

Job Story:

CHALLENGE:

Insulate over 4000 linear feet of chilled water piping housed in canopied walkways to control pipe condensation.

SOLUTION:

2-inch Armaflex sheets were used to insulate multiple runs of 12", 10", and 8" diameter piping.

Project:
The Academic Magnet High School and School of the Arts

Location:
North Charleston, South Carolina

Engineering Firm:
Owens and Associates



AP Armaflex Controls Overhead Condensation on Outdoor Chilled Water Piping at Academic Magnet High School and School of the Arts

There is no question that the Academic Magnet High School and School of the Arts in North Charleston, South Carolina is a showplace facility, in terms of academics, arts and architecture. Even the chilled water system for this sprawling 55-acre, 9-building campus was designed by Cole Owens of Owens and Associates, Inc. for state-of-the-art efficiency.



Its complex design included two 400-ton chillers, 36 ice storage tanks, 12 chilled water pumps, 325 variable air volume boxes, and 11,500 linear feet of HVAC piping to cool the buildings. The school utilizes the ice storage tanks to store cooling during the overnight off-peak hours, allowing the chilled water system to operate from the ice bank during the peak daytime hours, saving energy and improving efficiency.

The facility houses two schools, the Academic Magnet High School and the School of the Arts which share the cafeteria, administrative buildings, media center and the gymnasium. The multiple buildings are joined by numerous canopied walkways. The canopies house well over 4000 linear feet of chilled water piping, which transports cooling water from the central plant to all the

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various buildings. Beneath the piping is a perforated ceiling, which is also open on the sides.

“I was very concerned about the canopy. I have never had pipe above where people were walking and was concerned that pipe condensation might drip on people walking below,” said consulting engineer Cole Owens.

Given Charleston’s humid climate and the 36 to 38°F chilled water traveling through the outdoor pipes, Owens knew that insulation would be critical – and not just any insulation, but insulation that could block moisture. That’s why he chose AP Armaflex closed cell elastomeric foam.



“Armaflex doesn’t absorb moisture so its insulating properties remain the same, even in the presence of moisture,” said Owens.

2-inch Armaflex sheets were used to insulate multiple runs of 12", 10", and 8" diameter piping beneath the 900 feet of canopy. The Armaflex, which has a water vapor transmission (WVT) of 0.05 perm-inch and a thermal conductivity of 0.25 BTU-in/hr. ft² °F, was hand glued and taped to the piping.

“I have always had confidence in the performance of Armaflex pipe insulation especially with low temperature chilled water applications. With a high profile job such as the Magnet High School and the School of the Arts, lack of performance was not an option,” said Owens. “As a consulting engineer, I have asked many material and equipment manufacturers to show me a successful track record prior to my specifying their product. Each day Armaflex continues to perform in a very demanding exterior application in our extremely humid environment. That is why Armaflex is my pipe insulation of choice.”

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