

Pfizer Robotics & Stability Facility

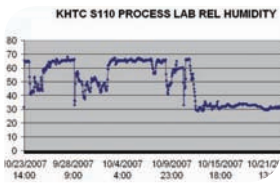
Trane HVAC Solutions for Life-Science Facility • Groton, Connecticut

Pfizer Global Research & Development centers in Groton and New London make Connecticut a major hub of drug discovery, metabolism and development research, as well as animal health and drug safety evaluation. Pfizer facilities in Groton/New London send out vital information, tools, technologies and compounds to scientists and researchers at every level of drug discovery and development across every therapeutic area. Discoveries made at Groton/New London provide research teams throughout Pfizer Global R&D with key insights, data, drug targets and compounds needed to find and develop effective new treatments to improve the health and wellness of people around the world.



Project Summary

HVAC system upgrade by Trane includes CDQ™ desiccant dehumidification system to meet strict humidity specifications in a life-science facility.



Graph showing relative humidity control after CDQ™ system installation.

Trane CDQ™ system provides:

- Air as dry as 30 grains/lb.
- Up to 10dB attenuation in every octave band
- Increased cooling coil latent dehumidification capacity
- Less need for reheat
- Lower unit-cooling sensible heat ratios
- Warmer chilled-water temperatures
- Decreased required cooling capacity when dehumidifying

Challenge

Pfizer adapted an existing retail building in Groton for use as a laboratory. A major challenge was achieving the stringent temperature and humidity requirements: 70°F and only 30 grains of humidity--a tough requirement with Groton's proximity to the Atlantic Ocean.

Solution

The Pfizer Global Operation group developed a concept system and integration plan and hired Van Zelm Engineers of Hartford. Van Zelm studied three options: install a new air handler to cool, then reheat the air for humidity control; use an active desiccant system; or, install a Trane air handler with the Trane CDQ™ dehumidification system. Van Zelm chose the Trane solution because existing HVAC systems could remain in place, it would have better life-cycle energy efficiency, and it would meet the strict temperature and humidity requirements. Working with Van Zelm, Trane installed a 20,000 cfm custom air handling unit with the CDQ system, using an existing air handler as a supply fan. While the new air handler uses chilled water from existing chillers, Trane added a 125-ton air-cooled "pony" chiller to provide chilled water to the new air handler on very warm, humid days when the existing chillers are at maximum capacity.

The Trane CDQ™ (Cool, Dry, Quiet) desiccant dehumidification system is ideal for facilities

requiring low dewpoint settings and can increase cooling coil capacity by 20 to 300%. Chilled water temperature can be set higher to save energy, and there's no need for reheat or exhaust air. Standard cooling coils have limited dehumidification capacity since air dewpoint cannot be lower than the coil temperature--the dewpoint barrier. The Trane CDQ unit breaks the dewpoint barrier by using an energy recovery wheel. Add this wheel to a standard or custom unit to transfer water from the supply air to the return air or mixed air. The cooling coil will remove up to 200% more water per hour.

Trane Custom Climate Changer™ air handlers units are factory-tested and documented to meet the most critical temperature, humidity, ventilation, noise and cabinet performance specifications. The custom air handlers and CDQ system use Trane controllers to interface with the building automation system.

Results

Since project completion in late 2007, the Trane air handler/CDQ system is fully meeting Pfizer's expectations. Lenny Vodonos, Pfizer Facility Manager, said, "The Trane CDQ technology has proven to be an effective, efficient solution for humidity control in situations with stringent process requirements and limited space. As a result, Pfizer scientists were able to improve quality and consistency of sample production and we've benefited from 20% in energy savings compared to a conventional design."



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