



Case study: Air Treatment
Pacific Titles Archives Vault
Burbank, CA, USA

Quick facts

By installing the HCD Plus, the Pacific Titles Archives' film vault has been able to:

- Stop mold and mildew growth
- Stabilize conditions
- Prevent "vinegar syndrome" and color fading
- Minimize pollutants
- Achieve an energy cost reduction
- Allow for quick access for easy maintenance

HCD Plus Desiccant Dehumidifier Controls Climate for Film Vault

Munters dehumidification equipment is delivering temperature and humidity control for Pacific Title Archives, a major storage provider for the motion picture industry since 1935.

The film preservation facility includes a 2,300-square-foot vault where up to 80,000 film canisters can be stored. This project required an advanced storage system that

employed state-of-the-art technology to keep the media collection safe and secure so items would remain in flawless condition, long term. The vault sits inside a warehouse and requires the optimal use of space while still allowing ease of access to multiple clients.

The process of storing film is considered critical due to its delicate nature. Extended-term

archiving is a valuable commodity for motion picture clients because film can't be replicated but can be tampered with and ruined without proper handling. High heat and moisture levels in storage areas cause cellulose triacetate degradation or "vinegar syndrome," which gets its name from the smell that the films expel. Should one deteriorated film begin to emit

acetic acid, it could pose a serious threat to surrounding films and ruin an entire collection.

McMurray Stern, a design build contractor offering high density shelving and mobile filing systems was brought in by Pacific Title Archives to offer a solution. First, in order to control temperature and humidity, and minimize off-gassing in the vault, McMurray Stern consulted with archival expert, Peter Dahlbeck of Dahlbeck Engineering Company, a Munters representative, to design a dehumidification system for installation just outside of the vault vestibule.

The Munters HCD-600 Plus custom-designed dehumidification and filtration system was selected as it can remove moisture from the air through a desiccant rotor and guarantee precise humidity control by modulating face and bypass dampers. Munters' patented HoneyCombe® wheel is a self-regenerating desiccant rotor. When the air to be dried passes through the rotor, the desiccant removes the water vapor directly from the air and holds it while the wheel rotates. As the moisture-laden desiccant passes through the reactivation sector, the water vapor is transferred to a heated air stream, which is exhausted to the outside. The process is continuous, allowing for uninterrupted dehumidification, optimizing performance while minimizing operating costs.

"The storage standards for color film are the most stringent," said Dahlbeck. "To extend the life of the collection, control of the relative humidity is the most critical. The unique Munters desiccant technology allows for humidity control at a low temperature that is economically feasible."

With the pre-engineered, add-on modules, the HCD Plus allowed for fast and cost-effective manufacturing and provided the flexibility to



The HCD Plus provides a precise temperature of 45°F with a relative humidity of 25% which was required to ensure the preservation of the safety film reels for many years to come.

customize the equipment that had been defined by the end user's needs. The 2,000 scfm system ensures the vault is kept at a precise temperature of 45°F with a relative humidity of 25% to ensure the preservation of the safety film reels. The low-temperature storage helps to preserve the film at a level where the humidity is manageable. The unit also provides over four air changes per hour and removes pollutants and particles by carbon and HEPA filtration.

The vault is regulated by a passive smart system, which automatically monitors climate activities and sends a notification if there is

a breach or change of any kind inside. This provides a level of security that would allow for a quick response in case of emergency so that the contents will maintain their condition.

The film, stored in canisters, is held on a total of 20 mechanically assisted mobile carriages inside of the vault that operate on a recessed-rail unit, manufactured by Spacesaver. The recessed-rail tracks are laid to allow the carriages to be easily navigated so the canisters can be accessed, while taking up a minimal amount of space.

Proposing a quick timeline and following through as planned was crucial to the construction of the storage vault. By selecting Munters' modular, HCD Plus system, McMurray Stern was able to quickly provide a custom, packaged air processing system. The entire project took two months to be completed, a quick turnaround that was tailored to Pacific Title Archives' requirements.

"We're very happy with [McMurray Stern]," said John Bragg, Branch Manager of Pacific Title Archives. "From start to finish, they were perfect in everything. They did everything on time, actually finishing ahead of schedule."



Doors leading to the vault open to the HCD-600 unit (left) and the film storage (right). This solution will keep the 80,000 films in flawless condition when accessed in the future.

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