



PITTSBURGH GLASS CENTER

Size: 18,500 sq ft

Location: Friendship Neighborhood, Pittsburgh, PA

Owner: Pittsburgh Glass Center

LEED™ Rating: LEED-NC Gold

Costs: \$90 per square foot (minus FF&E)

Completion Date: 2002

Building Overview

For over a century, the Pittsburgh region was the center of production and marketing for America's glass industry. Pittsburgh was known nearly as much as "Glass City" as it was "Steel City." Pittsburgh Glass Center brings glass back as a part of Pittsburgh's economic engine, as a mainstay of the City's arts industry, elevating the association with glass from function to art form.

The Pittsburgh Glass Center is a nonprofit organization dedicated to teaching, creating, and promoting glass art. The Center's building includes state-of-the-art studios in hot glass, flameworking, and coldworking. A neighborhood revitalization project in Pittsburgh's historic Friendship area, the Center is housed in a building that has previously been home to a food cooperative, a mattress distributor, and an automobile showroom. The building is comprised of an adaptive reuse of an existing structure and an addition of 2000 SF of new construction. See <http://www.pittsburghglasscenter.org/aboutus.html>.

Green Highlights

The design process included meetings and charrettes with all project stakeholders, including the general public. The design process for energy efficiency included modeling and commissioning.

A reflective roof system reduces both the building's internal heat loads and its contribution to the urban heat-island effect. The parking lot uses pervious limestone to reduce run-off water and is landscaped with indigenous plants; it doubles as an event courtyard and reduces heat buildup in summer months. Landscaping and surface treatments were selected to shade the parking lot and the building.

Alterations to the shell of the building were made to increase daylight and views and to maximize opportunities for natural ventilation. As a result, most occupied spaces do not require artificial lighting during daytime hours. Heat from the glassmaking equipment and exhaust air is recovered and used to heat the rest of the spaces as the thermal mass inside the building moderates temperature swings.

The building includes a range of salvaged materials while all new construction materials were evaluated and specified for recycled content, local manufacturing, and sustainable harvesting. Much of the building was left unfinished, reducing the initial and maintenance costs of the project, limiting the space's off-gassing potential, and lending an industrial, creative feel to the building.

Sustainable Sites

- Reuse of existing structure
- A parking lot for 20 cars is designed to have zero run-off with a pervious surface and subsurface retention on the site.
- Landscaping and surface treatments were selected to increase shading of the parking lot and the building, as well as high reflectance and evaporative cooling effect for reduction of heat islands.

Energy & Atmosphere

- The building is heated by the recovery of waste heat from the “hot-glass” process equipment using a continuous water loop system
- Heating and cooling systems include use of heat recovery ventilators, heat pumps, radiant floor heating, and 100% capacity fresh air economizers.
- The mechanical system is controlled with a Direct Digital Control system, with a plan in place for monitoring and verification that will allow the Glass Center to adjust systems to optimize energy conservation.
- The project process includes full energy modeling and "Best Practice" systems commissioning, as well as extensive peer reviews and value engineering including the participation of LEED-accredited professionals.
- Occupancy sensors are included in the lighting controls for all spaces not regularly occupied. The gallery space, which uses the greatest watts per square foot in terms of electric use, has lighting controls that adjust to its occupancy. When visitors to the exhibit are not present, light controls reduce the number of lights on, and automatically switch back to full lighting when sensors determine that visitors have entered the space.

Indoor Environmental Quality

- Alterations to the shell of the building were made to increase daylight and views: most occupied spaces will not require artificial lighting during daytime hours
- Operable windows
- Displacement ventilation in office areas

Materials & Resources

- Reuse of a corrugated glass wall system salvaged from another building, which afforded the Glass Center the opportunity to have a cladding for the addition that creates a signature image and demonstrates the potential use of glass materials.
- Use of salvaged materials, from the existing building or purchased from recycling vendors includes, doors, windows (reused for interior borrowed lights), sinks, brick, and stone
- Concrete from demolition was crushed and recycled.
- All metals, plastics, gypsum and plaster materials, as well as glass, carpet, and ceiling tiles from demolition were separated and delivered to recycling centers. A plan to minimize construction waste was established and all remaining materials recycled.
- All new construction materials were evaluated and specified for recycled content, locally sourced manufacturing, and raw materials.
- Wood used for the project is certified sustainable, and in many cases plywood and framing lumber were reused several times for barricades and formwork before being installed in permanent locations in the building (for blocking and rough carpentry elements).

Team

- ▶ dggp Architects with Bruce Lindsey Architect http://www.dggp.com/projects/i_glassctr/
- ▶ Michael J. Kokayko, P.E. Consulting Engineer
- ▶ Q Dot Inc.
- ▶ Apex Plumbing
- ▶ Clearview Project Services Company
http://www.clearviewpsc.com/leed_projects_completed.section/pages/project_pageBE16721A0.html
- ▶ LaQuatra Bonci Associates
- ▶ Sustainaissance International

- ▶ Tudi Mechanical Systems, Inc.

Awards

- AIA Design Award Winner (2003)
- AIA Committee on the Environment Green Project (2005)

