

COOLING TOWER SAND FILTRATION SAVES A MANHATTAN LANDMARK BIG DOLLARS IN UTILITY COSTS.

BOMA/NY Pinnacle Award
2001 - 2002



Cooling towers use evaporation to regulate temperature in industrial and residential settings. Towers range in size from small to monstrous. Among the smallest are the rooftop swamp coolers used as alternative air conditioners in high heat/low humidity environments such as the U.S. Southwest. At the opposite end of the spectrum are the gargantuan hyperboloid structures employed by chemical plants, oil refineries and power plants, some of which can measure more than 120 meters tall by 100 meters long. Right in the middle are mid-sized systems, many of which provide both cooling and heating.

Cleanliness is, and must be a vital component of cooling tower operation, as

the presence of dust, pollen and minute particles may impede system efficiency and create an environment unhealthy for living and working. While chemistry can wall-off some of the worst effects of cooling tower particle pollution - corrosion, scale accumulation and the spread of mold, bacterial algae and microorganisms – it can never be a total solution as particles will fall through the cracks of a chemical barrier and continue wreaking havoc. For this reason, experts recommend the use of both chemistry and some kind of filtration system.

A DIRTY WATER DILEMMA

Many older structures rely on the same in-house, utility infrastructure to cool in summer and heat in winter. One example is the Manhattan-based, Interchurch Center, a 19-story corporate office building consuming an entire city block that provides commercial space for religious institutions and other non-profit groups in its Upper Westside neighborhood. A number of prominent local organizations have offices at the center, including Columbia University. Erected in 1958, the Interchurch Center's local fame is also partly attributable to the fact that its cornerstone was laid by then-U.S. President Dwight. D. Eisenhower.

"The center uses a multimodal loop system to both heat and cool," explains Keith Karl, regional East Coast sales manager, Sonitec Inc. (www.sonitec.com) a provider of technologies for improving cooling and

heating system water quality with offices in the U.S. and Canada. "Cooling is provided by a condenser tower loop, heating via a combination chilled/hot water loop. The system conducts water through induction units, which in turn heat and cool. It uses a condenser cooling tower loop in summer, and in the winter a combination chilled hot water loop. Because it's an open system there's always the risk of developing a dirty water problem, and nastier the water gets the less efficiently the system will perform its job."

TWEAKING THE SYSTEM

Many parts of the Center's aged cooling/heating infrastructure are still in need of repair, Karl adds. The piping in particular is a constant problem due mostly to issues resulting from decades of chemical use. Updates have been ongoing, among them the installation of a Sonitec Vortisand filtering system in March of 2002.

"We were having serious problems with clogged pipes," Interchurch Chief Engineer, George D'Amato recalls (Grubb & Ellis Realty Co.). "Dirty water was an issue too because it was inhibiting the transmission of cooling and heating. This was unaffordable inefficiency but the installation of the Vortisand system has made a big difference. Before Vortisand we had no filtration at all and it really hurt us by way of dollars and cents."



Both the open and closed infrastructure was in need of filtration, D'Amato says. The good news was that the Vortisand, consisting of a filtration system, a skid, a motor and sand media, was easily installed and positive results just about instantaneous. This was evident in the water clarity alone, an almost immediate improvement visible with one's own eyes.

VORTISAND VIRTUES

Much of this is directly attributable to the Vortisand's operational concept which merges centrifugal force with sand filtration. Via this strategy, solids are pushed to the inside walls of the tank and then flushed away with an automatic backwash system. This represents a quantum leap beyond static filtering systems which can become saturated with solids or create clogging problems due to media density. Given such drawbacks, a conventional filter may prove

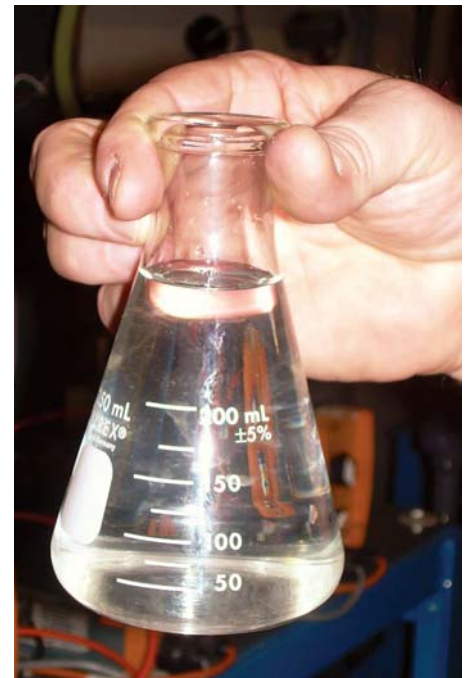
relatively ineffective at capturing particles of nearly microscopic size. This is not the case with the Vortisand, which owing to its unique design, can employ media fine enough to block particles as small as 0.45 microns without the risk of clogging.

"One of the really great features of this system is the automatic backwash," D'Amato adds. "It cleans the system for you, and cuts way back on maintenance. Many systems use the same water to clean and filter but the Vortisand introduces fresh water into the filtration area via pressure differential, or if you prefer, every five days for a closed loop system and every three days for an open loop. You can even program the system to backwash on a daily basis." Vortisand filters incorporate a flexible backwash override control via the multi function Operator Interface Unit or OIU, which has a touch pad and screen that allow the user to automatically select between 1 to 7 day backwash frequencies. This design feature reduces water and sewer costs which add to the Return On Investment.

According to Karl, Interchurch has cashed in big time on its Vortisand investment in the form of vastly enhanced water quality attributable in no small way to the system's ability to provide filtration at the submicron level. Maintenance too has been a non-issue apart from one recent episode in which some minor tweaking was done to the system following an online cleaning job.

"Interchurch wasn't quite familiar with the procedure and fouled the media," Karl says.

"Fixing it was no big deal, what is a big deal is the fact that outside of that single instance, no maintenance has been required on the system at all. Interchurch has it for five years now so I think that speaks very well of its longevity. Vortisand was also part of the reason Interchurch won New York



City's 'Office Building of the Year Award' for 2001-2002. The contest judges evaluate candidates on a number of criteria, including certain aspects of operational improvement. We were really happy we could help make that one happen for them."

For more information on the Vortisand filters contact Sonitec at
1-888-876-9655
 or visit the website:
www.sonitec.com



Member