The Peggy R. Williams Center

Ithaca College
953 Danby Rd
Ithaca NY 14850

This administrative facility, which opened in Spring 2009, has achieved LEED Platinum rating from the U.S. Green Building Council. The building achieved the Energy Star rating in 2010. Designed by HOLT Architects in Ithaca NY, this 58,000 square foot building at the main entrance to the campus is considered the "Gateway" for Ithaca College. Prospective student families and many first-time visitors are welcomed to campus at the Office of Admission on the first floor. Campus tours begin and end in the lobby atop the Ithaca College seal etched into the local bluestone floor tiles. The Williams Center, named for president emeritus Peggy Ryan Williams, is designed to capitalize on the College's spectacular view of Cayuga Lake, and to introduce visitors and guests to the concept of sustainability, a core value of the institution.

The Williams Center also supports the needs of continuing Ithaca students by offering a "one-stop-shop" on the second level for Student Financial Services, combining the Registrar, Financial Aid, and the Bursar functions into a single service center so enrollment and student account matters can be handled efficiently. Many senior administrative offices of the College occupy the third floor, including those of the President, the Provost and Vice President for Academic Affairs, the Vice President for Finance and Administration, and the Vice President and College Counsel. The Office of Human Resources, located in the so-called "Garden Floor," helps ensure a high quality of worklife for the current campus workforce, and opens a front door to prospective employees. The Division of Graduate and Professional Studies shares this ground level, greeting those coming to Ithaca for the first time as adult learners or returning graduates seeking advanced degrees or access to continuing education, professional certification programs, and additional training.

The Williams Center, and its companion building, the Park Center for Business and Sustainable Enterprise, which received a LEED Platinum rating in 2008, create a new sustainable "front door" for the campus. These two high-performance sustainably-designed buildings, although designed by different architects, are each signature buildings that demonstrate best "green design" industry practice. The choices of exterior materials were selected to complement one another and the design team for the Park Center generously shared information with the HOLT team. When the Williams Center was certified as LEED Platinum, Ithaca College joined Yale University as the only two higher organizations in the world to have two newly-constructed LEED Platinum buildings on campus. The incremental cost to move this $21 million project from a code-compliant standard building through to LEED Platinum level was calculated to be 3%, an amount easily recouped through energy savings.

The Williams Center is designed to control and collect rain, sun, wind and views. In concept, HOLT envisioned a malleable "fabric" that flows over the functional program spaces, stretching out to shade the windows on the south side, pulling down to block the intense western sun, lifting up to reveal the campus's signature views, and pushing up at the roofline to catch rain water. 90% of the steel for the support structure of the building was recycled, and the high-efficiency envelope reduces air permeability and minimizes heat loss.

More than 6,000 square feet of vegetated roof areas absorb much of the rainwater that is not collected, releasing it back into the atmosphere. The native sedums also

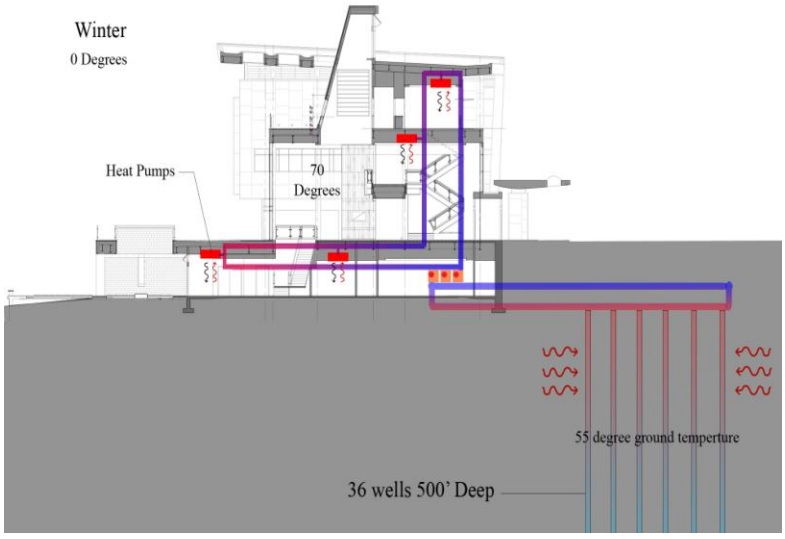
reduce airborne pollutants, and cool and add oxygen to the air. In conjunction with the porous pavement and native site plantings around the building that, once established, will not require extensive irrigation, there is no net increase in the quantity or rate of rainwater runoff compared to the pre-construction site conditions.

