



**TEMPORARY  
HUMIDITY CONTROL**

# Case Study: Archival Preservation – Priceless Portuguese Exhibit Protected at the San Diego Museum of Art



**Property Damage  
Restoration**



**Temporary  
Humidity Control**



**Property Performance  
Services**



**With 120 of the world’s most valuable art objects at stake, the government of Portugal was not willing to take any chances with humidity control when it lent the exhibit to the prestigious San Diego Museum of Art.**



The San Diego Museum of Art attracts around 250,000 visitors annually. Its collections and temporary exhibits provide a rich and diverse cultural experience.

Priceless pieces included several paintings of 18th century Lisbon, fine silver, elaborate furniture, porcelain, unusual scientific instruments, and spectacular selections from the Portuguese crown jewels. Rare religious items included silk vestments from the Lisbon Cathedral, precious altar furnishings in both gold and silver, and a spectacular gilded wood altarpiece that measured over 22 feet high.

Prior to its arrival in San Diego, the exhibit was on display at only one other American location, the National Gallery of Art in Washington, D.C. There, permanently installed, state-of-the-art technology enabled the Gallery to tightly control the environment. Curators in San Diego won the exhibit only after they agreed to maintain the same temperature and humidity conditions.

### The Problem

Many of the items in the exhibit were vulnerable to moisture. The gilded altar, the smaller wooden artifacts (that were trimmed with genuine gold leaf) and the tapestries were all



A gilded coach built in the 17th century was the centerpiece of the exhibit.

extremely hygroscopic. Because of the risk, the Portuguese government required a guarantee that the temperature would not vary more than two degrees from 72 degrees Fahrenheit (°F) and that the humidity would not vary more than 5% from 55% relative humidity (RH). Not only did the Museum have to prove it could meet the standards, but every two weeks charts detailing conditions were shipped to Portugal as continuing proof.

Complicating the problem, the gallery area, nearly 400,000 cubic feet of space, would be visited by up to 2,000 people each day. This, plus the constant infiltration of outside air from opening doors and the natural leakage of the building, created the need for a fail-safe system.





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## The Solution

The exhibit would run in San Diego for five months. So, the only practical solution for the Museum was a temporary humidity control system. Learning that Polygon specialized in temporary humidity control and that they had solved a similar problem in Texas, preserving Russia's 'Catherine the Great' exhibit, Museum officials turned to Polygon.

It was immediately clear that the old HVAC system could not meet the conditions required. This was confirmed by chart recorders used to measure the temperature and humidity throughout the Museum. The chiller system that the Museum had in place was built in 1966. It had not been engineered to provide 'tight' control of humidity levels.

To solve the problem, Polygon installed two HoneyCombe® 4500-GA gas-fired desiccant dehumidifiers and a 44-ton chiller with two 20-ton coils.

Polygon had to build the system working against a tight deadline. The exhibit was due to open just two weeks after Polygon was awarded the project.

Complicating the installation was the need for a crane to hoist the equipment on to the roof, where it would be integrated with the existing HVAC system and also kept out of sight.

On the day US military transport aircraft airlifted the valuable artifacts to San Diego, the Polygon temporary system was finished and running to spec. Throughout the entire exhibit, the Polygon system maintained the conditions perfectly.

## The Benefits

### Absolute Protection

Temporary humidity control by Polygon means you can achieve your objectives without disruption. Polygon has both the engineering skill and practical experience to develop a temporary system that will handle any climatic change that might occur. Competitors may rent dehumidification equipment, but only Polygon guarantees that the systems will always meet the conditions of a difficult spec.

### Solve Any Problem

Polygon can solve any humidity related problem. From safe-guarding fine art work to preserving inventories of peanuts, Polygon has unmatched experience. We control humidity during NHL playoff games, maintain conditions for pharmaceutical manufacturing, and keep lollipops from sticking together. No one knows more about humidity control than Polygon.

### Flexible Configuration

Polygon's service allows you to blend both temperature and humidity control into an integrated system. Should your requirements increase or decrease, you can add or subtract equipment without problems. Polygon has the largest rental fleet in North America, so no compromises are required to build or change your temporary system.

### Turnkey Service

Polygon systems are turnkey. From initial consultation, to engineering, to installation, Polygon does it all. Polygon supports the installation with 24-hour service, and 50 years of expertise.



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