

DRISTEEM RESOURCES

**Case Study:** Humidify to Reduce Respiratory Virus Transmission  
[www.dristeem.com/humidity-university/case-studies/case-study-humidify-to-reduce-respiratory-virus-transmission](http://www.dristeem.com/humidity-university/case-studies/case-study-humidify-to-reduce-respiratory-virus-transmission)

**Case Study:** Steam Humidification Ends Winter Illness Crisis in Bambi Nursery’s New Building  
[www.dristeem.com - post online](http://www.dristeem.com - post online)

**Presentation:** Humidity and Occupants - What the Latest in Humidity Research Means for You  
[www.ahrinet.org/App\\_Content/ahri/files/Humidity\\_Occupants\\_Presentation.pdf](http://www.ahrinet.org/App_Content/ahri/files/Humidity_Occupants_Presentation.pdf)

For application assistance, contact your regional sales manager or Inside Sales representative at [unitorder@dristeem.com](mailto:unitorder@dristeem.com).

SOURCES

1. E.M. Sterling, Criteria for Human Exposure to Humidity in Occupied Buildings, 1985, ASHRAE.

2. “Humidity as a non-pharmaceutical intervention for influenza A.” PLoS ONE, 2018, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0204337>.

3. Henderson T, Hill C, Norton K. 2014. The Connection Between Missing School and Health: A Review of Chronic Absenteeism.

DRI-STEEM Corporation  
A subsidiary of Research Products Corporation.  
DriSteem is an ISO 9001:2008 certified company.  
[www.dristeem.com](http://www.dristeem.com)  
© 2019 Research Products Corporation

U.S. Headquarters:  
14949 Technology Drive  
Eden Prairie, MN 55344  
800-328-4447 or 952-949-2415  
952-229-3200 (fax)  
Email: [inquiries@dristeem.com](mailto:inquiries@dristeem.com)

European office:  
Grote Hellekensstraat 54 b  
B-3520 Zonhoven  
Belgium  
+3211823595  
Email: [dristeem-europe@dristeem.com](mailto:dristeem-europe@dristeem.com)

K-12 SCHOOLS  
HUMIDIFICATION  
BUYER'S GUIDE

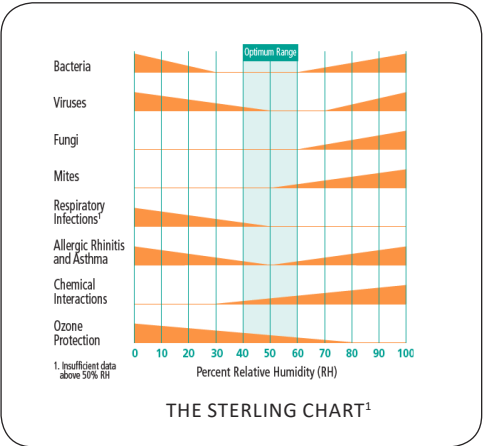


WHY HUMIDIFY SCHOOLS?

Humidification improves indoor air quality because bacteria and viruses thrive in dry air. Studies have shown that when room relative humidity (RH) drops below 40 percent, absenteeism increases due to respiratory illness.

Proper humidification can reduce absenteeism as much as 18 percent. Humidified spaces feel warmer and are more comfortable for occupants, especially in cold climates where heating systems run frequently.

Keeping RH levels within a range of 40 to 60 percent not only decreases bacteria and viruses in the air, but hinders the development of fungi, mites, chemical interactions, and ozone production. The result is reduced occurrences of allergic rhinitis, respiratory infections, and asthma among building occupants. To ensure that RH levels do not rise above 60 percent, responsive humidification system control is essential.



ISSUES CAUSED BY LOW OR FLUCTUATING RELATIVE HUMIDITY

- Increased absences:
  - Student absences increase during the dry winter months, often due to chronic respiratory illnesses. Research has established that flu outbreaks can be predicted 14 to 16 days after outdoor humidity bottoms out in the continental United States.<sup>2</sup>
  - Chronic absenteeism, missing ≥10% of school days within a year for any reason predicts low student achievement.<sup>3</sup>
  - School budgets suffer when students don’t attend. In many states, school budgets are based on the average daily attendance at a school. If many students are absent, the school has less money to pay for essential classroom needs.
  - When viruses spread among students, teachers also tend to get ill and have to take sick days. Having to rely on substitute teachers too often can negatively affect lesson plans and is also expensive for schools.
- Damage to gymnasiums, performance spaces, and other building materials:
  - Cracking and splitting of flooring or woodwork
  - Deterioration of fabrics
  - Damage to finishes
- Damage to musical instruments:
  - Many musical instruments in schools such as pianos, violins, guitars, cellos, and harps can be damaged by changes in moisture. These instruments are made of wood, which is hygroscopic and expands and shrinks with changes in moisture. Damage can include:
    - Cracks in sound boards
    - Changes to instrument shape and sound
    - Surface distortion
    - Loosening glue bonds



## WHY CHOOSE DRISTEEM HUMIDIFICATION SYSTEMS?

### COMMITTED TO QUALITY

DriSteem has been designing and building world-class humidification business for more than 50 years and is committed to making the best products in the HVAC industry.