The relatively narrow depth of the building and the strategic use of interior and exterior high-performance Low-E coated glazing allows maximum dispersion of natural light deep into the core spaces while minimizing heat gain from infrared radiation. Daylight harvesting with automatic photocell controls and dimming ballasts replace artificial light with natural light when available. Occupancy sensors additionally regulate lighting in unused spaces to conserve energy. Interior walls that run parallel to the shell are designed with clerestory glass above seven feet, providing acoustical and visual privacy for the exterior offices while affording the experience of variegated natural light to the interior. A variety of shading devices protect the glass curtain wall from direct summer sun.

The central atrium and light monitor act as a solar chimney. The energy management system controls operable windows, inducing stack effect when exterior conditions are appropriate. CO_2 monitors additionally help control indoor air quality and also save energy, turning the ventilation fans on only when the building needs to vent stale air.

Through energy modeling, many envelope variables and mechanical system strategies were tested. Initial costs were compared to performance and lifecycle data indicating that a geothermal distributed heat-pump system would be the most effective solution for this project in this climate.

Water is pumped through thirty-six 500’ deep bore holes drilled in the plaza just north of the fountain to take advantage of latent energy stored in the earth. By leveraging this free energy, the building realizes an energy savings of 34% or more when compared with standard, code-compliant construction. This will yield an anticipated cost savings of more than $35,000 each year. With the purchase of green power by the college, the building is moves even further toward carbon neutrality when you take into account the impact of its vegetated roofing. A distributed heat-pump system allows the building to redistribute heating and cooling from one space to another before requesting additional energy from the earth.



Using the principle of stack effect, natural convection ventilation pre-cools the atrium at the start of each day by drawing cooler night air across a shade garden on the north side of the building, and up the terraced garden stair before relieving it out the light monitor three stories higher. This internal “breathing apparatus” reveals itself on the exterior as a large fin that serves to relieve hot air and also catch natural light and reflect it into the building.

Other high-performance sustainable design features of the Peggy R. Williams Center:

Site and Building Exterior

- Native Plants: Site plantings are native or adapted species, eliminating the need for irrigation. The plants selected provide habitat at multiple levels and reduce stormwater runoff.
- Stormwater: Retaining and filtering stormwater on-site ensures that the project does not add water to the municipal stormwater system.
- Heat Island Effect: Reflective roofing materials were used to reduce the urban heat-island effect.
- Shading: Both fixed exterior shading devices and translucent glazing are visible from the exterior of the building. These shading strategies reduce the amount of direct solar gain within the building, reducing cooling loads and thus costs.
- Construction Waste Management: Nearly 90% of construction waste was recycled.

Building Public Spaces

- Track-off system: This permanent entry system reduces the amount of dirt and particulate infiltration into the building, reducing maintenance and cleaning and improving indoor air quality.
- Glazing: High-performance glazing was selected for windows, and occupancy sensors and daylight controls reduce electric lighting energy use by dimming or automatically turning off fixtures as appropriate.
- Materials: Materials within the PRW Center were extensively researched and selected based upon several environmental criteria. Materials were selected for their high recycled content, and whenever possible, locally manufactured materials and products were chosen.
- Indoor air quality: All materials were carefully vetted for low emission of contaminants likely to lead to sick building syndrome. This includes low-VOC paints and coatings, adhesives, and other materials.
- Durability and cleaning: Stone floors were selected for durability and ease of cleaning, no harsh chemicals or wax is required.
- The building features traction (as opposed to hydraulic) elevators that use 90% less electricity to run.

Water Use

- Potable water use at the PR Williams Center has been greatly reduced by reclaiming rainwater for toilet flushing and other non-potable uses.
- Low-flow taps: Sensor controlled taps greatly reduce water use for hand washing.
- Dual-flush toilets additionally reduce water use.
- Water savings: The combination of these features allows for an 88.5% decrease in potable water use over a conventionally equipped building, which equates to water savings of 295,000 gallons per year.
- Ithaca College uses primarily *Green Seal* certified cleaning products and bathroom paper products.

Workspaces

- Views: Offices were all moved to the perimeter to maximize views – over 90% of workspaces have access to direct views to the outdoors.
- Wood: Over 50% of building woodwork was sourced from sustainably managed Forest Stewardship Council (FSC) certified forests.
- Energy efficiency: The high energy demands of ventilation and requirements for outdoor "makeup" air are mitigated by careful HVAC design.
- Occupancy sensors: Lights are automatically switched off and ventilation rates reduced when offices are unoccupied.
- Carbon Dioxide: Sensors have been installed to regulate ventilation to ensure comfort and good air quality.

With many thanks to Quay Thompson and Anton Christiansen from HOLT Architects for content.
Some material adapted from "Towards a Sustainable Campus", by Quay Thompson,
published in *Environmental Design + Construction*, September 2007.