



CHARLES E. BURCHFIELD (American, 1893-1967),
Untitled [Gothic Window Trees], 1918, watercolor
and pencil on paper, 14 x 10 inches. The Burchfield-
Penney Art Center, Buffalo State College. Gift of
Donald A. and Ann L. Ross, 1986:22

Homage to Burchfield’s Sacred Woods

Green Building Strategies implemented in the design and construction of

The Burchfield Penney Art Center



Charles Burchfield
Afternoon Wind – 1964
Gift of Hodgson, Russ, Andrews, Woods & Goodyear in memory of
Ruth Millet Goodyear

Water Efficient Landscaping

The Problem:
Buffalo has the sunniest and driest summers of any major city in the Northeast. Yet, enough rain falls in the summer to keep the indigenous trees and vegetation green and lush. When non-indigenous species are forced to live in a different climate, they must be kept alive by artificial means. Fresh drinking water is a valuable commodity. Every year millions of gallons of water are used to irrigate plants that cannot tolerate dry summer conditions. Millions of dollars are spent constructing, running and maintaining systems to deliver water to the plants.

What was done here?
The plantings which surround the Burchfield Penney Art Center were selected for their ability to thrive in this climate without the addition of artificial irrigation. A great deal of money was saved initially by not having to install an underground irrigation system. As time goes on, this will save a great deal of money in maintenance and in water bills. More importantly, over time millions of gallons of potable drinking water will be saved.

What can you do?

Selecting plantings that are indigenous to the climate in which you live has many benefits. Not only will you save money on your water bill, but you are also providing a familiar attraction for the native species of animals.



Charles Burchfield
Street Scene 1940-47
Collection of Dallas Museum of Art, Dallas Art Association Purchase

Truckin’, up to Buffalo...

The Problem:
Modern buildings are constructed from a wide variety of materials. All of that material must be trucked to the job site from the place where it was manufactured or extracted. It takes a great deal of fuel to transport materials. Burning all that fuel creates a lot of pollution and a lot of traffic. Not only that, but when material that is available locally is brought in from elsewhere, local vendors lose business and regional economies suffer.

What was done here?
Over 20% of all the materials used in the construction of the Burchfield Penney Art Center was either manufactured or produced within 500 miles of Buffalo. Using local materials not only resulted in fewer trucks traveling fewer miles, but also helped local businesses and local economies to thrive.

What can you do?

Selecting regional materials helps to sustain local businesses and economies, saves fuel and helps cut down on traffic congestion. When planning projects at home, regardless of whether they are small or large, consider using materials that are available close by. When transporting small amounts of materials, be efficient. Pre-plan and limit the number of trips made. By thinking locally, you will be acting globally.



Bicycle
1987.020.025

I want to ride my Bicycle....

The Problem:
Many of us own a bicycle. But would we ride it to work? Suppose you decided to ride your bike to work. Is there a place to lock your bike outside your office? Is there a place at your office where you could you take a quick shower and change into your work clothes? We have become an automobile oriented society. Acres and acres of land are consumed to accommodate the parking of our automobiles.

What was done here?
Out front between the circular drive and the main parking lot is a bike rack where up to ten bicycles may be secured. Inside, right next to the Auditorium is a Unisex Bathroom equipped with a shower and a changing area. People who work at (or even visit) the Burchfield Penney Art Center can ride their bike to the museum; park it in a secure parking area, shower and change and go about their business at the Museum. When they leave, they can change back into their riding gear, return to their bike and ride home.

What can you do?
Well first, if you live close by, consider visiting us again – only ride your bike next time! Advocate for bike racks near where you work or where you shop. Get a basket or some Panniers and try running a few errands on a bike rather than by car. Not only will our air get a little cleaner, but our bodies might get a little trimmer as well.



Administrative Offices
Burchfield Penney Art Center
Gwathmey Siegel
& Associates Architects
2008

Rooms with a view

The Problem:

Although at first glance you might think that all of our modern glass office buildings are full of natural daylight, the fact is they are not. Often private offices and a corridor separate the glass exterior wall from the remainder of the office floor. If you work on a high floor overlooking the city and do not work in a perimeter office, your workspace may as well be located in the basement. Studies continue to show that people who work in offices which afford them daylight and views are overall happier and healthier individuals.

What was done here?

