LABORATORY WINDOW FRAMES

Converting existing office space into laboratories presented a not-so-unique problem for a facility in Massachusetts. The increase in relative humidity within the building was creating condensation – and in the winter months, frost – on the interior windowsills, which can increase the possibility of corrosion, surface damage, and workplace accidents. The building owners needed a solution to the problem, and they turned to Tnemec. Tnemec was able to offer Aerolon - an innovative thermal insulative coating.

"They asked us if Aerolon would help eliminate this issue," said Michael Woessner of the Righter Group, Inc. "Replacing the windows was not an option and they were open to an alternative solution."

The relative humidity (RH) in the office-turned-laboratory building went from an average of 23-30% before changes to approx. 48% after the renovation. Because the ambient temperature remained almost constant, this significant increase in RH caused water to condense quicker in the space, and was abundant on the anodized aluminum window frames. Using a program designed for determining the necessary thickness of insulation, NAIMA's 3E Plus®, the conditions of the building and the thermal statistics of the Aerolon coatings system were entered. The program determined that the building would need 110 mils dry film thickness (DFT) on the window frames to raise their surface temperature above the dew point and theoretically reduce or eliminate the possibility of condensation.

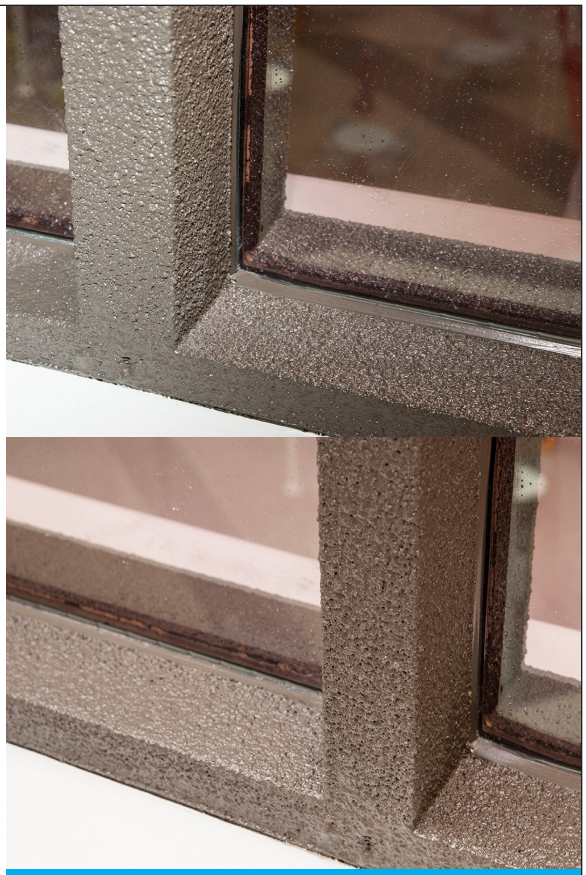
The window frames were prepared in accordance with SSPC-SP1 Solvent Cleaning to remove all oils, grease, dust, dirt, and other foreign contaminations. A prime coat of Series 1224 Epoxoline WB was applied first, followed by two coats of Series 971 Aerolon Acrylic at 55-60 mils DFT per coat. Series 971 is a next-generation thermal insulating coating that uses aerogel particles as an additive to produce an exceptionally low thermal conductivity.

The two coats of Series 971 were followed by a single coat of Series 1028T Enduratone, a water-based, low-VOC, HDP acrylic polymer coating, to seal the surface and achieve the desired finish color. This complete Aerolon coatings system, applied at the recommended thickness, would minimize the frequency of the condensation issue, and greatly reduce associated issues.

"We brought in our IR camera before and after the application, and there was a significant difference," explained Woessner. "Aerolon shows the initial signs of being the most practical solution to the facility's condensation problem."

FEATURED PRODUCTS

Series 1224 Epoxoline WB
Series 971 Aerolon Acrylic
Series 1028T Enduratone



PROJECT INFORMATION

Project Location
Boston, Massachusetts

Project Completion Date
June 2013

Architect/Engineer
Hodess Construction
Attleboro, Massachusetts

Contractor/Applicator
Best Contracting - Gardena, California
Peabody, Massachusetts

Condensation can be limited by applying the Aerolon coatings system to window frames. This display shows the difference in condensation between one side (top) sprayed with Aerolon and the other (bottom) uncoated.

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