

humideco[®]

Energy Saving Humidification

Low-Energy Humidifier systems for

Museums & Galleries



Humideco Ltd - 2002-2020

Humidity Control for Art Conservation

Close environmental control of temperature and humidity within exhibition spaces is crucial to conservation.

Historically, museums and galleries have typically utilised steam humidifiers in conjunction with air handling units to achieve this. But, with control of relative humidity proving a constant challenge, and with increasing energy costs, many are seeking an alternative technology that can achieve close control, with a low energy requirement.

Ultrasonic humidifiers use less than 7% of the electrical energy of a steam humidifier and operate cleanly and hygienically from mineral free RO water. There are no throwaway cylinders, no mineral scale to contend with and only simple, routine planned maintenance is needed.

CASE STUDY

The National Museum Cardiff

During a 2017 review of collections storage and display environments at the National Museum Cardiff, it was found that the target relative humidity (RH) was achieved only 79% of the time in air-conditioned galleries and stores. The majority of environmental management issues were the result of insufficient humidification during winter months, due to ageing steam humidifiers being inadequate and prone to breakdown.

Issues due to old steam humidifiers

Frequent breakdowns resulted in maintenance staff spending a disproportionate amount of time servicing and maintaining the humidifiers, often at the expense of other maintenance jobs around the organisation. Further issues with the steam humidifiers included:

- High energy cost
- High maintenance requirement
- Lack of control - delayed response resulting in fluctuations in RH
- Large amount of wear and high cost of replacement parts
- Adding unwanted heat - increasing cooling load

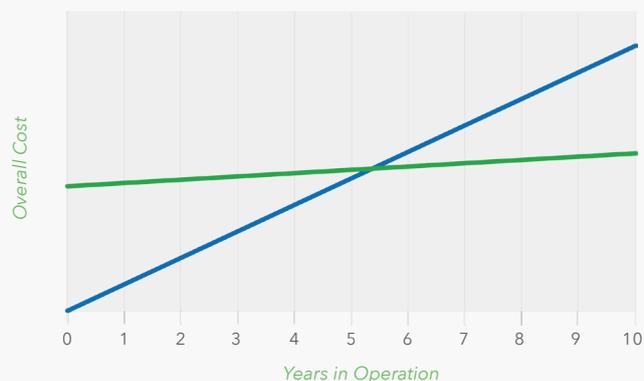
The decision was made to invest in 63 low-energy Stulz ultrasonic humidifiers from UK distributor Humideco to replace the old steam systems. Humideco engineers assisted the project team with the design and layout of the new humidification equipment, across the various air handling units and ductwork serving the galleries and art stores. Each plant area was fitted with a Humideco water treatment system to remove the dissolved minerals present in the feedwater, ensuring a virtually maintenance free humidification solution for the entire museum.

Humideco also worked alongside the BMS specialists to commission the new humidifiers throughout the building, allowing for a phased and manageable introduction of the new systems.

