



Educating Towards Prevention Isn't Just for Those in the Healthcare Industry

It's Critical for HVAC System Designers As Well

From his 30 years of experience in the HVAC industry, Bob Cooney recognized a problem: the water in HVAC coils is subject to freezing in cold weather, and the expansion of the water within the coils into ice may eventually cause them to burst. But what if, under certain conditions, enough water could be removed to leave room for any ice to expand?

Introducing the NEW Cooney Freeze Block Technology by Coilmaster Corporation — the solution to this problem!

See how this new technology works by clicking [here](#).

To view a brief video about Coilmaster Corporation's processes and capabilities, click [here](#).

Every one of us would be pretty upset if we went into a hospital for a heart transplant and came out with a new heart, but no knowledge of how to take care of it! Without having some understanding of how to mitigate heart disease, we'd soon be back again for another transplant or even worse. The healthcare industry has long recognized that educating patients about potential diseases and complications goes a long way towards preventing problems. And politics aside, the healthcare industry also recognizes that preventing illness is much less expensive than treating full-blown disease.

Using this same principle, educating engineers, architects, designers and HVAC installers with an eye towards prevention of problems can give them a competitive edge. At Coilmaster Corporation, we think our customers deserve access to not only the highest quality products, but also to knowledge about how new technologies and specialized products can prevent potential costly problems.

Many of our customers are bidding on large commercial projects like hospitals, university buildings, or office complexes. When it comes to designing the HVAC needs for these commercial projects, the focus traditionally has centered on ensuring that the heating and cooling coils are appropriately sized to provide a uniformly comfortable environment at an economical price. Cost has been deter-



Figure 1: Water can cause costly damage to computer equipment.

mined largely by the price of the coils only, but there's little thought given to the long-term operating cost of the coils themselves. This is particularly important to consider in geographic regions where freezing conditions may affect the unit, because if the coil freezes and bursts, then the property owner will not only face replacement costs for the coils, but also potential costs from the resultant water damage.



Figure 2: Much of this library's inventory was ruined by water damage.

Second only to fire among common insurance claims, water damage impacts structures, furnishings and equipment. Consider the potential cost of losing an entire library to water damage, or to replace expensive medical equipment or other resources. As a designer, architect or engineer, can you really afford *not* to address this issue at the beginning, especially considering the savings to property owners? (See Figures 1 & 2)

In the past, emphasis was placed on preventing coils from freezing. However, the real problem isn't freezing of the coils, but bursting of the coils as a result of freezing. What's the difference? Well actually, quite a bit. Many preventative measures involve attempts to keep the coils from freezing, often by draining water from them. But the effectiveness of this particular plan is dependent on the thoroughness of the person performing the task, as well as Mother Nature not sending an early cold snap before the work is scheduled.



Figure 3

Another option is using an air handler water coil freeze stat for the coils. A freeze stat set to activate at 35 degrees Fahrenheit sends a signal to activate a motor that opens and closes the unit's louvers, allowing outside air into the coils. But freeze stats are notorious for sending false alarms, and human nature being what it is, often the setting gets adjusted down until there's little leeway between the setting that triggers the signal and freezing temperatures. Finally, it's possible to cover the entire coil with heat trace to keep the coil warm and prevent freezing. But what happens to both the freeze stat and the heat trace if there is a power outage, which often happens in winter storms? You guessed it: neither will work, and if it's cold enough, the coil freezes and the tubes burst. Still another option is to add glycol or anti-freeze to the system, but again, this plan is subject to human error creating the right admixture, and using these products lowers the efficiency of the coils' performance.

But what if the worry about freezing coils is eliminated? Remember freezing isn't the problem; it's the bursting of the tubes as a result of freezing that causes the most damage. Bob Cooney, inventor of the patented Cooney Freeze Block Technology, understood the enormity of this situation, and decided to solve this problem for the HVAC industry. Like all inventors, Bob started with one question: why do tubes burst when they freeze? The answer lies in a simple scientific principle--when water changes from a liquid state to a solid state, it expands. If the water is contained inside a confined space, like a tube, it's going to build up pressure as it expands. Eventually something has to give, and that is the tube's walls. (Examples of burst steam and water coils are seen in Figures 3 & 4) As you can see, freezing isn't the

problem--it's that freezing causes the water to expand, and there's not room within the tube to accommodate this expansion safely.

Bob realized he couldn't magically make the tube grow larger if the water froze, but he realized he could make more room inside the tube by evacuating some of the water.



Figure 4

What he needed was a fail-safe way to do this, and so he invented the Cooney Freeze Block Technology. Taking into account that water freezes at 32 degrees Fahrenheit, Bob designed the Cooney Freeze Block with a valve that opens when the water temperature inside the tubes is just above freezing (approximately 35 degrees Fahrenheit). As a second fail-safe measure, the Cooney Freeze Block also activates at a fail-safe pressure, (approximately 300 PSI) well within the confines of the tube's structural integrity. Cooney specifically designed his invention with a valve set to open when either of these two physical parameters occur (temperature drops/pressure rises) within the tube. When the Cooney Freeze Block is activated by either of these situations, the valve opens, allowing the coil to drain itself of enough liquid so that the remaining liquid can safely expand if frozen without damaging the tubes. The valves are designed to re-seat after discharging, to prevent flooding after the coil thaws. Seeing is believing, though! Visit <https://www.youtube.com/watch?v=waCNiXMuA8o> to see exactly how this technology works.

The Cooney Freeze Block Technology by Coilmaster Corporation provides the answer to a potential costly problem in one complete package. It comes fully assembled and tested at the factory. (See Figure 5) While it does cost slightly more than a standard coil, it is far less expensive than replacing that standard coil in a couple of years due to burst tubes. And it is much less expensive than repairing the water damage that often occurs when water coils

burst and a building is flooded. Cost is determined for any product based on many factors, including materials, maintenance, and insurance. If you consider the cost based only on the initial installation, then you may never give property owners the long-term benefits provided using the Cooney Freeze Block Technology by Coilmaster Corporation on their HVAC system. But if owners are educated about the importance of "preventative medicine," using the highest quality and least expensive heat transfer system on the market today to install, maintain and operate, then they may request that you specify it from the beginning. Of course owners are always free to replace those burst coils with a Cooney Freeze Block system the second time around, but that isn't nearly as cost effective as having the system designed with this protection from the onset.

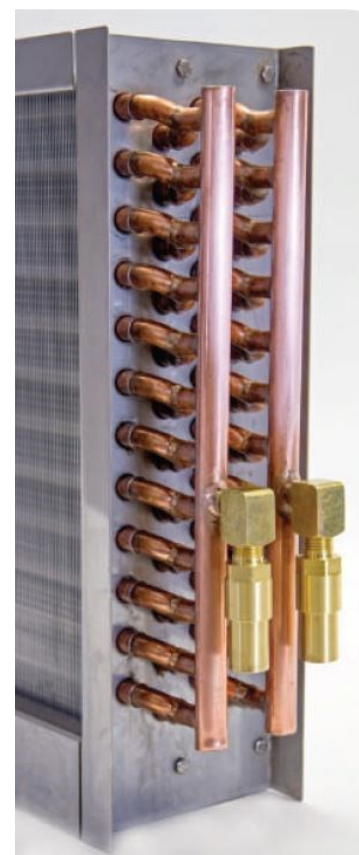


Figure 5: Cooney Freeze Block Technology by Coilmaster Corporation

Contact us at www.coilmastercorp.com or 901-877-3333 to learn more about the Cooney Freeze Block Technology by Coilmaster Corporation, and other quality heat transfer products.