DriSteem humidification systems are made to fit each unique application, whether it is ensuring the success of critical industrial processes, preserving fragile and valuable museum artifacts, or protecting the health and well-being of building occupants. DriSteem's mission is to support healthy environments – studies show that when room relative humidity (RH) drops below 40 percent, incidents of respiratory illness increase but by adding proper humidification, student and employee absenteeism can be significantly reduced.

DriSteem U.S. operations are ISO 9001:2015 certified and committed to providing high-quality products, efficient services, on time delivery, and innovative solutions.

### SUPPORT & RELIABILITY

DriSteem sales representatives are the industry experts in humidification systems, and are trained to recommend and specify the best solution for any application. They are willing to go the extra mile to make sure everything runs smoothly at start-up and for the life of the equipment.

DriSteem stands behind their products with a world-class Technical Support team available to troubleshoot any issues that may arise. They can also provide start-up assistance and offer field service visits.

### CASE STUDIES & RESEARCH

Support your business case with data – DriSteem is continually adding to our collection of white papers and case studies.

DriSteem partnered with the Mayo Clinic to determine whether low humidity levels during the dry winter months have an effect on the spread of flu virus in a classroom environment. The study showed that adding steam humidification resulted in a significant reduction in the total number of influenza-positive samples in the air and on surfaces.

Reducing the spread of these viruses is especially important for students at K-12 schools because research has shown that missing just 10% of school days in a year for any reason predicts low student achievement. When viruses spread among students, teachers also tend to get ill and have to take sick days. Having to rely on substitute teachers too often can negatively affect lesson plans and is also expensive for schools.

School budgets also may suffer when students don't attend. In many states, school budgets are based on the average daily attendance at a school. If many students are absent, the school has less money to pay for essential classroom needs.

See the full study here: <https://dristeem.azureedge.net/public-documents/docs/default-source/azure-public/case-studies/mayo-clinic-humidification-case-study-0518.pdf?sfvrsn=2>

"Humidity as a non-pharmaceutical intervention for influenza A" published study: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0204337>



## DRISTEEM SOLUTIONS

### XT SERIES ELECTRODE HUMIDIFIER

Good choice for single-room humidification. It can mount on a wall and disperse steam directly into a room such as a band or chorus practice space.

- Easy to maintain: No cleaning required. Simply replace the affordable steam cylinder when prompted by the controller display.
- Compact to fit in small spaces.

### VAPORMIST® HUMIDIFIERS

Disperses steam humidification through ductwork with dispersion tubes or panels, or directly in the space.

- Full enclosure suitable for finished spaces
- Can be wall mounted

### VAPORSTREAM® HUMIDIFIER

Disperses steam humidification through ductwork with dispersion tubes or panels, or directly in the space.

- Industrial-grade unit designed to meet the humidification demands of any building environment
- Mount options: Trapeze hanger, wall brackets, support legs
- Seismic certified option (OSHPD)

### GTS® HUMIDIFIER LX SERIES

The LX Series is the only gas-fired humidifier that combines the highest efficiency on the market with ultra-low NOx in a single design.

- Condensing design for highest efficiency and PVC venting
- Ultra-low NOx certified to SCAQMD 1146.2 standards
- Smart drain technology adjusts drain intervals automatically based on water quality
- Universal water control for use with any water type, including RO/DI water
- Modulating output with minimum 5:1 turndown for accurate humidity control
- Outdoor and indoor models for application flexibility

### STEAM DISPERSION

Depending on the application, steam dispersion options may include:

- Ultra-sorb® Model XV steam dispersion panel
- Ultra-sorb® Model LV/LH steam dispersion panel
- Ultra-sorb® Model MP steam dispersion panel
- Multiple-tube humidifier
- Space Distribution Unit (SDU)



XT SERIES  
ELECTRODE HUMIDIFIER



VAPORMIST HUMIDIFIER



VAPORSTREAM HUMIDIFIER



GTS HUMIDIFIER LX SERIES



STEAM DISPERSION OPTIONS