The charge of most museums including the Burchfield Penney Art Center is to not only provide a venue to view artwork, but also to protect and preserve artwork from damaging environmental conditions such as variable humidity and sunlight. Whereas daylight in the gallery spaces here is greatly minimized to protect the artwork, wherever possible the building design provided for the introduction of daylight and views to the building occupants. Shown above is an image taken in the Administrative Office area of the museum. All of the perimeter offices have large windows affording daylight and views out to the campus. A glass wall at the front of each office allows the daylight and the view to be shared by the interior workspaces as well.

What a great idea! How come nobody thought of that before?

Does the idea of daylight and views sound like a new idea? Think again. Throughout his long career Frank Lloyd Wright worked to bring as sense of light and space to each of the buildings he designed. At the nearby Martin House, spaces between structural piers are filled with continuous ribbons of glass windows which afford prodigious and somewhat unexpected views out from the interior. Wright designed the Martin house over 100 years ago in 1905. Visit the Martin House to see firsthand Wright's earliest skillful efforts at handling daylight and views in his residential buildings.

What can we all do?

In the planning of new office buildings, or the interior renovation of offices within existing buildings, opportunities to exploit natural daylight and views beyond merely the perimeter offices should be explored. Design firms versed in Green Building technologies can assist in these planning efforts.



Continuous Ribbons of glass
windows Darwin D. Martin
House
Frank Lloyd Wright, Architect
1905



Charles Burchfield
The Ravine – 1916
Gift of Tops Markets, 1976
1976:36

Scoured Streambeds

The Problem:

Most of the Storm runoff in this part of Buffalo runs straight into Scajaquada Creek. During a heavy downpour, the creek is deluged with an unnaturally huge volume of water from storm drain outlets. As this rush of water surges down the creek, the creek bed and shore are scoured away. Fish, insect larvae, crustaceans, stream dwelling plants, and the soil bank are all swept downstream by the rush of water into the into the Niagara River. The stream is left lifeless.

So, what was done here?

The Burchfield Penney Art Center took steps to help reduce streambed scouring. Buried beneath the parking where you parked your car are huge concrete holding tanks. When a storm occurs, all of the roof water and site storm drainage flows into these tanks through a system of pipes. One smaller pipe slowly releases the stored water out into the city storm system and finally into Scajaquada Creek. The accumulated volume from the deluge of water is distributed slowly over a longer period of time.

Does this Help?

Yes! Streambed scouring is reduced. Soil remains on the riverbank. Our shipping channels silt up less and most importantly, the ecosystem of the stream is allowed to take hold and thrive.

What else can we do?

The more pervious soil we replace with buildings, streets and parking lots, the more Stormwater we need to collect and send into our nearby streams. If in the future all buildings implemented measures such as those used here at the Burchfield Penney Art Center to control storm water, the ecosystems of our small streams such as Scajaquada Creek would again flourish.

Charles Burchfield was a great lover of nature and the natural world. We are confident that he would be pleased to know that the museum dedicated to his work put forth great efforts to preserve the natural world he so cared about.



White EPDM roof
The Burchfield Penney Art Center

If my roof is white, how come it's green?

Heat Island Effect

The term "heat island" refers to urban air and surface temperatures that are higher than nearby rural areas. Many U.S. cities and suburbs have air temperatures up to 10°F (5.6°C) warmer than the surrounding natural land cover.

What causes this?

Dark surfaces absorb, retain and re-radiate energy more than light surfaces. As more and more natural land cover is replaced by dark impervious material such as blacktop, or black roofs more and more heat is collected and re-radiated into the local atmosphere. This re-radiated heat produces pockets or "islands" of unnaturally heated air. These heat Islands can alter the local environment enough to have an adverse effect on local plant and animal life.

What was done here?

The measure of a material's ability to radiate absorbed energy is called Emissivity. Green practices mandate that roof materials with low Emissivity be used to help minimize the heat island effect. At Burchfield Penney Art Center the 42,000 square foot flat roof is covered with a white EPDM membrane which has a very low emissivity. The white roof reflects the high summer sun and remains cool. Not only are heat islands reduced, but the summertime heat load on the building is also reduced. This reduces the energy costs spent air conditioning the building. Having a white roof not only helps you to be green, but it just might help you stay in the green as well.

Are there other ways?

Consider the use of Energy Star compliant (highly reflective) roof materials when planning new projects. For some projects, planted roofs may be another alternative. If your roof cannot accommodate planting or low emissivity materials, consider look into low emissivity paving products for parking areas and walks around the building to help reduce heat islands.



Bert & Rita Circa 1919

Couldn't we just charge it?

