

Job Story:

PROBLEM:

Shredded, Wet Fiberglass Ductliner Leads to Mold and Potential IAQ Problems at 5 Schools in Waterbury, CT

SOLUTION:

Armaflex Closed-cell Elastomeric Insulation for Air Handlers

Project:
Waterbury Schools Insulation Cleaning & Replacement

Location:
Waterbury, Connecticut

Objectives:
Install high efficiency, fiber free, mold-retardant insulation for long-term reliability and easy maintenance

Contractor:
Duct and Vent Cleaning of America, Inc.



Waterbury Schools Replace Damaged Open Cell Duct Insulation with Closed Cell Armaflex®

It was intended to be a routine duct cleaning – albeit an overdue one. Duct and Vent Cleaning of America, Inc. was commissioned to clean the duct and air handling equipment at five schools in Waterbury, CT, but when much of the original fiber glass duct liner was found to be either wet, moldy, or heavily damaged, a major replacement with AP Armaflex Duct Liner was the best option.

The cleaning team discovered that much of the fiber glass was torn apart, allowing fibers into the air stream. In two of the schools, Crosby High School and Wallace Middle School, they found moisture and mold in nine of the air handling units, all of which were enclosed in rooftop penthouses. The mold seemed to be concentrated in the return air plenum space located directly below the cooling coils and drip pans.

According to Jim Choquette, Senior Project Manager of Duct and Vent Cleaning of America, Inc., climate and humidity played a part in the proliferation of the mold. Improper installation and drain pan maintenance also contributed to the situation. In each of the units at Crosby and Wallace, fresh hot moist air was pulled into the ductwork where it mixed with cooler, return air. Unfortunately, there were 1- to 1.5-inch gaps on either side of the installed fiberglass insulation, leaving a thin strip of metal exposed. As cooler return air hit this hot ductwork, moisture in the air would condense onto the metal surface. The condensation soaked into the old, dirty open cell insulation, creating a breeding ground for mold. Overflowing drain pans added additional moisture to the problem, causing the mold to grow even more.



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In all, approximately 6030 sq. ft. of open cell insulation was removed from Crosby and Wallace. The insulation was replaced with 1-inch AP Armaflex Duct Liner. Approximately 1720 sq. ft. of shredded insulation was replaced at West Side Middle School and 1318 sq. ft. at North End Middle School. Additional replacements are underway at Wilby High School.

Out with the Open Cell Material, In with Elastomeric Foam

In all cases, Waterbury Schools opted to use AP Armaflex closed cell elastomeric duct liner to replace the open cell liner in the air handling units. The decision was based on the strong recommendation of Jim Choquette, who cited numerous reasons why his company preferred to work with closed cell Armaflex material.

"For one thing, it's just easier to work with. It doesn't break up inside of the unit so we're not getting call backs after three or four years. It just holds up a lot better," said Choquette.

Choquette explained to the client and the mechanical engineer why closed cell elastomeric foam was the better choice for all five schools, emphasizing that unlike an open cell structure sometimes protected by an easily-damaged vapor retarder, Armaflex doesn't absorb water when properly installed. Longer term, the closed cell structure prevents the wicking of water that can occur with fiberglass after moisture intrusion. Armaflex is also fiber-free, formaldehyde-free and low VOC. In addition, the smooth surface of Armaflex inhibits dirt from accumulating on the surface and becoming a food source for mold.

The projects at Wallace and Crosby demonstrated that both dirt and moisture can easily become entangled in open cell insulation, eventually providing a breeding ground for mold.

"We clean fiber glass lined ducts everyday. Whenever we find any broken apart, which is pretty common, we always recommend Armaflex. In fact, when it comes to replacements of any kind, we only use Armaflex," Choquette said.

AP Armaflex Duct Liner is a patented, self-adhering product specifically engineered to insulate air ducts while providing added protection against mold, mildew and airborne fibers. It is also NFPA 90A and 90B approved and has low water vapor transmission properties. In addition to duct liner, Armaflex is the preferred pipe insulation for preventing condensation and moisture intrusion on chilled water systems and is also available in sheet and roll form for insulating larger tanks, vessels and pipes. It is the original elastomeric foam insulation and a recognized solution for cold systems and air handling systems worldwide.

For more information about Armaflex Closed Cell Solutions, contact us or visit our web site.

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