SOURCES

1. "Determining the Acceptable Ranges of Relative Humidity And Temperature in Museums and Galleries," Mecklenburg, Marion F., et al, 2004, https://www.si.edu/mci/downloads/reports/Mecklenburg-Part1-RH.pdf

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MUSEUMS

HUMIDIFICATION BUYER'S GUIDE

WHY HUMIDIFY MUSEUMS?

Museums and galleries play an integral role in preserving the history of societies and are a significant resource to communities, giving their visitors the experience to view and learn about artifacts from all over the world. Museums face many challenges when protecting and preserving their collections, from the environmental impact on artifacts to the financial risks they may incur. Controlling the relative humidity (RH) within a museum or gallery with a humidification system helps preserve and protect exhibits while also lessening the financial risks.

Large fluctuations in humidity levels can be detrimental to the preservation of a museum's collections and can cause significant amounts of damage to both objects on display and in storage. This may include warping and expanding of materials which forms cracks within the structure - creating an ideal environment for mold to grow. Current environmental guidelines for exhibits and storage spaces are 45% RH (+/- 8% RH) and temperature at 70 degrees Fahrenheit (+/- 4 degrees).[1] Whether a collection is on display or in storage, controlling the relative humidity level is an important factor in reducing major losses to valuable collections of art due to uncontrolled humidity levels.

Preserving and protecting art, history, and culture is a costly undertaking for museum owners, including the cost of insuring the collections. Coverage for damages due to temperature, heat, or humidity issues may be excluded from insurance policies. Although many exclusions are negotiable, in some situations like lack of environmental control, the cost of coverage may be excessively high.

ISSUES CAUSED BY UNCONTROLLED HUMIDTY LEVELS

- Humidity can cause wood to expand and contract, metals to rust, and paint to peel if not controlled.
  - Porous and fibrous materials like wood contract and expand as humidity levels fluctuate. In high levels of humidity wood, which has been a material used by artists throughout the centuries, loses its strength and becomes very flexible, while in low levels of humidity, it may become stiff and brittle.
  - In humid climates, the corrosion of metal artifacts is much more rapid and severe. Rust and other oxidizing type corrosion reactions, as a general rule, will not occur when the RH is maintained at or below 40%.
  - High levels of humidity encourage pests and support the growth of mold on paper, textiles, and parchment. Eradicate pests and stop the spread of mold spores by optimizing the relative humidity level.
- Illness and discomfort to staff, volunteers, and visitors:
  - Dry indoor air can cause discomfort in the form of dry skin, eyes, and throat for visitors, volunteers, and staff.
  - Dry indoor air has a negative impact on the overall wellness of the staff, volunteers, and visitors because it allows easier transmission of airborne viruses such as SARS-CoV-2 and seasonal influenza.
  - There are real costs associated with health-related issues caused by dry air, including a higher occurrence of infections and increased rates of staff and volunteer absenteeism.

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.

ISO 9001:2015

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.

Recently, 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. As the study showed, the addition of steam humidification resulted in a significant reduction in the total number of influenza-positive samples in the air and on surfaces.

- See the full case study here: https://dristeem.azureedge.net/public-documents/docs/default-source/azure-public/case-studies/mayo-clinic-humidification-case-study-0518.pdf?sfvrsn=2
- And the supporting published study "Humidity as a non-pharmaceutical intervention for influenza A" here: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0204337

Additional health care facilities case studies:

- Unsuitable Substitutions: Learning the Hard Way About Absorption http://www.dristeem.com/humidity-university/case-studies/case-study-mercy-hospital
- Ultra-sorb Improves Absorption and Reduces Operating and Maintenance Costs http://www.dristeem.com/humidity-university/case-studies/case-study-ultra-sorb-improves-absorption

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.

XT SERIES
ELECTRODE HUMIDIFIER

VAPORMIST® HUMIDIFIERS

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

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

VAPORMIST HUMIDIFIER

VAPORSTREAM® HUMIDIFIER

Disperses steam humidification through ductwork with dispersion 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)

VAPORSTREAM HUMIDIFIER

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

GTS HUMIDIFIER LX SERIES

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)

STEAM DISPERSION OPTIONS