Electric Vehicles:

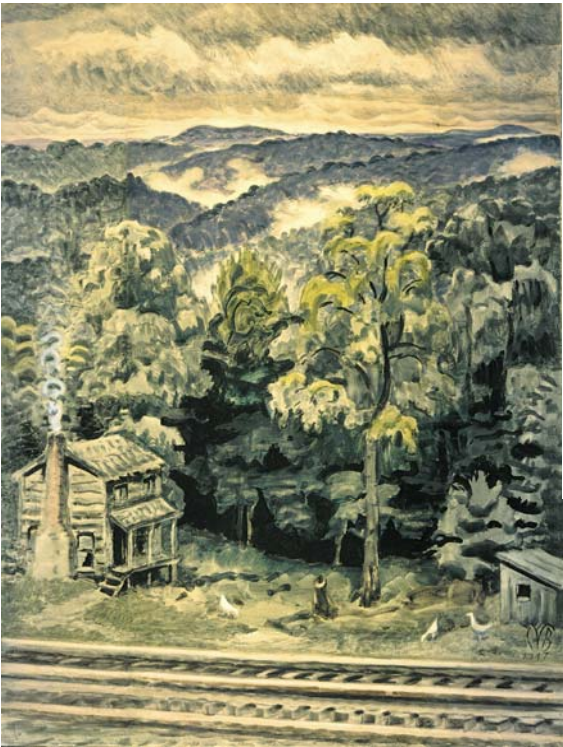
It probably comes as no surprise that the photograph above was taken a long time ago. What might surprise you is that the car in the photograph is powered by electricity! The year is 1919, and that Charles Burchfield's Wife Rita at the wheel of her electric car. Nearly 90 years later we are finally rediscovering the electric car.

What was done here?

In the southeast corner of the Burchfield Penney Art Center parking lot are three parking spaces reserved for alternative fuel vehicles. Each space is equipped with its own electrical outlet. Visitors to the Burchfield Penney Art Center who drive electric vehicles can conveniently recharge their vehicles' batteries while they visit the building. In addition, Buffalo State College owns a fleet of electric vehicles which can also be conveniently recharged while visiting this building.

What can you do?

When shopping for your next car, consider an all-electric or hybrid technology vehicle. Advocate for increased research and development of hybrid technology vehicles.



Charles Burchfield
Hill Country at Twilight – 1939-47
Given in honor of Walter J. Tuohy and his wife, Mary, by his daughter Mary Ann (Anonymous)
1991:55

Good Wood

The Forest Stewardship Council (FSC)

The Forest Stewardship Council (FSC) is an independent, non-governmental, not for profit organization established to promote the responsible management of the world's forests. Products carrying the FSC label are independently certified to assure consumers that they come from forests that are managed to meet the social, economic and ecological needs of present and future generations.

What was done here?

All of the wood products that went into the construction of the Burchfield Penney Art Center were certified by the Forest Stewardship Council. That means that all of the hardwood, veneers, plywood, etc. used in the building has been certified to have originated in managed forests. During construction the tracking of FSC Certified wood from the forest to the mill to the factory to the finished building was carefully monitored through meticulous documentation including Chain of Custody letters which ensure that no non-FSC-certified wood entered the job site.

Does this help?

Yes! Managed forests strive to balance our need for wood products while maintaining healthy forests. A healthy forest thrives. It is not lumbered in excess of its own ability to regenerate itself. There is less downed timber drying out on the forest floor ready to ignite and burn should a forest fire occur. The healthy forest exhibits greater biodiversity. The healthy forest and the diversity of life within it help ensure the prosperity of communities who depend on the forest for their own survival.



Charles Burchfield
The Four Seasons 1949-60
Collection of the Kramer Art Museum and Kinkaid Pavilion,
University of Illinois

The Conservation of Energy

Energy

Data from the US Energy Information Administration illustrates that buildings are responsible for 48% of all energy consumption and Greenhouse Gas emissions annually. That is almost half. Globally the percentage is even greater. Seventy-six percent (76%) of all power plant-generated electricity is used just to operate buildings*. Increased energy consumption means increased energy production. Increased production of energy can lead directly to increased production of greenhouse gasses which lead directly to an increase in global warming.

*Source: [www. Architecture2030.org](http://www.Architecture2030.org)

Commissioning the Work

At the Burchfield Penney Art Center, all complex environmental control systems are optimized through a process of a series of reviews called Commissioning. During design and construction, building mechanical systems are continuously tested and evaluated by a building Commissioning Agent to ensure that the systems operate at absolute peak efficiency in all seasons of the year.

