



Cornell University and Percival Scientific Collaborate to Win LEED Gold Certification

CASE STUDY

Weill Hall Building Wins LEED Gold Certification

With collaborative assistance from Percival Scientific, the Weill Hall Life Sciences Technology Building on the Cornell University campus earned the exclusive Leadership in Energy and Environmental Design (LEED) Gold Certified designation from the U.S. Green Building Council. LEED certification is an internationally-recognized mark of excellence that rewards building owners and designers who have achieved the highest standards in key areas of human and environmental health. LEED certification considers aspects of a building's construction and renovation process, including sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

The Weill Hall Life Sciences Technology Building, located in Weill Hall, is a \$162-million, 263,000-square-foot research facility on Cornell University's Ithaca, NY, campus. Weill Hall is the cornerstone of Cornell University's New Life Sciences Initiative, one of the nation's leading programs studying all life forms — plant and animal — at the genome level.

The Innovative Use of Lake Source Cooling

To save on energy use and reduce environmental impact, Cornell engineered the building with a proprietary lake source cooling system that had never been used anywhere else in the country. An open loop of cold water from the depths of adjacent Cayuga Lake is pumped up to a heat exchange that removes heat from a closed loop of water running to and from the building. Then the lake water

returns to the lake's warmer surface at normal surface temperature. The water in the two loops never mixes, and the lake water is not affected.

The Search for Lake Source Cooled Chambers

As Cornell University was seeking LEED Gold certification for their newly constructed building, they looked for a partner to install 22 specially designed plant growth chambers for their plant growth lab that would meet the stringent requirements of the LEED certification. Because the chambers would be a large source of energy consumption for the building, they needed to conserve energy, reduce environmental impact and use a natural, renewable resource for energy production. Considering the initial success of the lake source cooling process for the entire building, Cornell staff revamped the original chamber specifications to require lake source water as a coolant. However, they contacted a number of chamber manufacturers and soon realized this advanced chamber technology did not yet exist.

Percival Scientific Takes On the Challenge

Cornell found the most accommodating innovation partner in Percival Scientific. "Percival was willing to look at nontraditional design," says Todd Pfeiffer, Weill Hall Facilities Director. "They were able to meet all the specifications set forth in our proposal. We desired chambers that could achieve our high standards to control temperature, reduce energy costs and leave no environmental impact on the lake water. Percival Scientific delivered on all our requirements and then some."



"We have a history of designing and manufacturing chambers and incubators to custom specifications," says Joni Campidilli, Percival's Vice President of Sales and Marketing. "This partnership was no different. Our engineering staff met with them to listen to their exact needs and then delivered a cost-effective approach to meeting those needs."

First-of-Its-Kind Chamber Design

The uniquely designed energy efficient and environmentally friendly chamber includes:

- A system of closed water loops similar to the ones used to remove heat from the building that removes heat from the growth chambers
- Hybrid engineering that uses Cornell's lake source cooling process and traditional refrigeration for temperature control. Refrigeration is used only when the desired temperature cannot be reached through water temperature alone. Because most of the heat is removed by the water, condensing units are much smaller and require less energy.
- High-efficiency blowers
- Reduced air flow during night cycles
- Lamp canopy design elements, such as:
 - Lamp bank efficiency
 - Chilled water used to remove heat from fixed lamp canopy
 - Constant temperature to maintain peak light
 - Minimal need to compensate for temperature-related performance loss
 - Lamp heat to control optimal temperature

Attentive Service Every Step of the Way

Percival assembled and tested each of the 22 chambers at their Iowa manufacturing facility prior to shipping and installing. Test loops simulated the exact conditions of Cornell's existing loop-to-loop water system.

To discuss how Percival Scientific can design a chamber to meet your exact research needs while reducing energy costs, limiting impact on the environment and delivering the industry's best customer service, contact sales@percival-scientific.com, call 515.465.9363 or visit www.percival-scientific.com.

"Percival is great to work with," says Pfeiffer. "Their engineering staff visited our facility to resolve any issues. They answered questions about the operation and were willing to lend their expertise at every step along the way. They even sent their IT team to provide on-site training of their computer system."

A Rare Achievement for a Large Lab

The Weill Hall Life Sciences Technology Building is one of a growing list of Cornell University buildings to be LEED certified and is the largest research lab to receive that designation to date. It's a rare achievement for a research facility due to the high amounts of energy that labs traditionally use, one to which Percival Scientific was proud to contribute.

"I would highly recommend Percival products," says Pfeiffer. "They are very flexible, and their customer service is great. They were willing to listen and work with us to ensure the project was successful."

