DuPont™ Tyvek® Fluid Applied System
Frequently Asked Questions

1. What is the DuPont™ Tyvek® Fluid Applied Air and Water Barrier System?

The DuPont™ Tyvek® Fluid Applied Air and Water Barrier System was designed to meet the high performance demands of commercial construction. The DuPont™ Tyvek® Fluid Applied System is composed of several products that were designed to work together to protect the building envelope by keeping out air and water while allowing internal moisture vapor to escape.

The system consists of:

**DuPont™ Tyvek® Fluid Applied WB** - DuPont™ Tyvek® Fluid Applied weather barrier (WB) is a vapor permeable, low VOC, single-component product with excellent elasticity and flexibility. It is easily applied in one coat and has extremely low shrinkage during curing.

**DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound** - A trowel-applied, vapor permeable elastomeric flashing material. It is used for flashing rough openings of windows and doors, treating substrate seams and voids, sealing around penetrations and transitioning between building components.

**DuPont™ Tyvek® Fluid Applied Flashing - Brush Formulation** - A brush applied, vapor-permeable elastomeric flashing material used to coat rough openings of windows and doors.

**DuPont™ Sealant for Tyvek® Fluid Applied System** – A vapor non-permeable sealant specifically designed to work with the DuPont™ Tyvek® Fluid Applied system. DuPont™ Sealant for Tyvek® Fluid Applied System has excellent adhesion and elongation. It is used to seal around windows, doors, and penetrations.

**DuPont™ StraightFlash™** - A premium self-adhered membrane for flashing windows and doors. It is also used to treat transitions between materials and for terminations. It is made with a DuPont™ Tyvek® spun-bonded polyolefin top sheet and a 100% butyl-based adhesive layer.

**DuPont™ FlexWrap™ NF** - A premium extendable self-adhered flashing material that efficiently conforms around corners and irregular shapes. It is made with DuPont™ Tyvek® spun-bonded polyolefin top sheet [and a 100% butyl-based adhesive layer.]
2. What is the chemical make-up of the DuPont™ Tyvek® Fluid Applied System?

DuPont™ Tyvek® Fluid Applied products are based on a unique chemical formulation using silyl-terminated polyether polymer technology (STPE). This base polymer technology has been used for more than 30 years in construction markets around the world. The unique technology of the DuPont™ Tyvek® Fluid Applied System offers several inherent advantages over the typical acrylic and bitumen based fluid applied air barrier products commonly used today. The DuPont™ Tyvek® Fluid Applied System offers many exceptional performance characteristics, such as high elasticity (extension and recovery), excellent UV resistance, high in-service temperature rating, low temperature application, low VOC content, exceptional crack bridging performance, and many more.

3. How does water vapor move through the membrane?

Water vapors move through the material by absorption and desorption driven by the difference in relative humidity across the membrane: the water vapors absorb into the membrane on the side with higher relative humidity, squeeze between the polymeric chains of the membrane, then desorb from the other side.

4. Why did DuPont decide to launch a fluid applied air barrier system, and how is the DuPont Tyvek® Fluid Applied System different?

DuPont has a long history of manufacturing air and water barrier products. Through extensive research in the marketplace and in product development, DuPont responded to meet the needs of the commercial construction market with a superior fluid applied air barrier system. There are several performance weaknesses with other fluid applied air barrier products that the DuPont Tyvek® Fluid Applied System addresses:

- **Polymer technology** – The majority of the vapor permeable fluid applied air barrier products used today are water based acrylic products, which can have some inherent weaknesses in overall, long term product performance and durability. DuPont™ Tyvek® Fluid Applied products are based on silyl-terminated polyether polymer technology (STPE) which address many of these weaknesses. This technology creates a cured, sealant-like membrane that is highly elastic.
- **Extension/Recovery** – The cured membrane exhibits exceptional extension and recovery properties (99% recovery per ASTM D412). When stretched it acts like a rubber band and will retract as a building naturally moves. Many competitive products simply deform when stretched and do not recover to their original shape.
- **Durability** – Many fluid applied products shrink as much as 50% during curing, making them prone to cracking and pin-holing. DuPont™ Tyvek® Fluid Applied System products have essentially no shrinkage and high-elastic recovery, allowing them to move with the building as it shifts over time.
- **Vapor permeability** – Most fluid applied systems currently on the market have relatively low vapor permeability. DuPont™ Tyvek® Fluid Applied WB and Flashing products offer the optimal permeability of 25 perms at a thickness of 25 mils.
• **DuPont™ Tyvek® Certified Installer Program:** Proper installation by certified professionals is extremely important for product performance; therefore, DuPont has a specific training program required of all installers in order to receive product warranty. This provides commercial construction professionals with added assurance that the product specified can be installed by a trained professional.