Does this help?

Yes! By ensuring that all building mechanical systems are operating at peak efficiency, the amount energy consumed by the building is reduced. Reduction in a buildings consumption of energy results in less need to produce energy.



Charles Burchfield
Windswept Sky – 1916
Gift of Tony Sisti, 1979
1979:31

Maintaining the Environment while Maintaining the Environment

The Ozone Layer

The Stratosphere (the atmospheric layer lying between 20-40km above the earth's surface) contains approximately 90% of the Ozone in our atmosphere. Ozone is created by the action of solar ultraviolet light on oxygen. Though Ozone only comprise about 2 to 8 parts per million of all gasses in the Stratosphere, all life on earth depends on it being there.

What does the Ozone Layer do?

The ozone layer absorbs the most harmful wavelengths of ultraviolet light and thus prevents them from passing through the Earth's atmosphere. Ultraviolet light is outside of the spectrum of visible light. It cannot be seen, but its effects can be felt. It is ultraviolet light that can give you severe sunburn at the beach even on a cloudy day.

Ozone Depletion

Buildings today feature highly complex mechanical systems to control the interior environment. Some of these systems utilize chemicals which if released into the earth's atmosphere can break down the ozone layer which shields the earth from harmful radiation. Maintaining consistent temperature and humidity levels is especially important in an Art Museum such as this in order to better preserve the artwork on display or in storage. All of the refrigerants used in the complex heating and cooling systems at the Burchfield Penney Art Center are free of Ozone depleting chemicals. So not only is the buildings interior environment maintained, but also the earth's environment as well.



Charles Burchfield
Walking Man – 1918
Gift of Tony Sisti, 1979
1979:33

Tread Lightly

Development Density

Whenever a building is built, a little bit of nature is displaced by its footprint. When buildings are built far away from urban areas, roads must be built to connect these buildings to urban centers. This displaces even more of nature. By channeling development into urban areas rather than into suburban open space such as forests, fields and farmland, impact on the earth is mitigated.

A Museum Corridor

In addition to being located on the Buffalo State College Campus, the Burchfield Penney Art Center is also located a short distance from the Albright Knox Gallery, the Olmstead Park Complex, the Richardson Complex and the Buffalo and Erie County Historical Society. By virtue of its location, the Burchfield Penney Art Center adds to the cultural density of the area and helps reinforce the notion of a Museum Corridor. The close proximity to these other cultural centers encourages walking versus driving from one venue to another.

Promoting Business

The creation of a Museum Corridor also helps to promote other businesses in the area. A short distance from the Burchfield Penney Art Center, Elmwood Avenue transitions into Elmwood Village – a lively mix of shops, restaurants and houses.



Charles Burchfield
Still Life-Scrap Iron 1929
Frank K.M. Rehn Galleries, New York, NY; Lawrence A. Fleishman;
James Goodman Gallery, Buffalo, NY; Charles Rand Penney
1994:001:051

Waste Not

Trash talk
Although Americans represent only about 5% of the world's population, we generate 40% of the world's waste. Every day, we dispose of approximately 200 million tons of trash. Less than one-quarter of this material is recycled. The rest is sent to landfills or incinerators.

Recycled Content
A wide variety of materials are used in the construction of today's modern buildings. It takes a great deal of energy to mine, process, assemble and deliver all of this material. More than 20% of all of the materials used in the construction of the Burchfield Penney Art Center consists of recycled material. Nearly 100% of the U.S. steel used in the building is made from recycled steel. The bathroom stalls are made of recycled plastic. Off-cuts from the manufacturing of the zinc panels as well as any miss-cut or damaged zinc panels are returned to the smelter with zero waste. A large percentage of glass including clear window glass and fiberglass insulation is made from recycled glass.

Does this help?
Yes. Recycling our waste into new building materials helps keep that waste out of landfills. Recycling steel helps alleviate the need to mine and process iron ore into steel which helps save energy.



Charles Burchfield
Rainy Day 1935

Spreading the Word

About this Brochure:

We hope you enjoyed your visit to the Burchfield Penney Art Center. In addition we hope you have found this brochure informative and educational. We hope you will share what you have learned about LEED and Green Buildings with others. We hope you will encourage others to come and visit the Burchfield Penney Art Center so that they may experience this Green Building firsthand.

