



*ODU Revisited  
3 years after initial tests*

# VAPORWICK® PIPE INSULATION

Passes Several Tough University Exams

Old Dominion University, Norfolk, VA





VaporWick® pipe insulation is already known as an innovative problem-solver but the people who work with it may soon use other words to describe the product, such as the brilliant, gifted or intelligent choice for chilled pipe applications. That's because even though the product is only a little more than three years old, *VaporWick* pipe insulation has already passed a series of very tough university-level exams.

The most recent tests started in a student housing mechanical room where *VaporWick* insulation remains dry and drip-free after nearly three years of service. To continue the examination process, samples of the insulation were removed and taken to a laboratory for further study.

A retired university professor with 34 years' experience teaching microbiology was asked to check the samples, along with sections of new insulation fresh from the factory. The professor performed three standard tests for mold on the various samples. The result: *VaporWick* pipe insulation passed with flying colors. The professor noted in one exam report that *VaporWick* performed well and appears to have "largely solved the problem of condensation and subsequent mold growth."

*VaporWick* insulation's academic career began at Old Dominion University, a beautiful campus along the Atlantic coast in Norfolk, Virginia. The campus enjoys lots of sunny days and plenty of warm, moist air to keep their gardens looking lush.

That beauty can come with a price, however, when high temperatures and high relative humidity meet chilled water

pipng systems. Without effective insulation, condensation forms and drips on floors, stains ceilings, rusts equipment and promotes the growth of mildew and mold. For maintenance personnel, it can mean unsightly mechanical rooms, time-consuming repairs and premature equipment failure.



*A VaporWick insulation sample is removed for testing after three years in service.*

To avoid such problems, ODU asked local insulation contractor C.E. Thurston & Sons to suggest something they could use instead of their traditional insulation. After investigating condensation problems at ODU, Thurston & Sons recommended a demonstration project for *VaporWick* pipe insulation, which was then a new product from Owens Corning designed specifically for chilled water piping applications. ODU agreed and *VaporWick* insulation was installed in a mechanical room at the Powhatan Apartments, a 23-year-old facility housing up to 384 upperclassmen.

Apartments in the facility have two bedrooms, a bath-and-a-half, kitchen, living room and dining room. Insulation was deteriorating in the mechanical rooms and also on pipe leading to individual apartments.

The apartment project was selected for the demonstration because it offered easy access to pipe that needed new insulation and the pipe was exposed so it could be observed over time. Also, ambient conditions in the mechanical rooms would provide a good test with chilled pipe running through a hot and humid environment.

Fifteen months after the product was installed, assistant director of Housing Services Carl Ballard, now retired, said the insulation was working well. "I don't see any indication of leaks," he said at the time. "Everything looks good."

Before the test, there were stain lines on the floors where condensation had dripped. The lines were removed and had not reappeared in the 15 months since installation. With its bright white covering and small holes where the wicking material allows condensation to evaporate, the insulation still looked new.

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*"There's no doubt that it's doing the job it was put in to do."*

*James Cherry, air conditioning and refrigeration mechanic, Old Dominion University*

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As the installation approached its third year in service, another follow-up exam was ordered. That's when the product was found to still be dry and drip-free and samples were removed for further testing. James Cherry, ODU air conditioning and refrigeration mechanic, accompanied the Owens Corning representative during his visit to inspect the installation.

"The *VaporWick* insulation appears to have done very well," says Cherry. "I can see that some wicking has been done, so there's no doubt that it's doing the job it was put in to do. The insulation is dry; I can tell you that. I just wish more of it was put in."

Would Cherry recommend it to others? "I sure would," he says, without any hesitation.

Agustin Hernandez, the Owens Corning engineer who checked the test site at ODU, says the installation is a good test for the product.

"Conditions in the mechanical room at Powhatan Apartments are very representative of the worst conditions in the field," explains Hernandez. "In the summer months, chilled water in the pipe is about 40°F, and the ambient air is very warm and humid.

"After three years in service, *VaporWick* insulation is performing well, I observed no additional corrosion on the pipe and there were no signs of mold growth. I especially checked carefully in spots where mold would be likely to grow but there wasn't any I could see."



*After three years in service.*

To supplement his visual observation with laboratory tests, Hernandez removed sections of the insulation and submitted them for testing by the university professor. Using a 400 power microscope, the professor came to the same conclusion – there was no mold growth in the samples after three years of service. (See more about tests on next page in section titled, Precocious Pipe Insulation Passes Four Exams.)



*During installation.*

Bill Sullivan, Owens Corning sales representative for the Mid-Atlantic area, agrees that the ODU application is a good showcase for the product.

"The capability of *VaporWick* insulation has been verified in an extremely difficult application," explains Sullivan. "The mechanical rooms tested the product under very harsh conditions with little to no airflow.

"Also, we did most of the installation while the chilled water was running – the pipes were wet when we installed the *VaporWick* insulation," adds Sullivan. "The ability to insulate without shutting down the chillers is another big benefit of the product."

Eliminating wet spots and stains is a key objective for Cherry and other facilities staff members but not simply because they like things clean and neat. "Anywhere you have condensation you will have rust associated with it," says Cherry. "You'll also have mold and mildew."

Problems with condensation are also a time drain for ODU maintenance staff as they are required to send people out to fix the problems.

"We want our facilities, including our mechanical rooms, to be clean and neat," continues Cherry.

With news that *VaporWick* insulation has passed four exams after three years in service, the product should soon have more opportunities to enhance the appearance of what is already a beautiful campus.

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## Exceptional Pipe Insulation Passes Four 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 visual mold growth.

"The *VaporWick* pipe insulation installed at Old Dominion University is free of fungal contamination at this time. No characteristic patterns of fungal growth, that is, mycelia, or reproductive fungal structures were observed."

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.

"Even under conditions normally conducive to mold growth, none of the pipe insulation samples supported growth of fungi," wrote the professor after concluding his tests.

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.

"Even with the addition of inorganic or organic nutrients, mold growth in excess of that occurring on the standard tongue depressor does not occur on any of the components. This study verifies that all components of *VaporWick* will not support the growth of mold even in the presence of added nutrient."



### Product Used:

VaporWick pipe insulation  
8 x 1-1/2  
6 x 1-1/2  
4 x 1-1/2

### Customer:

Old Dominion University  
Hampton Boulevard  
Norfolk, VA 23529  
757-683-3000  
[www.odu.edu](http://www.odu.edu)

### Insulation Contractor:

C.E. Thurston & Sons, Inc.  
3335 Croft Street  
Norfolk, VA 23513  
757-855-7700  
800-444-7713  
[www.cethurston.com](http://www.cethurston.com)

*VaporWick insulation is for piping systems that operate below ambient temperatures, which present special considerations due to 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. 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.*



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ONE OWENS CORNING PARKWAY  
TOLEDO, OHIO, USA 43659

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