

First winter in the new building felt like an indoor desert

The city of Maple Grove moved their municipal offices and police department to a new, 150,000-square-foot building on the south shore of West Arbor Lake in late 2000. That December, the upper Midwest experienced near-record-low temperatures. Staff in the north-facing offices watched the lake surface become a sheet of ice in just three days. Twenty-three December days averaged in the single-digits (°F), and 11 days averaged below zero.¹



Municipal offices and the police department share the Maple Grove Government Center

WINTER AIR MAKES THE BUILDING DRY

The trouble began that first December when the extremely cold outside air was heated to indoor temperatures and its relative humidity (RH) dropped to almost nothing. Maple Grove winter air at 5 °F typically has 63% RH. Pulled inside and heated to 70 °F, that same air has 6.6% RH. To make matters worse, the building's state-of-the-art curtain wall and glazing allowed no moisture to migrate inside. The air in the Maple Grove Government Center was as dry as an Arizona desert.

COMPLAINTS POUR IN

"Workers started telling us that something was wrong with the new building," recalls Gene Molitor, the Facility Supervisor. "A guy in one of the offices said his eyes were so dry that he was constantly blinking, and I got static shocks from door knobs and other metal fixtures that winter."

STEAM HUMIDIFICATION RECOMMENDED

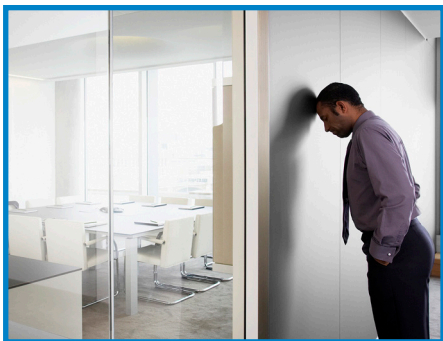
Molitor contacted UHL Company, the building's mechanical contractor, for a recommendation. UHL's Brent Messerschmidt and Mark Bullock, the company's controls and mechanical systems managers, recommended steam humidification. Taking Minnesota winters into account, Bullock designed a solution based on 100% outside air at minus



Two Vaporstream® electric steam humidifiers generate a combined 210 pounds per hour of steam, enough to humidify the whole building to a healthy 40% RH.



Each of the two air handlers has a Rapid-sorb® steam dispersion panel with 220 steam outlets.



Afraid to touch anything?

Static electricity shocks are caused by an imbalance of positively and negatively charged ions between surfaces. When one surface is a fingertip and the other is a metal door knob or door frame, the imbalance is instantly equalized by a rush of ions and recognized by a zap.

Ions cling to surfaces in dry offices, because dry air is not conductive enough to allow the ions to dissipate. Static shocks are stronger and more common in offices with dry air.

Humidity in the air can significantly reduce static electricity problems in your building.²

1. *Past Weather Information for the Twin Cities*. Daily Weather Observations. December 2000. US Dept of Commerce. National Oceanic and Atmospheric Administration. National Weather Service. <https://www.weather.gov/mpx/mspcclimate>
2. *What You Don't Know About Static is Shocking: Consider Humidification*. Arista. NYC Metro Area's HVACR Blog. Arista. <https://aristair.com/blog/what-you-dont-know-about-static-is-shocking-consider-humidification>.

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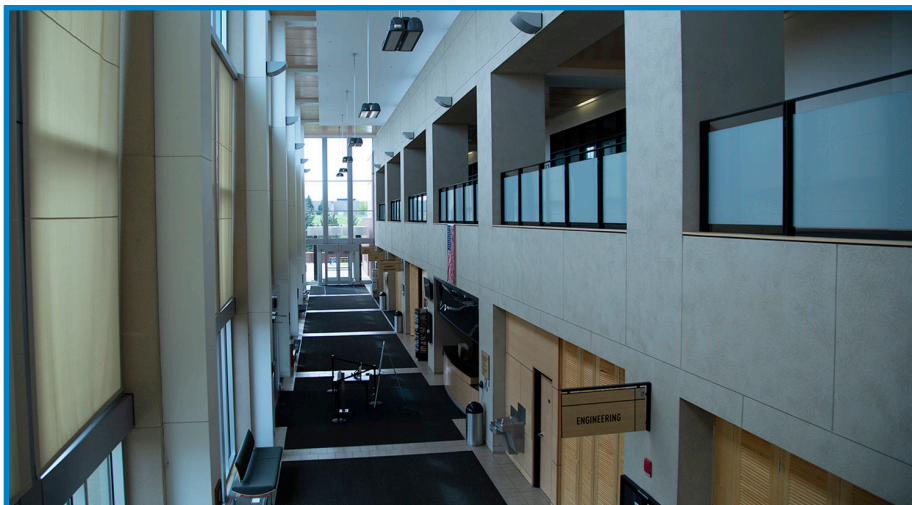
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Visitors to the Maple Grove Government Center enter a two-story atrium.

6.8 °F and 58% RH. On such days, outside air would have only 2% RH after passing through the heating coils. The building, while mostly open, was ducted throughout, so UHL recommended steam dispersion in the air handlers.

TWO ELECTRIC HUMIDIFIERS FOR TWO MECHANICAL ROOMS

For the production of humidification steam, two Vaporstream® electric humidifiers were specified for the project. Selectable as standard product, the humidifiers would accommodate the supply water and electrical power available in the building's mechanical rooms. Messerschmidt's control paradigm incorporated the humidifiers into the building automation system, providing Molitor with the ability to monitor and control them remotely via wired devices and mobile.

SHORT STEAM ABSORPTION DISTANCES

Steam dispersion in the air handlers could be a challenge because the air handlers were already commissioned with no extra length built in for steam absorption. Dispersion in the air handlers would require total steam absorption within 12 inches. Such a short distance for steam to totally absorb into the airstream would be risky with most steam dispersion panels. However, each of the Rapid-sorb® steam dispersion panels sized and selected for the job features 220 steam discharge points spread across the airstream. The result? Total steam absorption within 9 inches. This has been going on for 19 years.

VISITORS POUR IN

Maple Grove precincts offered early voting in the Maple Grove Government Center for the 2020 election. Common areas became voting booth villages for hundreds of visitors per day in the weeks leading up to Election Day. DriSteem is proud to play a critical role in providing city employees and thousands of their guests with healthy air.

RESOURCES:

Find your local DriSteem representative: <https://www.dristeem.com/find-a-rep>

Learn about the following equipment installed in the Maple Grove Government Center:

Steam generation: <https://www.dristeem.com/products/steam-generation/electric-steam-humidifiers>

Steam dispersion: <https://www.dristeem.com/products/steam-dispersion>