The concept and layout of this educational brochure was developed by Gwathmey Siegel & Associates, Architects LLC of New York City with LEED technical assistance by Brightworks, LLC of Portland, Oregon. This brochure was produced by Gwathmey Siegel & Associates Architects, LLC and The Burchfield Penney Art Center as part of their LEED Education Program. For this effort, USGBC granted the project one Innovation point towards their LEED silver Certification.

If you have additional questions regarding the strategies implemented here at the Burchfield Penney Art Center, please ask one of our staff members. If you would like to see and learn more about the artist Charles Burchfield, be sure to visit The Charles E. Burchfield Nature & Art Center located at 2001 Union Road in West Seneca, NY.
(716) 677-4843
<http://www.thebnac.org/home.html>

If you would like to learn more about LEED, Green Buildings, Global Warming or other related issues be sure to visit the sites listed below.

Architecture 2030:
<http://www.architecture2030.org>

Forest Stewardship Council:
<http://www.fscus.org/>
Greenbuildings NYC:
<http://www.greenbuildingsnyc.com/>

Natural Resources Defense Council:
<http://www.nrdc.org/buildinggreen/leed.asp>

United States Green Building Council:
<http://www.USGBC.org>



Gwathmey Siegel & Associates, Architects
Burchfield Penney Art Center – View from Southeast
Image: S. Sudak, 2008

The Burchfield Penney Art Center

About the Burchfield Penney Art Center:

In 1966 Charles Burchfield inspired the creation of a museum within Rockwell Hall on the campus of Buffalo State College. Over the intervening years, significant acquisitions of Burchfield's work as well as a need for increased exhibition, storage and research space resulted in the desire for a new, larger facility.

In 2000 Gwathmey Siegel & Associates Architects of New York City was selected as the Architect and the design of the new Art Center commenced. With L.P. Ciminelli acting as Construction Managers, construction began in 2006 and the new Burchfield Penney Art Center opened its doors to the public in the fall of 2008.

Formally, the new 84,000 square foot Art Center building presents a modern counterpoint to the surrounding architecture, combining geometric forms, patterns and materials in a park-like pedestrian setting.

Functionally the new Art Center not only accommodates the impressive collection of works by Charles Burchfield, but also, serves as a grand venue for all Western New York artists to exhibit their work. In addition the Art Center functions as an academic learning center for the studies of art preservation and art conservation.

LEED Efforts

During design and construction the Owner, A/E and Construction teams worked diligently to create an environmentally responsible museum space. The building envelope was designed for increased energy efficiency and a white roof was incorporated to reduce the urban heat island effect. Water use was aggressively minimized including a landscape palette that requires no water for irrigation once established, dual-flush toilets and waterless urinals. Overall, these strategies contributed to over 40% water savings when compared to code compliant water fixtures. The building also incorporated increased ventilation, thermal comfort and CO2 monitoring in all regularly occupied building spaces.

All of the strategies listed above as well as those discussed in this brochure earn LEED credits. Early in the project, A target number of credits was established which would determine the anticipated level of LEED Certification for the Art Center building. Originally the building was targeting the minimum 26 credits required for LEED Certified Level. However, thanks to extraordinary efforts put forth by the Owner, A/E and Construction teams as well as The Burchfield Penney Art Center surpassed its targeted goal to end with a total of 36 earned credits.

In the spring of 2009, Burchfield Penney Art Center was awarded LEED Silver Certification by the United States Green Building Council in – the first art museum in New York State to do so.

The Team:

- Owner:** State University College at Buffalo - Buffalo, NY
- Architect:** Gwathmey Siegel & Associates Architects - New York, NY
- Structural Engineer:** Ysrael Seinuk, PC - New York, NY
- MEP Engineers:** Kallen & Lemelson. LLP - New York, NY
- Lighting Consultant:** HDLC Lighting - New York, NY
- A/V Acoustical Engineering:** HMBA - New York, NY
- Security Consultant:** Ducibella, Venter & Santore – North Haven, CT
- Signage/ Graphics Consultant:** Spagnola Associates - New York, NY
- Food Service Consultant:** Tallinger Associates, Inc. - Buffalo, NY
- Landscape Architects:** Semmens Associates, PC – Millwood, NY
- Retail Store Design:** Thinking Outside the Square - Buffalo, NY
- LEED Consultant:** Brightworks, LLC – Portland, OR
- Specifications:** Construction Specifications – Morganville, NJ
- Construction Managers:** LP Ciminelli - Buffalo, NY
- Commissioning Agent:** C.J Brown Energy, PC - Buffalo, NY

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