5. What common installation problems does the DuPont Tyvek® Fluid Applied System solve?

Additional installation benefits result from the unique polymer technology used by DuPont. DuPont™ Tyvek® Fluid Applied products allow for jobsite flexibility for installers while increasing confidence in proper installation for long term system performance.

• **Flexible Application Conditions**
  - *Low Temperature Application* -- The DuPont™ Tyvek® Fluid Applied products are not susceptible to freezing during the curing process, like water-based competitive products. The system is moisture-cured, enabling installation conditions down to 25 degrees Fahrenheit.
  - *Damp Surface Application* -- DuPont™ Tyvek® Fluid Applied can be installed on damp surfaces provided no moisture is transferred to the skin when the substrate is touched. This flexibility reduces substrate preparation and protection requirements.
  - *Installation Wash-off Resistant* – Water and solvent based fluid applied are routinely susceptible to wash-off from an unexpected rain after being applied on the wall. Since the STPE formulation of DuPont™ Tyvek® Fluid Applied is not water soluble, it is essentially unaffected by liquid water even before curing of the initial application to the substrate.
  - *9 Month UV Exposure* -- By offering 9 month UV exposure, the DuPont™ Tyvek® Fluid Applied System matches the UV exposure of the existing DuPont™ Tyvek® CommercialWrap® products. Providing 9 month UV exposure allows for scheduling flexibility during construction while outlasting many competitive fluid applied products.

• **Simplified Application Method:**
  - *Preferred Application Method* -- Power rolling DuPont™ Tyvek® Fluid Applied eliminates overspray problems in congested urban areas. Versus spraying alone, power rolling eliminates the need to backroll fluid applied products on many substrates.
  - *One coat application* -- Our 25 mil application thickness of DuPont™ Tyvek® Fluid Applied can be easily achieved in one pass. Virtually no curing shrinkage due to 98% product solids, removes variability and confusion around dry mil and wet mil application thickness.
  - *Priming Benefits* -- Substrate priming is not required for the DuPont™ Tyvek® Fluid Applied system due to the excellent adhesion level of our unique STPE formulation, except to stabilize loose gypsum at corners where cut gypsum board edges have been left exposed. Priming for self-adhered flashing installed over DuPont™ Tyvek® Fluid Applied WB doesn’t require a separate primer either; installers simply use any of the DuPont™ Tyvek® Fluid Applied products as a primer / wet-bed for the self-adhered flashing.
6. Is the DuPont™ Tyvek® Fluid Applied System designed to replace DuPont™ Tyvek® CommercialWrap®?

- No, in fact, the systems are intentionally designed to be complementary.
- DuPont™ Tyvek® building wrap systems are ideally suited for buildings using gypsum or wood-based sheathing, framed construction, or projects with a strict budget.
- DuPont™ Tyvek® building wrap air barriers can offer many advantages over a fluid applied air barrier such as eliminating substrate seam treatment, avoiding application temperature limitations, and ensuring a factory controlled membrane thickness.
- The DuPont™ Tyvek® Fluid Applied Air Barrier System is ideally suited for buildings using a CMU masonry back-up wall or complex sheathing designs and interfaces.
- The DuPont™ Tyvek® Fluid Applied System can be used as a stand-alone offering or as part of an integrated system combined with DuPont™ Tyvek® Commercial Wrap or Tyvek® CommercialWrap® D. The two air and water barrier systems integrate easily using DuPont butyl based self-adhered flashing products.

7. How can DuPont™ Tyvek® Fluid Applied WB and DuPont™ Tyvek® mechanically fastened wraps work together on a building with multiple substrates, like CMU walls alongside framed sheathed walls?

On buildings where you have multiple substrates DuPont offers an integrated air barrier system. For proper installation DuPont™ Tyvek® Fluid Applied System and Tyvek® Commercial Wrap products should be integrated in accordance with our installation guidelines to ensure proper adhesion and to maintain the performance of the materials. To ensure the best transition between the mechanically fastened wrap and the fluid applied material, first terminate the building wrap on the adjoining substrate by using DuPont™ StraightFlash™, and then apply the fluid applied material, overlapping it by a minimum of 2 inches onto the StraightFlash™. For detailed installation instructions, please see the DuPont™ Tyvek® Fluid Applied WB Commercial Installation Guidelines (weatherization.Tyvek.com/fluidappliedwbininstall).

8. Why are separate flashing formulations needed? Can’t we use the DuPont™ Tyvek® Fluid Applied WB as a flashing material?

