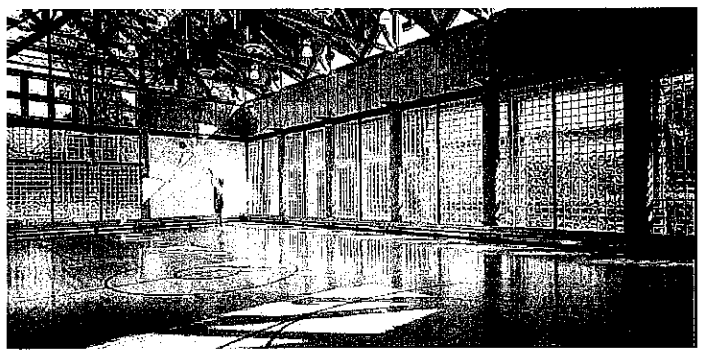
Natural light.
Natural material.
Naturally inspired.

Glass block in commercial space supports sustainable design and LEED® certification

What's more inspiring than form meeting function? Glass block, made largely from sand and limestone, is 100 percent recyclable, inert, low maintenance, and highly durable. Yet its dynamic relationship with light gives architects the opportunity to create both aesthetically pleasing and energy efficient spaces.



As a proven, natural material, glass block can add beauty and inspiration to a project while playing a significant role in sustainable design.

The LEED® (Leadership in Energy & Environmental Design) Green Building Rating System is the nationally accepted benchmark for the design and construction of high performance green buildings. While the use of no single construction material can earn LEED® points, Pittsburgh Corning's glass block can be part of an overall strategy to earn points in several categories:

Energy & Atmosphere
According to Architecture 2030, three-fourths of all electrical energy in the U.S. is used to operate buildings. Reducing energy use in buildings through improved energy performance and energy-saving strategies like daylighting helps reduce the impact buildings have on our atmosphere.

How glass block can help:
Prerequisite 2: Minimum Energy Performance
Glass block's daylighting properties can help achieve the required minimum energy performance for LEED® certification.

Credit 1: Optimize Energy Performance
Glass block can support various strategies, including passive solar designs, to reduce a given building's energy consumption. And because this credit includes interior lighting energy demands, glass block can improve energy performance even more.

Recent developments in glass block have significantly improved thermal performance. Pittsburgh Corning's Energy Efficient Glass Block demonstrates up to a 43% improvement in U value and up to a 52% improvement in Solar Heat Gain Coefficient when compared to the baseline performance ratings for glass block specified in ASHRAE/IESNA 90.1-2007.

Materials & Resources
The production and transport of building materials can impact our environment in many ways. Conserving resources, using local materials and reducing construction waste reduces that impact.

How glass block can help:
Credits 2.1 and 2.2: Construction Waste Management
Both glass block scrap and its packaging can be recycled, nearly eliminating waste.

Credits 3.1 and 3.2: Resource Reuse
Salvaged glass block can be reused in some jurisdictions with careful consideration.

Credits 5.1 and 5.2: Regional Materials
Glass block manufactured in a facility within 500 miles of a project site can include that percent (by weight) of the raw materials that are also within 500 miles of the project site toward the calculation of the total regionally located content in all building materials.

With Pittsburgh Corning's glass block manufacturing facility in Port Allegany, PA, architects can achieve credits for projects in several major metropolitan areas, such as Chicago, New York, Philadelphia, Washington D.C., Charlotte, Cleveland, Indianapolis, Columbus.

Indoor Environmental Quality
The U.S. EPA estimates that the average American spends over 80 percent of his/her time indoors. It is important for our own wellbeing to create indoor spaces that are healthy and comfortable.

How glass block can help:
Credit 4: Low Emitting Materials
Glass block meets the intent of eliminating VOCs from the indoor environment when used as interior walls or floors.

Credit 8: Daylight and Views
Glass block provides daylight and views without sacrificing sound control, security and privacy.

Suggested Applications: The Solar Wall Tube by Pittsburgh Corning offers a unique and creative way to maximize natural light entering the building.

Innovation & Design
The LEED® Rating System, while comprehensive, is not complete. Other aspects of sustainable design, not covered in LEED®, are also important. These can be recognized in the Innovation in Design credit.

