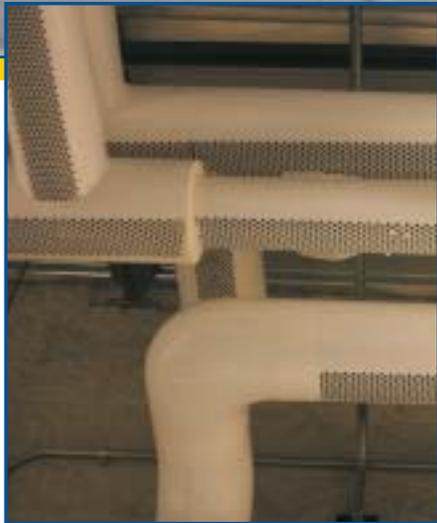




VaporWick® Pipe Insulation Turns Off Showers at University Athletic Facility



Larimer Athletic Complex, The University of Toledo

Case Study



When Paul Justen was asked to insulate chilled-water piping in a University of Toledo athletic facility, his initial enthusiasm for the project was soon doused with a cold shower. That's what he found when he went to look at the job – condensation dripping in such volume that the mechanical room looked like a shower:

“The big problem was that the air handling unit was delayed in delivery,” explains Justen, president of Service Products Insulation, Inc., a Toledo, Ohio-based mechanical insulation contractor. “The Athletic Department required that the new air conditioning unit be up and running by mid-July because the football team was due in then for summer training. When the unit finally arrived, the mechanical contractor put it in, piped it up and turned it on.



“It just happened that we had a heat wave that week and the humidity was horrendous,” continues Justen. “It was like walking into a shower in the mechanical room because the pipes were dripping so badly. And the university was not about to shut the system down until after the football season. By that time they would have had a lake.”



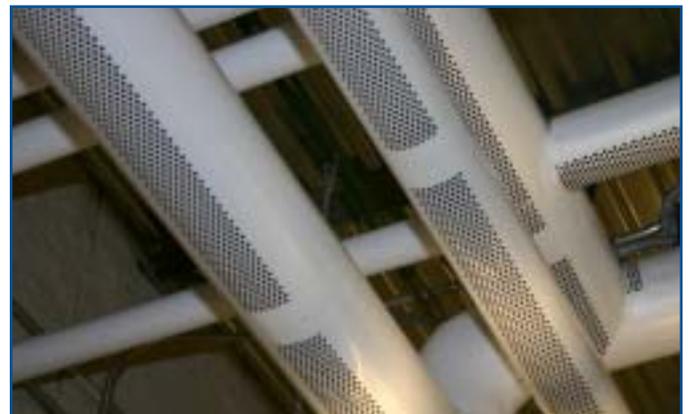
Dripping pipe presented a serious problem for Justen because specifications for chilled water systems require standard insulation to be installed on pipe that is dry and clean.

“With an un-insulated system up and running in July, needless to say we had a major problem,” he continues. “The only way we could insulate the system was by using VaporWick® pipe insulation, because the product can be put on chilled water systems even if there is condensation on the lines. It worked out really well.”



According to Terry Dunn, the construction project manager in charge of the renovation for The University of Toledo, the use of VaporWick insulation helped meet the project deadline and provided an extra week-and-a-half to two weeks of cooling during the hottest and muggiest part of the summer:

“VaporWick insulation allowed us to run and test the cooling system while getting all the bugs worked out and insulating the system,” explains Dunn. “We made our deadline and avoided a problem when the football players came back, and it was also nice for the people who were working in the building during the renovation.”



Dunn says the project was an HVAC system upgrade at the Larimer Athletic Complex, a combination locker room, class room and training facility for the University of Toledo football team. Built about 15 years earlier, the air conditioning system wasn't what it needed to be and the university decided to replace it.

“There were a few minor modifications elsewhere but the project was primarily an HVAC renovation with a new chiller and new fan-coil units,” explains Dunn. “The work was done over several months but they were summer months.

“We were pushing throughout June and early July to get it done and up and running,” says Dunn. “There were people working in the building throughout the renovation and it was pretty uncomfortable during that time so we simply wanted to get it back online as fast as we could.

“It did take us about a week-and-a-half to get all of the bugs worked out of the system,” he continues. “VaporWick insulation let us run the system constantly while we were doing that and we made our deadline.”

Justen says VaporWick pipe insulation also fit well with his company’s business philosophy.

“We are always looking for an ‘edge’ and VaporWick insulation looked like a product that could possibly give us an advantage, considering the warranty and everything else that goes along with it,” explains Justen.

