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CCW Barritech VP

Fluid-Applied, Vapor Permeable Air Barrier

C A R L I S L E C O A T I N G S & W A T E R P R O O F I N G



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CARLISLE
Coatings & Waterproofing



CCW-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 three additional manufacturing facilities in Terrell, TX, Elberton, GA 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

- Distinctive blue color for easy identification
- Vapor permeability allows use in diverse wall assemblies
- UV Resistance – up to 6 months exposure allowed
- Non flammable; no harmful fumes created during application
- Mold resistant
- Easy, water cleanup
- Sprays through standard, one-part equipment
- Monolithic coverage
- Maintains flexibility and elasticity at low temperatures
- Seals around penetrations and bridges cracks
- Excellent adhesion to many surfaces without primer
- Part of a complete building envelope protection system from CCW

PRODUCT DESCRIPTION

Barritech VP is a fluid-applied membrane designed for exterior wall assemblies where it functions as an air- and water-resistant barrier while allowing water vapor to pass through. Barritech VP is flexible, rubber like, fully adhered to the substrate and can be applied over concrete, concrete block, exterior gypsum sheathing, plywood, OSB and many other common building materials. A single-component, air-drying product, Barritech VP is applied by spray or roller at a minimum 0.040" (40-mil) dry film thickness. Because of its high film thickness and flexible, elastic properties, Barritech VP is able to bridge cracks and seal around penetrations, creating a 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

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.



Barritech VP spray application.



Barritech VP roller application.

PERFORMANCE REQUIREMENTS FOR AIR BARRIERS

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. 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 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 Barritech VP, exhibited an air permeance of <0.001 L/s*m². Barritech VP significantly surpasses the requirement and covers the substrate easily.



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



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



Barritech VP sprayed over joint details



Barritech VP parapet termination

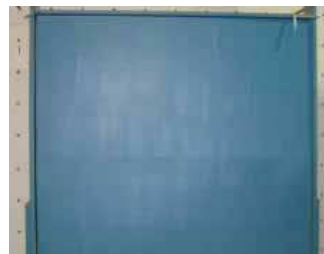
3RD REQUIREMENT

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

As a fully adhered membrane, Barritech VP stays in place as long as the substrate remains intact. 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. Barritech VP stands up to this test, without employing any fastening, battening or overburden.

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. 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.

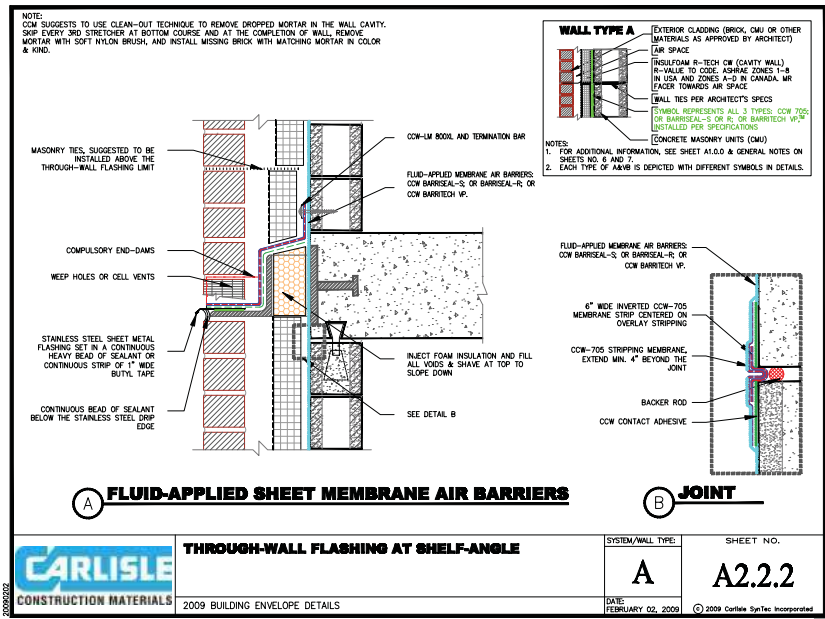
Barritech VP provides a significantly thicker membrane than many building wraps and weather barrier coatings. Because it is seamless and fully integrated with detail flashings, joint reinforcements and through-wall flashings, Barritech VP leaves no space for water to pond or intrude. Barritech VP is 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 barriers 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 Barritech VP provide a seal around fasteners and brick ties, as shown. On this project, Barritech VP formed a tight, gasket-like seal around the brick ties without requiring any additional detailing or materials. Barritech VP ASTM E2357 test results confirm this as well.



Installed using screws with neoprene washers

Barritech VP – Fire Rating, Vapor Permeance and Water Resistance

Property	Test Method	Results
Burn Rating - Assembly	NFPA 285	Pass. Cavity wall assembly with 2 1/2" of XPS insulation over Barritech VP spray-applied @ 60 wet mils to 1/2" 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.