

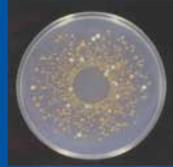
benefits

Indoor air quality is improved through higher ventilation and fresh air make-up rates. These systems also maintain lower humidity levels which help to:

deter dust mites



minimize bacteria



discourage fungus



eradicate mold damage



prevent corrosion



These IAQ features are only part of the broad benefits that help improve health and comfort, as well as reduce energy costs.

tours and workshops

Recognizing the wide range of attendees, the DHC Van offers:

- A 15-minute tour suitable for all visitors
- A 45-minute overview emphasizing the uses and benefits of advanced technologies for decision-makers
- One-hour to one-day workshops tailored to meet end users' needs.

contact

Scheduling and Program Information:

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The Humidity Control Experience



Desiccant Humidity Control Van

m o b i l e e x h i b i t

United States
Department of Energy



OVERVIEW

Desiccant humidity control systems offer significant advantages in many current building applications. Incorporating these technologies into existing and future buildings can reduce energy costs and result in better health, greater comfort, and increased productivity for the building occupants.

The DHC Van has two primary purposes. The first one is to create an awareness of the features and potential benefits of desiccant technologies. By educating the attendee regarding conventional air conditioning history, technologies and limitations and then explaining how the desiccant systems operate, why they are beneficial and how they can be (and are!) of benefit, the attendee can learn a significant amount in a brief time frame.

The second purpose for the DHC Van is to provide an actual experience of the difference that a desiccant system can make to the quality of the air. The design of the structure is divided into two zones, the first using conventional air conditioning technologies and the second using desiccant-based dehumidification. (As the attendees move from Zone 1 to Zone 2, the difference in room temperatures and humidity levels is shown on a visual display for comparison purposes.)

featured stops

Zone 1 - "Over 100 Years of Progress" A brief history of air-conditioning. **"Key Issues"** Where air-conditioning is today and some of its inherent limitations.

Zone 2 - "Origins of Humidity Control" Where did desiccant based systems come from and why? **"21st Century Indoor Air Quality"** Why do we need desiccant based systems in our future?

the tour



Key Issues

- Modern buildings require ventilation air provided by air conditioning systems
- Ventilation air is heavily laden with moisture in non-arid climates
- Conventional air-conditioning controls only temperature with a thermostat
- Unmet moisture loads pass into buildings raising humidity levels
- Some modern building materials and activities also introduce indoor air contaminants

Old classroom with radiator for heating and operable windows for ventilating and cooling

Modern classroom with closed environment reliant on air-conditioning to provide heating, ventilating, and cooling while maintaining good indoor air quality (IAQ)



21st Century Indoor Air Quality

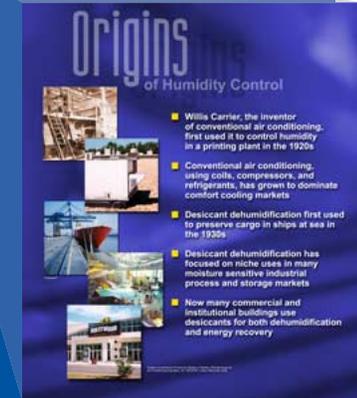
The future of IAQ depends on proper ventilation air and moisture management.

Pre-Treatment of outside air using desiccants eliminates a "only time factor" about rooftop C.O. towers - they are usually shut by the users.

The only solution for moisture management is independent temperature and humidity control.

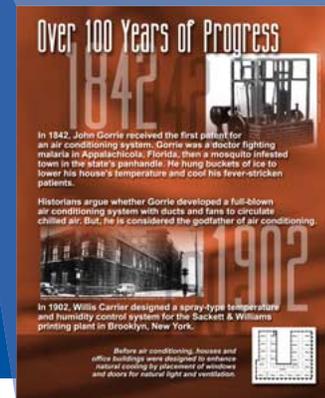
Actively regenerated desiccant systems are a viable solution for the growing requirement for standalone ventilation systems.

"If the energy performance of the system is improved, it will reduce the energy costs and pay for itself." - Desiccant-based C.O. towers are making the world a better place.



Origins of Humidity Control

- Willis Carrier, the inventor of conventional air conditioning, first used it to control humidity in a printing plant in the 1920s
- Conventional air conditioning, using coils, compressors, and refrigerants, has grown to dominate comfort cooling markets
- Desiccant dehumidification first used to preserve cargo in ships at sea in the 1950s
- Desiccant dehumidification has focused on niche uses in many moisture sensitive industrial process and storage markets
- Now many commercial and institutional buildings use desiccants for both dehumidification and energy recovery



Over 100 Years of Progress

1842

In 1842, John Gorrie received the first patent for an air conditioning system. Gorrie was a doctor fighting malaria in Apalachicola, Florida, then a mosquito infested town in the state's panhandle. He hung buckets of ice to lower his house's temperature and cool his fever-stricken patients.

Historians argue whether Gorrie developed a full-blown air conditioning system with ducts and fans to circulate chilled air. But, he is considered the godfather of air conditioning.

1902

In 1902, Willis Carrier designed a spray-type temperature and humidity control system for the Sackett & Williams printing plant in Brooklyn, New York.

Before air conditioning, houses and office buildings were designed to enhance natural cooling by placement of windows and doors for natural light and ventilation.

ENTER

- Tours range from 15 minutes to one hour
- Please begin the tour in Zone 1 at the history section
- A facilitator will guide your tour through the DHC Van
- Please feel free to ask questions at the end of your tour