VaporWick insulation is made specifically for piping systems that operate below ambient temperatures and have the possibility of water vapor migration to the cold pipe surface. VaporWick insulation incorporates a patented concept that uses a wicking material to remove condensed water from the system, keeping the insulation dry. When the ambient conditions are such that the vapor drive is toward the cold pipe, any water vapor that enters the system and condenses on the cold pipe surface is removed to the outer surface by capillary action, where it then evaporates to the ambient air:

“We had been aware of the properties of the VaporWick material, and it says specifically in the submittal that it can be applied to wet pipe,” says Justen. “This seemed like the answer to our problem.”

Justen says he understood the concept behind VaporWick insulation but seeing it in action amazed him.

“We just put the insulation on and the dripping stopped,” says Justen. “It was really quite remarkable. Owens Corning said it would work and we just proved that it does. VaporWick insulation made a believer out of me and the university was extremely pleased with the results.”

Justen says the exposed wicking material was damp at first because there was so much water on the lines but after a period of time it became dry to the touch.

“If the university had required that we put standard insulation on this project there is no way we could have given them any kind of a warranty,” continues Justen. “There would have been no way we could have kept the adhesives from getting wet, the seams wouldn’t stick and you would wind up with a failure.

“We were able to use a product that was designed to be put on chilled water piping in operation and give the customer a very nice warranty and a very nice looking job.

“Another interesting thing about this project is that the insulated pipe is all out in the open. You can walk into the building and see that the insulation is working and there are no failures.”

Justen has used VaporWick insulation several times since then with similar results. Those projects included chilled water piping at the Government Center in downtown Toledo, process piping at a plastics plant, and more chilled water piping in the pediatric oncology center at Toledo Hospital.

VaporWick insulation was also installed on a domestic water main at the hospital that is routed through a steam tunnel. The existing insulation had failed due to the extreme conditions. Justen says the failure led to the formation of mold in the tunnel and on the all service jacket covering the existing insulation. He installed VaporWick insulation and the mold condition has not reappeared.

“I now have a comfort level with the product,” he explains. “I know the stuff is good; it works. And we have the kind of relationships with the people we do business with where they trust our expertise.

“We were kind of arching our eyebrows on this thing ourselves at first,” admits Justen. “But I’ll tell you what, as soon as we started putting it on the wet pipe and the pipe started drying up, I mean, ‘hello,’ it works. I was amazed.

“The university project was our first go-around with VaporWick insulation. We knew Owens Corning said it would work, but ‘Will it?’ We walked out of there saying, ‘Yeah, it works.’”



Precocious Pipe Insulation Passes University Exams

There aren't many three year olds who can pass university-level exams but VaporWick pipe insulation has done it four times.

After nearly three years of service in a hot and humid environment at Old Dominion University, Norfolk, Virginia, VaporWick pipe insulation was checked at the site and found dry to the touch. There were no telltale stains on the insulation or the floor that would indicate dripping since product was installed.

Samples were then removed and taken to a laboratory for microscopic examination by a veteran university professor of microbiology. After checking the samples with a 40-400x binocular microscope using fiber optic illumination for improved visibility, the professor declared the samples free of mold growth.

The professor also then tested fresh samples of VaporWick insulation to see if mold growth would take place. For this test he placed samples in an environmental chamber for three months with 90 percent relative humidity and a temperature of 90 F. The result: Still no mold.

In a final exam, the professor subjected all the individual components of VaporWick pipe insulation to the 28-day ASTM C1338 Mold Resistance Test. Once again, VaporWick insulation passed with high marks.

Features and Benefits:

VaporWick pipe insulation is designed specifically for below-ambient-temperature applications in severe hot and humid operating environments.

- Keeps insulation dry by using a specially designed wicking material that absorbs condensed water from the pipe surface and wicks it to the outside.
- Ideal for dual temperature installations because it is rated for operating temperatures which range from 32 degrees F to 220 degrees F.
- Meets model code fire requirements with a flame spread rating of 25 or less and a smoke development rating of 50 or less; this means the product will be granted building code approval for use in air plenums and other critical locations.
- Excellent thermal value, which contributes to a lower operating costs at a favorable installed cost/performance ratio.
- Can be installed directly over wet piping so systems don't need to be shut down during the product's installation.
- Has a self-sealing lap seal with no need for staples or mastic.
- Resists mold and fungus growth.

Photos by Paul Justen (top three, page two showing wet pipe at the time of installation) and Bill Hamilton (all others showing the insulation in 2004)

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