DuPont™ Tyvek® Fluid Applied WB can be used alone to treat sheathing joints less than 1/16” wide, but it was specifically engineered for fast and effective application to the building envelope exterior wall surface by power rolling or spraying. The lower viscosity of the product makes it more difficult to fill gaps and voids and achieve the mil thickness required for optimum performance around the window openings and other penetrations.
The DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound and DuPont™ Tyvek® Fluid Applied Flashing – Brush Formulation was specifically engineered for flashing commercial windows. The brush grade formulation is medium viscosity product that is ideal for flashing openings with complex geometries such as recessed windows. The DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound is a higher viscosity product that can be easily troweled into the window opening for fast application and gap filling performance.

9. Can DuPont™ StraightFlash™ and DuPont™ FlexWrap™ NF be used with the DuPont™ Tyvek® Fluid Applied WB?

Yes, DuPont™ StraightFlash™ and DuPont™ FlexWrap™ NF can be used with the DuPont™ Tyvek® Fluid Applied WB. Please see the DuPont™ Tyvek® Fluid Applied Flashing Commercial Installation Guidelines for detailed installation instructions. (weatherization.tyvek.com/fluidappliedflashinginstall)

10. Why is DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound named as such?

We have engineered the DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound to meet the needs of the commercial market DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound offers dual functionality: it is ideal for projects that require both a flashing material and a joint compound that performs well on sheathing seams, penetrations, or other discontinuities in the wall.

11. Are the DuPont™ Tyvek® Fluid Applied products “self-sealing” or “self-healing”?

ASTM D1970 is the roofing membrane test method that is typically used to assess nail sealability for roof applications and is currently listed in the ABAA fluid applied air barrier testing requirements. Using this test to assess the actual performance of the air barrier for wall applications can be misleading because the types of fasteners and substrates used in commercial wall construction can vary greatly. DuPont™ Tyvek® Fluid Applied WB is ABAA certified and has passed ASTM D1970. This test was not designed to represent the “self-sealing” ability of fluid applied air barriers for exterior walls.

Some fluid applied air barrier membranes, including DuPont™ Tyvek® Fluid Applied, will exhibit some “self-gasketing” properties, but DuPont does not consider them to be “self-sealing” or “self-healing” when fully cured. Certain fasteners, such as self-tapping screws can destroy the membrane as they pass through it. DuPont performs extensive water penetration testing on wall assemblies and tests commercial systems up to the high performance pressure differential of 15 psf, and recommends pre-treating any mechanically attached support fasteners. For detailed fastener recommendations, please see the DuPont™ Tyvek® Fluid Applied WB – Commercial Installation Guidelines (weatherization.Tyvek.com/fluidappliedwbindall)
12. If I have technical questions about DuPont™ Tyvek® Fluid Applied System, who do I contact?

For product inquiries and questions contact your local Tyvek® Specialists. If you need assistance with contact information for your local Tyvek® Specialist, please call 1-800-44-TYVEK.

13. What is the clean-up procedure for the DuPont™ Tyvek® Fluid Applied System?

Uncured Fluid Applied material can be cleaned from hands, tools, and equipment by using a citrus-based cleaner or mineral spirits. The Fluid Applied products are moisture cured, thus avoid cleaning with water as this will advance the curing process. Cured Fluid Applied material can be removed by soaking in citrus-based cleaners or using a gel-based paint stripper.

When applying the product using a power roller or spray gun, the pump system should be completely free of water and any old water-based or incompatible material. If the system is not completely clean, products can react and cause products to cure in the system. To ensure optimal performance of the pump DuPont recommends that the low pressure portions of the pump be taken apart and thoroughly cleaned by hand. Refer to the pump manufacture for their recommended cleaning procedure. Before the next use, flush any remaining solvent out of the system and make sure good product is being pumped out of the power roller or spray gun, before applying the product to the wall.

14. What are the storage temperatures of the DuPont™ Tyvek® Fluid Applied WB System?

DuPont™ Tyvek® Fluid Applied products should be stored long term, in a clean, dry, and covered environment, at 50o- 80oF, (10o - 27oC). Products may be temporarily stored (up to one month) in a covered environment, at -20°F - 120°F intermittently. Products that are temporarily stored outside, at the job site, should be protected from the sun. Caution: Continuous storage at high temperatures, such as near furnaces or other continuous heat sources, will reduce the shelf life of these products.

15. What kind of installation equipment do I need when installing DuPont™ Tyvek® Fluid Applied WB?

- **Pressure Roller Application:** Graco Pressure Roller is the preferred method of installation of Tyvek® Fluid Applied WB. A pressure roller can be used in conjunction with a variety of standard pumps, such as the Graco TexSpray Mark V, TexSpray 7900 HD, GH 733, GH 833 or equivalent.