Suggested Applications: New LightWise® Architectural Systems from Pittsburgh Corning offer all of the benefits of glass blocks in easy-to-install windows and panels and can provide additional resistance to hurricane, blast, intruder or ballistic threats.

Glass Block and Sustainable Design

Pittsburgh Corning glass block not only supports LEED® building certification, it also contributes to sustainable design in other ways:

1. Safety and Security
   - Glass block is non-combustible
   - Glass block combines visibility with security
2. Environmentally preferable materials and products
   - Glass block is made largely from sand, an abundant raw material
   - Glass block is recyclable
   - Glass block is durable
   - Glass block has low construction waste
3. Visual Comfort
   - Certain glass block products may help avoid glare

How glass block can help:
Credit 1 – up to three points
Glass block can help earn points for good acoustics, use of durable materials, and good indoor environmental quality (no VOC, no mold).

Regional Bonus Credits
Pittsburgh Corning will be happy to help you with glass block solutions that can be used to help fulfill specific regional credits. For example, the new LightWise® Architectural Hurricane Resistant window has been tested to the high-wind and large missile impact requirements of Dade County Florida.

Summary
It is important to recognize the value of a holistic approach to sustainable design, and to weigh social and economic considerations as well as environmental ones. Pittsburgh Corning is committed to helping architects and building planners design and construct projects that are both inspired and sustainable. To learn more about glass block applications and sustainable design, visit:

LEED for New Construction and Major Renovation 2009
Project Scorecard

Pittsburgh Corning Glass Block can contribute to those credits highlighted below:

Yes	?	No			
			Sustainable Sites		**26 Points**
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
			Credit 1	**Site Selection**	1
			Credit 2	**Development Density & Community Connectivity**	5
			Credit 3	**Brownfield Redevelopment**	1
			Credit 4.1	**Alternative Transportation,** Public Transportation Access	6
			Credit 4.2	**Alternative Transportation,** Bicycle Storage & Changing Rooms	1
			Credit 4.3	**Alternative Transportation,** Low-Emitting & Fuel-Efficient Vehicles	3
			Credit 4.4	**Alternative Transportation,** Parking Capacity	2
			Credit 5.1	**Site Development,** Protect or Restore Habitat	1
			Credit 5.2	**Site Development,** Maximize Open Space	1
			Credit 6.1	**Stormwater Design,** Quantity Control	1
			Credit 6.2	**Stormwater Design,** Quality Control	1
			Credit 7.1	**Heat Island Effect,** Non-Roof	1
			Credit 7.2	**Heat Island Effect,** Roof	1
			Credit 8	**Light Pollution Reduction**	1

Yes	?	No			
			Water Efficiency		**10 Points**
			Prereq 1	**Water Use Reduction,** 20% Reduction	Required
			Credit 1.1	**Water Efficient Landscaping,** Reduce by 50%	2
			Credit 1.2	**Water Efficient Landscaping,** No Potable Use or No Irrigation	2
			Credit 2	**Innovative Wastewater Technologies**	2
			Credit 3.1	**Water Use Reduction,** 30% Reduction	2
			Credit 3.2	**Water Use Reduction,** 40% Reduction	2

Yes	?	No			
			Energy & Atmosphere		**35 Points**
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required
Y			Prereq 2	**Minimum Energy Performance:** 10% New Bldgs or 5% Existing Bldg Renovations	Required
Y			Prereq 3	**Fundamental Refrigerant Management**	Required
			Credit 1	**Optimize Energy Performance**	1 to 19
				12% New Buildings or 8% Existing Building Renovations	1
				16% New Buildings or 12% Existing Building Renovations	3
				20% New Buildings or 16% Existing Building Renovations	5
				24% New Buildings or 20% Existing Building Renovations	7
				28% New Buildings or 24% Existing Building Renovations	9
				32% New Buildings or 28% Existing Building Renovations	11
				36% New Buildings or 32% Existing Building Renovations	13
				40% New Buildings or 36% Existing Building Renovations	15
				44% New Buildings or 40% Existing Building Renovations	17
				48% New Buildings or 44% Existing Building Renovations	19
			Credit 2	**On-Site Renewable Energy**	1 to 7
				1% Renewable Energy	1
				5% Renewable Energy	3
				9% Renewable Energy	5
				13% Renewable Energy	7
			Credit 3	**Enhanced Commissioning**	2
			Credit 4	**Enhanced Refrigerant Management**	2
			Credit 5	**Measurement & Verification**	3
			Credit 6	**Green Power**	2