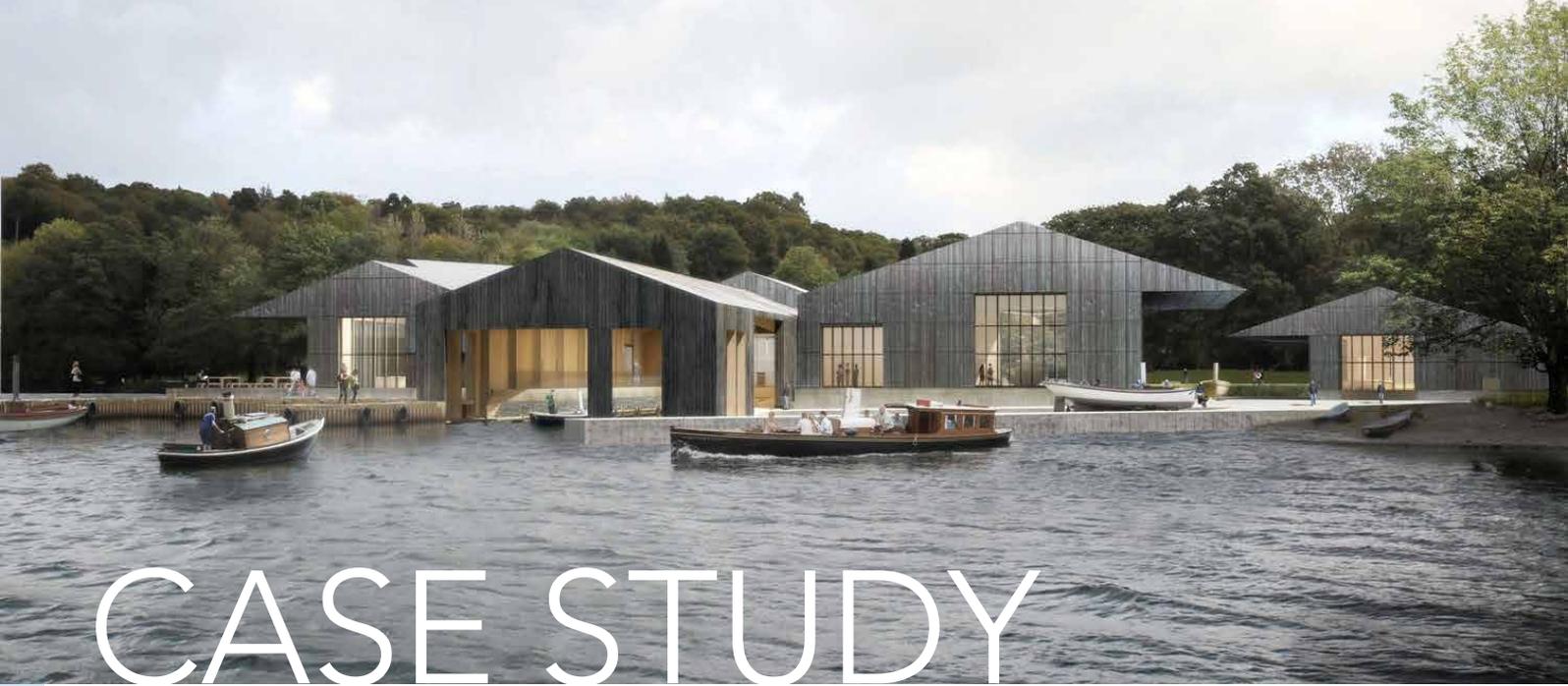
The Results

- Environmental targets are now achieved 95% of the time
- Energy Savings: approx. **£80,000 per year**
- Maintenance Savings: **£9,000 per year**
- Carbon Savings: **313t CO₂ per year**

Return on Investment within 5.5 years



- Cumulative Costs - Steam
- Cumulative Costs - Ultrasonic



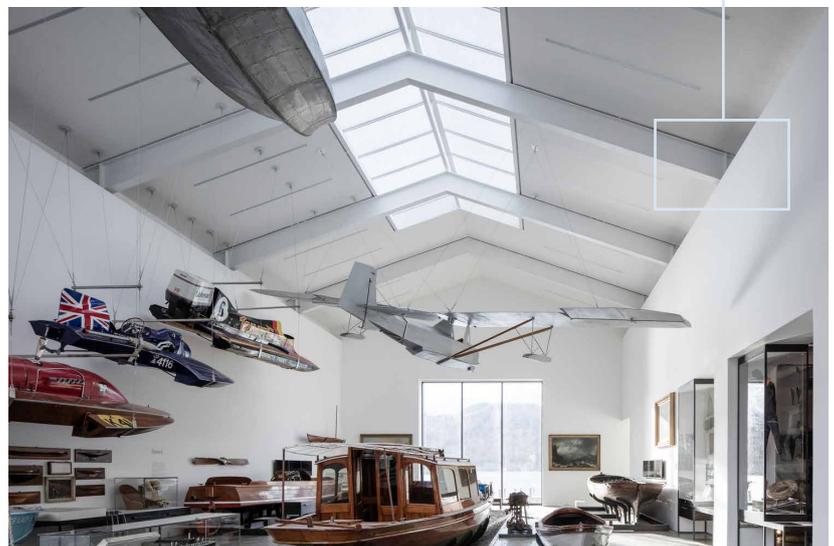
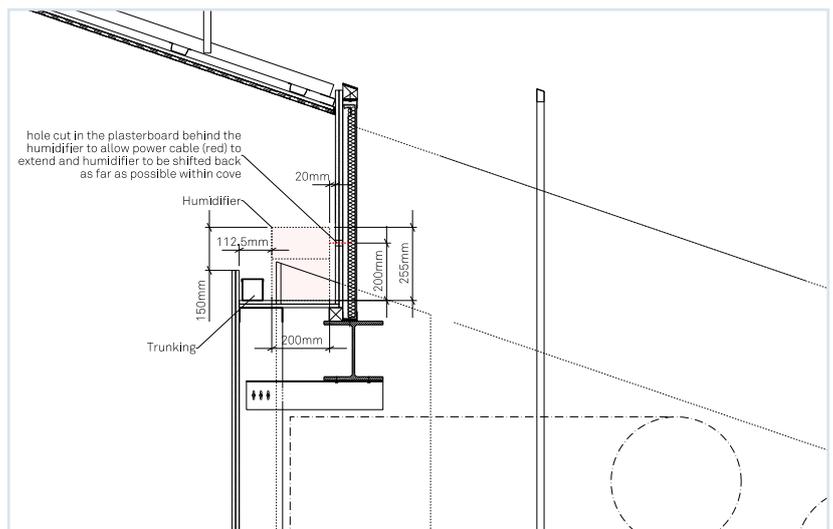
CASE STUDY

Windermere Jetty Museum

Designed by Carmody Groarke architects for local charity Lakeland Arts, the Windermere Jetty museum houses an internationally significant boat collection on the shores of Windermere in the Lake District National Park. Built in 2019, the project includes exhibition spaces for the display of steam launches, motorboats, yachts and other vessels telling the stories of their construction and use on the lake.

Humideco worked with the Architects and Building Services Consultants who were looking for an unobtrusive and low energy solution to control the relative humidity within the main exhibition space. In total, 6 humidifiers were installed, with a capacity of 3kg/hr each, and a total power consumption of only 1500w. Other advantages of this system include:

- Silent Operation
- Instantaneous Response and Close Control
- Virtually Maintenance Free
- Clean and Hygienic



Humideco worked closely with Carmody Groarke to provide a concealed solution which would not affect the architectural properties of the exhibition space.

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Low energy humidification specialists Humideco are the UK distributor for the world leading Stulz ultrasonic humidifier range. With a wealth of experience in humidity control for museums and galleries, we can advise on the potential for energy savings, when compared to your existing systems, and illustrate this using our 5 year projected operating cost comparison.

We can assist with the design, supply, installation and ongoing maintenance of an optimal humidification system for your facility, with low running costs and operational efficiency as the primary benefits.

Humideco Ltd

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Stulz BNB units for direct space humidification.



Stulz ENS units for humidification in ducts and AHUs.