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ETERNA-SEAL COATING PRESERVES WASHINGTON DULLES INTERNATIONAL AIRPORT

Background: The maintenance of one of the nation’s oldest single-ply roofs continued with Truco’s Eterna-Seal coatings in 1993. Originally constructed in 1962, the main terminal of The Washington Dulles International Airport has been widely recognized for its unique design. The facility features a lightweight concrete deck supported by extremely taut or pre-stressed cables. This “pre-stressing” allows the deck to span long distances unsupported, and produces a dramatic open area within the building.

Challenge Presented: To insure the long-term integrity of the concrete deck, a fully adhered rubber membrane was installed. Although commonplace today, single-ply membranes were not widely recognized in the United States until the mid-1970s. The membrane in turn is resurfaced with a protective coating to help extend its useful life. Such was the case in IW3 when Truco’s Eterna-Seal formula #7140 was reviewed by Larsen Engineering of Beltsville, Maryland and the Metro Washington Airport Authority.

Issues Identified: A number of tests through independent, accredited laboratories were mandatory to the review process. In each of the six required categories, Eterna-Seal exceeded the airport’s specification criteria. (See chart comparison.)

Product Identified: Further benefits were linked to the materials ease of application, compatibility over the existing CSPE-based coating*, and the absence of any significant chalking upon exposure to extended UV wear. After power washing the surface to remove excessive chalk, dirt, and other debris, the coating was back-rolled into the membrane. Loose seams and flashings were reinforced with polyester membrane and a trowel grade version of the Eterna-Seal material. Particular care was required to seal a copper sleeve that was installed into the large funnel drain located at the center of the roof. With the entire 1,650 square foot roof sloped to drain at this detail, substantial care was taken to assure a long-term, watertight solution.

In addition to the terminal installation, the control towers two asphalt decks were also restored using Eterna-Seal coatings. This required the contractor, PRM of Richmond, Virginia to embed polyester fabric into Base Coat formula #7143 before top-coating the entire roof with Eterna-Seal formula #7140. The result was a reinforced, seamless rubber roof fully adhered to the substrate. With over 60 dry mils on the finished installation, the @em is designed to assure a watertight seal well into the 21st century.

Outcome: Noting the significance of the structure, Christopher Hoskins of Truco remarked that “the installation of Eterna-Seal at Dulles Airport marks a milestone in our company’s achievements. All of us at Truco take pride in being associated with the care and restoration of this award winning facility”.



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	SPEC REQUIREMENT	#7140
Tensile Strength	500 psi; ASTM D412	1700 psi; ASTM D412 1670 psi after 1100 hours W baking'
Elongation	350% at 75 deg. F. 100% at 0 deg. F. ASTM D 412	580% at 75 deg. F. 300% at 32 deg. F. ASTM D412 580% at 75 deg. F. after 1000 hours W
Water Absorption- Water Vapor Transmission	4% weight gain over 166 hours at 73 deg. F. ASTM D 471	.01% weight gain over 166 hours at 73 deg. F. ASTM D 471
Moisture Perm.	N/A	1.51 perm rating per square meter (approx. 9 sq. ft.) Less than 0.2 per s.f. ASTM E96-80
Percent Solids	25% by volume; 35% by weight	40% by volume; 45% by weight
Low Temp. Brittleness	cracking at -4 deg. C. per ASTM D 746	passes bend test at 0 deg. C. over 1" mandrel and over 114" mandrel
Ozone Resistance	No cracks visible at 40 deg. C. (104 deg. F.) after 168 hrs per ASTM D 1149	No cracks visible at 60 deg. C. (104 deg. F.) after 220 hrs per ASTM D 529-90 & G 23.90. Also, tensile and elongation virtually unchanged at 100+ hrs. of UV baking. ASTM D 2240