Specialist offers AIA and CES learning units, as well as Building Science Seminars.



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

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