



Enormous water savings and lower operating costs a campus-wide paradigm shift

RESULTS

- Prevents 385,000 gallons of water per year from being wasted to the drain
- Eliminates the expense of purchasing and maintaining seventeen duplex water softening systems
- Eliminates the burden of cleaning tanks and replacing scale-damaged parts in more than 150 humidifiers
- Eliminates humidification system downtime, which is expensive in buildings with critical applications

THE JOB

The importance of indoor air quality at research universities is twofold: Scientific research requires tight control of all space conditions, and unhealthy air causes unhealthy occupants.

The Indoor Air Quality Program at this university applies to all owned and leased indoor environments, with special emphasis on preventing dry throat, skin, eyes, and even contact lenses by making sure the indoor air is properly humidified.

The building automation system at this university* keeps tabs on over 150 steam humidification systems. University staff maintain the humidifiers as well as the equipment that purifies their supply water.

THE CHALLENGE

Until recently, the most tasking part of water treatment equipment maintenance was filling industrial-sized water softener brine tanks with tons of salt. Many of these tanks were in hard-to-reach places throughout campus.

"Some of our softeners were accessible only by ladder," recalls a member of the facility operations team. "One bag at a time, eight trips up and down the ladder, and those were tall ladders."

Facility operations saw a multi-faceted opportunity. Design a water treatment process that provides pure humidifier fill water without softening, with less maintenance time and cost, and with no wasteful backwash flow to the drain. Further, there would be no salt to haul.

THE SOLUTION

As the university began looking for ways to save water and eliminate maintenance, they were introduced to DriSteem's new line of RO water treatment systems, which were first announced in 2013. The fit of this potential solution would depend on the composition of the university's tap water.

"The university was looking for a major shift in how they treated water for their many steam humidifiers," the DriSteem rep explains. "But most municipal water will plug up RO membranes if it's not softened first. Too much calcium carbonate or magnesium, and softening can't be eliminated."

As it turns out, the university's water is supplied by a reservoir that is naturally low in both calcium carbonate and magnesium. DriSteem and facility operations worked together to design a small system as a beta test running tap water to RO without softening. The result was promising. Because the RO system removes over 98 percent of dissolved solids, the humidifier tank and heating elements remained clean even after months of use, and without a water softener, the flow of backwash to the drain was



Grim conditions in drought-stricken regions around the world, including the southeastern and western United States, have raised awareness that fresh water cannot be taken for granted anywhere. In recent years, the university's leadership challenged staff, faculty, and students to consider ways to reduce the amount of water consumed by campus facilities and activities.

* University name is withheld by request



The volume of water saved each year at this university would take four months for a kitchen faucet to dispense totally open at 2.2 gallons per minute.

How important are space conditions?

Scientific research and upper-level coursework require tight control of space conditions.

Variations in temperature or relative humidity can make all the difference between success and failure in the chemistry lab.



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eliminated. It was time to roll out the tap-to-RO paradigm on a larger scale, this time with one of DriSteem's larger RO systems, which can produce over 15,000 gallons of purified water per day. The result was the same but on a significantly larger scale.

In the past four years, the university has plumbed seventeen RO systems to tap water without upstream softening. Instead of hauling salt and cleaning humidifier tanks, facilities personnel have the easier and less frequent task of replacing RO system filters and membranes.

Rolled out campus wide, the tap-to-RO paradigm meets the university's strict standards while requiring a fraction of the maintenance. And backwash flow to the drain prevented each year by eliminating softeners? An incredible 385,000 gallons.

DriSteem is proud to be the multi-layered solution to such a progressive challenge during a time when labor, equipment expenses, and natural resources cannot be taken for granted.



DriSteem Steam-to-Steam (STS®) humidifier, which uses pressurized boiler steam to boil water into pure humidification steam in the university's chemistry building

RESOURCES

For more information on DriSteem's water treatment systems, go to: [DriSteem water treatment systems](#)

To download DriCalc, DriSteem's free sizing and selection software, go to: [Register for DriCalc4](#)

For more information on finding your local DriSteem representative, go to: [Find-a-rep](#)