

CCW Fire Resist Barritech VP



CARLISLE COATINGS & WATERPROOFING INCORPORATED

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CCW-Fire Resist Barritech VP Fluid-Applied, Vapor Permeable Air Barrier

Carlisle Coatings & Waterproofing Incorporated (CCW) offers a broad range of solutions for building envelope protection. CCW provides technical services, research and development and manufacturing capabilities from its headquarters in Wylie, TX and two additional manufacturing facilities in Terrell, TX and Carlisle, PA. CCW offers a complete line of waterproofing and air barrier products for the architectural, general construction, industrial and maintenance industries. CCW is a division of Carlisle Construction Materials Incorporated, the largest division of Carlisle Companies, Inc., a publicly traded company (NYSE:CSL).

FEATURES AND BENEFITS

- Fire resistant composition permits use in many wall assemblies (complies with NFPA 285)
- Dries to a distinctive blue color for easy identification (lighter blue color when wet)
- 180-day UV resistance allows flexibility in schedule
- Vapor-permeable feature permits use in wall assemblies where a vapor barrier is not needed
- Non-flammable & fume-free composition contributes to safety during installation
- Easy, water clean-up of tools & equipment reduces harmful chemicals on the jobsite
- Spray-through standard, one-part equipment provides a simple and quick installation
- Monolithic coverage and self-sealing properties around fasteners enable an air and watertight installation
- Non-asphalt composition permits contact with many window and joint sealants
- Fire Resist Barritech VP is a warranted air/vapor barrier system from Carlisle Coatings & Waterproofing

PRODUCT DESCRIPTION

Fire Resist Barritech VP is a fluid-applied membrane made from naturally fire-resistant materials. Fire Resist Barritech VP is applied to exterior wall assemblies where it functions as an air barrier and a water resistive barrier. Fire Resist Barritech VP is vapor-permeable - moisture vapor can diffuse directly through the membrane. Fire Resist Barritech VP can be applied over concrete block, concrete, exterior gypsum sheathing, plywood, OSB and many other common building materials. The product is fully adhered to the substrate, flexible and rubber-like. Fire Resist Barritech VP is a single component, air-drying product applied by spray or roller at nominal 0.040-inch (40 mils) dry film thickness. The high film thickness and flexible, elastic properties enable Fire Resist Barritech VP to bridge cracks and seal around penetrations, which creates a truly continuous, monolithic air and water barrier.



PACKAGING

50-gallon drum
5-gallon pail

ABOUT AIR BARRIERS

It has long been known that air leakage significantly impacts a building's energy efficiency. For many years, the United States Department of Energy attributed as much as 40% of HVAC energy loss to air leakage in typical construction. A study released in 2005 by NIST confirmed this figure; findings indicated that HVAC energy savings from 15-40% could be achieved with increased air-tightness in the building envelope.

Air barriers are also an important part of

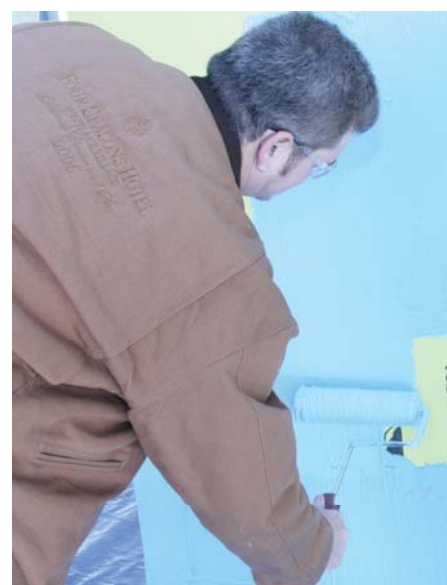
moisture management, as air leakage can move a great deal of moisture when a dew point occurs in the leak path. Air barriers are necessary for the construction of high-performance buildings, and energy codes in Canada and some U.S. states require their use in building envelope construction.

BASIC INSTALLATION

Fire Resist Barritech VP is applied by airless spray equipment or by roller. It is sprayed in a single coat at a minimum thickness of 60 wet mils, or rolled on in two successive coats at a minimum thickness of 30 wet mils each.



Fire Resist Barritech VP spray application.



Fire Resist Barritech VP roller application.

PERFORMANCE REQUIREMENTS FOR AIR BARRIERS

Fire Resist Barritech VP easily meets all six of the universally accepted performance requirements for air barriers.

1ST REQUIREMENT

Air barrier material shall exhibit an air permeance of no more than 0.02 L/s*m² @ 75 Pa when tested to ASTM E2178.

Polymeric coatings make excellent air barriers as long as they completely cover the substrate, and many substrate materials are porous and absorbent. Fire Resist Barritech VP minimum required installation thickness is 60 wet mils; accomplished with either a single spray coat or two roller-applied coats. At 66% solids content, this produces a 40-mil cured membrane when the film is cast on a smooth, non-porous surface. Carlisle contracted with an independent laboratory to make sure that the Fire Resist Barritech VP would perform as an air barrier when applied to the most rough, porous surface for wall construction – concrete masonry unit (CMU). Rolling or troweling a liquid membrane onto CMU ensures complete void fill while using less material. However, this technique is slow and labor-intensive compared to spray. Therefore, Carlisle tested the membrane with a simple, one-coat spray on CMU – no back-rolling, re-coating or touch-up. The results appear below:

Test results: Air permeance of bare block wall samples measured >0.75 L/s*m². The same wall samples, coated with a single 60-wet-mil spray coat of Fire Resist Barritech VP, exhibited an air permeance of <0.001 L/s*m². Fire Resist Barritech VP significantly surpasses the requirement and covers the substrate easily.