- **Spray Application:** Tyvek® Fluid Applied WB can be sprayed using a high pressure air-powered, airless sprayer such as the Graco X70 Xtreme® Sprayer or equivalent. The recommended tip sizes are 0.017” – 0.025”. A minimum hose diameter of 3/8” should be used when spray applying. All internal filters should be removed from the pump and spray gun. Remember to spray in a well-ventilated area using a NIOSH approved respirator.
- **Special Considerations:** All internal filters should be removed from the pump, spray gun, and pressure roller assembly, before applying product. The pump intake screen should be installed when applying product. The condition of the pump, as well as the size, length, and condition of the hoses used can affect the systems performance. The diameter of hose sections may need to be increased depending on the pumping distance desired. Refer to pump manufacture’s guidelines regarding the operation and maintenance of the pump system. Operation of pump equipment can be hazardous. All manufacture limitations, warnings, and safety recommendations should be followed.

16. Where are the Tyvek® Fluid Applied System products manufactured?

The DuPont™ Tyvek® Fluid Applied products are manufactured in the United States. The product ingredients are sourced from around the world.

17. Do the DuPont™ Tyvek® Fluid Applied Products help contribute to U.S. Green Building Council’s LEED® points for a building?

Like DuPont™ Tyvek® CommercialWrap® and CommercialWrap® D, DuPont™ Tyvek® Fluid Applied products may contribute toward LEED® points in the areas of Energy and Atmosphere (EA): Optimizing the Building Envelope and Indoor Environmental Air Quality (EQ): Construction IAQ Management Plan and Low Emitting Materials. In addition, the use of a continuous air barrier is a pre-requisite for LEED applications requiring compliance with ASHRAE 90.1-2010. ([weatherization.tyvek.com/sustainabledesign](weatherization.tyvek.com/sustainabledesign))

18. What sealants can be used with the DuPont™ Tyvek® Fluid Applied System?

The DuPont™ Sealant for the Tyvek® Fluid Applied WB had been specially formulated to work with the Tyvek® Fluid Applied System. We highly recommend the use of this sealant.

Many silicone, polyurethane, and acrylic sealants are also compatible with the DuPont™ Tyvek® Fluid Applied System. Contact the sealant manufacturer or DuPont at 1-800-44-Tyvek for specific compatibility.

19. Why is the DuPont™ Fluid Applied WB System 25 mil thick?

DuPont scientists have optimized the thickness of the fluid applied material by taking advantage of the superior elastic recovery of the product to provide a durable, robust membrane on the wall, while maintaining excellent vapor permeability. At 25 mils, the DuPont™ Tyvek® Fluid Applied WB provides vapor permeability of 25 perms and >400% elongation.

While many people are tempted to think that more is better, that is not always the case. Many of the 60-100 mil systems shrink down to 30–55 mils during curing. As they shrink, they become more susceptible to cracking and pin-holing, which can lead to air and water infiltration in the building.
20. What is the warranty offered for the DuPont™ Tyvek® Fluid Applied products?

The DuPont™ Tyvek® Fluid Applied WB, Tyvek® Flashing and Joint Compound, and Tyvek® Flashing - Brush Formulation all carry a 10-year Product Only Limited Warranty. The Tyvek® Fluid Applied System must be applied by a DuPont Certified Installer to qualify for the product only warranty. Please review the full warranty located at weatherization.tyvek.com/fluidappliedwarranty

21. Why is highly vapor-permeable DuPont™ Tyvek® Fluid Applied Air and Water Barrier System the best choice for use over a low vapor-permeable substrates like concrete and CMU?

For above grade applications, DuPont™ Tyvek® Fluid Applied Air and Water Barrier System provides a pathway to allow the concrete or CMU materials to dry through diffusion to the outside of the wall. High-mass materials like concrete and CMU are generally low permeable substrates, meaning they don’t offer a quick passageway for water vapor to pass THROUGH them. They do, however, have a significant capacity to STORE moisture that can come from excess moisture after curing, moisture accumulated during construction, internal condensation or unintended leakage pathways elsewhere in the wall system.

For example, excess moisture in a concrete wall after the curing process can produce gallons of liquid water per square yard of wall alone. This moisture will be released after construction through diffusion as the wall stabilizes to the surrounding relative humidity conditions. This process of releasing moisture can take several years and can be critical to the moisture content of the inside surface of the concrete wall. Providing a pathway for a high-mass wall to dry to the exterior can help prevent mold growth in a furred cavity assembly, and promote bonding conditions to the interior concrete finish material, like paint or tile.

In CMU the same drying process occurs in the mortar joints and from within the block cores, where grout and sometimes even moisture can fill the block cavities. If CMU is not able to dry over long periods, the excessive moisture can subject the block to potential for freeze-thaw degradation. DuPont™ Tyvek® Fluid Applied allows drying to the outside through the Air and Water Barrier System. With vapor permeance of DuPont™ Tyvek® Fluid Applied Air and Water Barrier System at 25 perms, DuPont believes this is the ideal solution for over a wide range of substrate types.

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

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