



Collaborative Innovation Center

Size: 260,600 sq ft

Location: Carnegie Mellon University, Pittsburgh

Owner: Regional Industrial Development Corp. of Southwestern Pennsylvania
<http://www.dickcorp.com/dickcorp/markets/market.asp?mktnum=12>

LEED™ Rating: LEED-CS Gold

Costs: \$106 per square foot

Completion Date: 2005

Building Overview:

Designed by Davis Gardner Gannon Pope Architecture, LLC, the four-story, 260,600 square foot Collaborative Innovation Center (Co-Lab) features large open spaces that provide its tenants with one of the most energy efficient, cost-effective, healthy, flexible and adaptable work environments in existence. The Co-Lab, which accommodates over 400 employees, employs green design principles -- some developed at Carnegie Mellon's Center for Building Performance Diagnostics -- and building materials that will ensure sustainability and maximize employee productivity.

Green Highlights

The building features an energy-efficient, modular raised-floor system, allowing twice as much fresh air to enter the building and enabling individual to control airflow and climate in their work areas. The floor, 24" x 24" panels placed 18 inches above the structural floor, allows air diffusers, power and utility lines to be easily reconfigured to meet workspace needs. Large windows wrap the exterior of the structure to maximize daylight, while the interior indirect lighting system reduces glare. The exterior wall columns of the building and floor slabs extend beyond the windows serving as a shading device minimizing the negative effects of the sun. A multi-level parking garage for more than 220 vehicles will sit below the four-story office building. The garage includes a recharging station for electric vehicles.

Sustainable Sites

- Reduced site and parking garage footprint.
- Located near numerous community amenities and bus lines.
- Changing rooms and bike stations for employees and visitors.
- A cistern helps control stormwater rate and flow while also providing graywater and water retention after a storm event.

Water Efficiency

- The use of a cistern, plus low flow fixtures amounts to a total estimated potable water savings of 56.4%.
- The graywater system also irrigates planters providing 50 gallons per day.

Energy & Atmosphere

- A raised-floor HVAC system, argon-filled insulation Solarban 60 glass and insulated terra cotta rainscreen combine to deliver a system that uses 22% less energy than the ASHRAE base case.
- The HVAC's enthalpy wheel passively extracts latent heat.
- The thermal mass of the concrete floor system produces a thermal fly wheel effect which lowers the energy needed for morning cool down and/or morning warm up.
- DDC based Building Automation System with diagnostic capabilities that allow for the adjusting of systems to improve comfort and performance.
- Cantilevered concrete structural slabs also double as sunshades.

Indoor Environmental Quality

- The raised floor HVAC system allows for increased ventilation and controllability of non-perimeter systems.
- 12 feet clear height allowed for significant daylight penetration.
- The Building Automation system provided the means to permanently monitor the HVAC system and carbon dioxide levels.

Materials & Resources

- High levels of concrete and steel in the structure allowed for a significant amount of recycled content.
- Most other systems employed materials that have high recycled content.
- 26.7% of all materials consist of recycled content.
- 52% of the materials used in the project were manufactured locally and 36.4% of those materials were locally harvested.

Team

- Regional Industrial Development Corporation [<http://www.regionallearningalliance.com/index.html>]
- dggp Architecture [www.dggp.com]
- RAY Engineering
- Churches Engineering
- Klavon Design Associates [<http://www.klavondesign.com/flash.html>]
- PJ Dick Corporation [<http://www.pjdick.com/tpjwebsite.nsf/web/Home?opendocument>]
- D+D Engineering
- Steven Winter & Associates [<http://swinter.com/>]
- Engineering Economics, Inc.