Fire Resist Barritech VP spray-applied in a single coat at 60 mils wet on concrete block



Fire Resist Barritech VP after drying on block. Complete coverage – no pinholes or voids

2nd REQUIREMENT

Air barrier shall be continuous and airtight, with all joints sealed.

In addition to the Fire Resist Barritech VP membrane, Carlisle offers a number of accessory products, providing a complete system. Fire Resist Barritech VP works in combination with joint reinforcements, flexible flashings and sealants to provide 100% continuity.



Fire Resist Barritech VP sprayed over joint details



Fire Resist Barritech VP parapet termination

3rd REQUIREMENT

Air barrier shall be capable of withstanding combined wind, stack and fan pressures without displacement or damage.

As a fully adhered membrane, Fire Resist Barritech VP stays in place as long as the substrate remains intact. Fire Resist Barritech VP has also been tested at an independent laboratory to ASTM E2357, the industry's toughest test for evaluating air barrier assemblies. ASTM E2357 requires incorporation of joint treatment, window openings, brick ties, mechanical/electrical penetrations and interfaces at the foundation and roof. The assemblies are then subjected to a rigorous pressure cycle, with both ex-filtration and infiltration evaluated. The loading schedule in ASTM E2357 simulates conditions commonly found in medium/high rise commercial construction. Fire Resist Barritech VP stands up to this test, without employing any fastening, battening or overburden.

Fire Resist Barritech VP Exceeds Industry Requirements:

Both the new ABAA requirements and the proposed addenda to the ASHRAE 90.1 Standard require an air barrier assembly to provide an air leakage rate that does not exceed 0.2 L/s*m² @ 75 Pa when tested per ASTM E2357. Fire Resist Barritech VP, as installed in these test assemblies, surpassed these requirements by one to two orders of magnitude.



ASTM E 2357 – Specimen 1



ASTM E 2357 – Specimen 2

Property	Results – Specimen 1	Results – Specimen 2
Infiltration, before Pressure Cycling	<0.004	<0.004
Infiltration, after Pressure Cycling	0.008	<0.004
Ex-filtration, before Pressure Cycling	<0.004	<0.004
Ex-filtration, after Pressure Cycling	<0.004	0.012

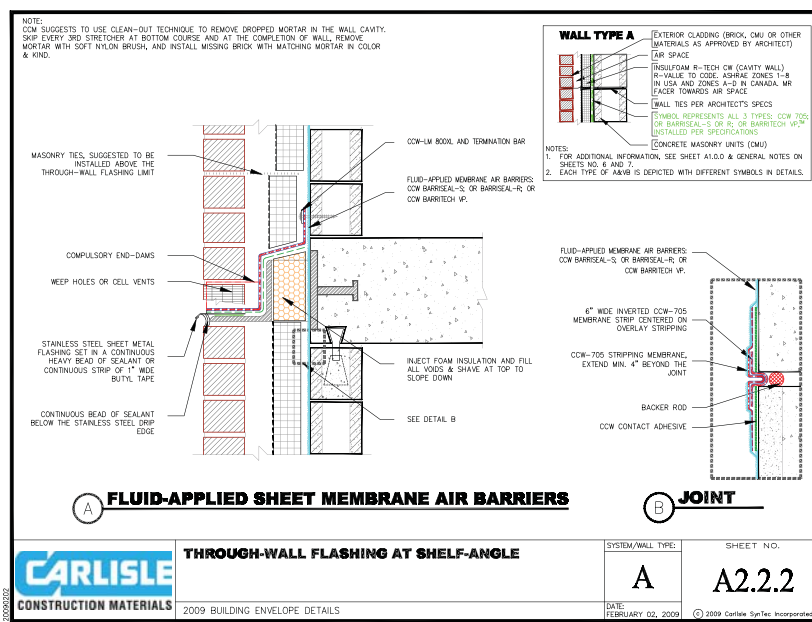
NOTE: All results expressed in L/s*m² @ 75 Pa pressure differential

4th REQUIREMENT**Air barrier shall be durable or maintainable.**

Fire Resist Barritech VP provides a significantly thicker membrane than many building wraps and weather barrier coatings. Because it is seamless and fully integrated with detail flashings, joint reinforcements and through-wall flashings, Fire Resist Barritech VP leaves no space for water to pond or intrude. Fire Resist Barritech VP is UV resistant for up to 180 days of exposure. Within that time frame, it is covered with a cladding system, which eliminates UV exposure and mitigates exposure to temperature extremes and water.

**5th REQUIREMENT****Air barrier shall accommodate movement of systems while remaining airtight.**

The full range of systems offered by Carlisle provides the ability to bridge moving joints while maintaining air- and water-tightness. An example is shown in the shelf angle detail to the right.

**6th REQUIREMENT****All penetrations made through the air barrier shall be sealed.**

The 40-mil membrane thickness and rubber-like properties of Fire Resist Barritech VP provide a seal around fasteners and brick ties, as shown. On this project, Fire Resist Barritech VP formed a tight, gasket-like seal around the brick ties without requiring any additional detailing or materials. Fire Resist Barritech VP ASTM E2357 test results confirm this as well.



Installed using screws with neoprene washers

Fire Resist Barritech VP

Fire Rating, Vapor Permeance and Water Resistance

Property	Test Method	Results
Burn Rating - Assembly	NFPA 285	Pass. Cavity wall assembly with 2½" of XPS insulation over Fire Resist Barritech VP spray-applied @ 60 wet mils to ½" gypsum sheathing
Water Vapor Permeance	ASTM E96 (B)	12 Perms. Through 40-mil-thick cured membrane
Water Penetration Resistance	ASTM E 331	No water leakage through cured membrane at 6.24 PSF pressure difference. Single-coat spray application @ 60 wet mils on CMU.