(chart continued on next page)

Yes	?	No			
			Materials & Resources		**14 Points**
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
			Credit 1.1	**Building Reuse,** Maintain 75% of Existing Walls, Floors & Roof	2
			Credit 1.2	**Building Reuse,** Maintain 95% of Existing Walls, Floors & Roof	1
			Credit 1.3	**Building Reuse,** Maintain 50% of Interior Non-Structural Elements	1
			Credit 2.1	**Construction Waste Management,** Divert 50% from Disposal	1
			Credit 2.2	**Construction Waste Management,** Divert 75% from Disposal	1
			Credit 3.1	**Materials Reuse,** 5%	1
			Credit 3.2	**Materials Reuse,** 10%	1
			Credit 4.1	**Recycled Content,** 10% (post-consumer + ½ pre-consumer)	1
			Credit 4.2	**Recycled Content,** 20% (post-consumer + ½ pre-consumer)	1
			Credit 5.1	**Regional Materials,** 10% Extracted, Processed & Manufactured Regionally	1
			Credit 5.2	**Regional Materials,** 20% Extracted, Processed & Manufactured Regionally	1
			Credit 6	**Rapidly Renewable Materials**	1
			Credit 7	**Certified Wood**	1
Yes	?	No			
			Indoor Environmental Quality		**15 Points**
Y			Prereq 1	**Minimum IAQ Performance**	Required
Y			Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	Required
			Credit 1	**Outdoor Air Delivery Monitoring**	1
			Credit 2	**Increased Ventilation**	1
			Credit 3.1	**Construction IAQ Management Plan,** During Construction	1
			Credit 3.2	**Construction IAQ Management Plan,** Before Occupancy	1
			Credit 4.1	**Low-Emitting Materials,** Adhesives & Sealants	1
			Credit 4.2	**Low-Emitting Materials,** Paints & Coatings	1
			Credit 4.3	**Low-Emitting Materials,** Flooring Systems	1
			Credit 4.4	**Low-Emitting Materials,** Composite Wood & Agrifiber Products	1
			Credit 5	**Indoor Chemical & Pollutant Source Control**	1
			Credit 6.1	**Controllability of Systems,** Lighting	1
			Credit 6.2	**Controllability of Systems,** Thermal Comfort	1
			Credit 7.1	**Thermal Comfort,** Design	1
			Credit 7.2	**Thermal Comfort,** Verification	1
			Credit 8.1	**Daylight & Views,** Daylight 75% of Spaces	1
			Credit 8.2	**Daylight & Views,** Views for 90% of Spaces	1
Yes	?	No			
			Innovation & Design Process		**6 Points**
			Credit 1.1	**Innovation In Design:** Provide Specific Title	1
			Credit 1.2	**Innovation in Design:** Provide Specific Title	1
			Credit 1.3	**Innovation In Design:** Provide Specific Title	1
			Credit 1.4	**Innovation in Design:** Provide Specific Title	1
			Credit 1.5	**Innovation in Design:** Provide Specific Title	1
			Credit 2	**LEED® Accredited Professional**	1
Yes	?	No			
			Regional Bonus Credits		**4 Points**
			Credit 1.1	**Region Specific Environmental Priority:** Region Defined	1
			Credit 1.2	**Region Specific Environmental Priority:** Region Defined	1
			Credit 1.3	**Region Specific Environmental Priority:** Region Defined	1
			Credit 1.4	**Region Specific Environmental Priority:** Region Defined	1
Yes	?	No			
			Project Totals (Certification Estimates)		**110 Points**

Not Certified **Certified:** 40-49 points **Silver:** 50-59 points **Gold:** 60-79 points **Platinum:** 80+ points

PITTSBURGH CORNING

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