



Museum humidification

Preservation through environmental control

45-55%rH =
optimum preservation

One of the most important and basic factors in the preservation of art and heritage collections is the stability of the surrounding environment, requiring humidity as well as temperature to be strictly controlled.

Any fluctuation in humidity will affect different materials in varying ways but in modern museums and archives, the optimum level for most exhibits is between 45-55% relative humidity (%rH) with daily changes not being greater than $\pm 3\%$ rH.

Humidity levels lower than 40%rH are very detrimental to most exhibits and can cause:

- Paintings flaking
- Cracks on sculptures
- Warped wooden frames
- Textiles becoming brittle
- Tears on paper & papyrus

Our clients include:

British Museum • National Portrait Gallery • Buckingham Palace
Houses of Parliament • National Maritime Museum • Tate Britain
Windsor Castle • Royal Academy of Arts • Space Science Museum
Liverpool Museums • Museum of Science & Industry • Tate Modern
Natural History Museum • Tate Stores • Public Records Office in Kew

Why humidify in museums & heritage sites?

Poor humidity control can cause irreversible damage to art and antiques made from a wide variety of materials. To provide optimum environmental conditions for preservation, the level of humidity must be maintained between 45-55%rH as well as daily fluctuations controlled to $\pm 3\%$ rH.

It is often a condition of benefactors in deciding whether or not to loan works of art to galleries that these conditions are maintained.

Rapid fluctuation in humidity has the most damaging effect as the materials do not have enough time to acclimatise. These types of changes are difficult to



control in an environment that can be empty one minute and full of tourists in from the rain the next.

The effects may be very visible such as materials warping, splitting or cracking but they can be microscopic. Over time they will become more obvious. As works of art grow older they also become brittle and fragile, and less able to readjust their internal moisture level without damage.

The type of low humidity damage depends on the exhibit but can include the following:

Paintings

Made up from several layers, each individual layer reacts to moisture loss in different ways causing them to blister and the paint layer to flake off.

Paper and papyrus

Although moisture can be put back into these materials once they have dried out, a constant hydrating and dehydrating cycle is not good for the paper structure and can cause damage.

Woods

The amount of damage that will be sustained will be dependent on how the wood was primarily seasoned. However, damage can include warping, cracking and movement of joints, and discolouration of veneers or external veneered layers detaching and becoming loose.

Ivory

Internal moisture changes can lead to thin elements of the structure cracking.

Textiles

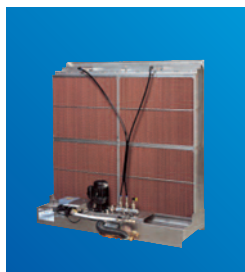
A drop in humidity will cause textiles to become brittle. When stretched across wooden boards or frames there is the risk of tearing. Silk is particularly at risk as are exhibits that contain hair.

Pottery, terracotta & stone

Alterations in the internal moisture content will cause minerals to rise to the surface when wet and then crystallize when dry. This can lead to stains on the surface, powdering and flaking

Why JS Humidifiers?

JS Humidifiers offers a comprehensive service of humidification system design, installation and maintenance. Our range includes spray, steam and evaporative humidifiers and, with over 25 years experience of humidifying museum environments around the world, we are ideally placed to advise you on which type is most suitable for your specific application.



www.jshumidifiers.com

JS has a policy of continually improving products and performance. Actual specifications might vary from those shown.

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