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## Welcome Center

The first LEED-certified visitor center in a public garden

- Waste heat used to melt snow on pathways
- Parking grid for 150 cars on lawn – grass instead of asphalt
- Eliminated irrigation system saving 2.1 million gallons of water per year
- Fritted glass dome negates solar heat gain
- Most of the building is underground – earth bermed on three sides
- Features a 3-Star Green Restaurant Certified Café
- Features a green roof
- Drought resistant, organically managed lawn reduces water consumption



© Lofty Views

## Café Phipps

A healthy, sustainable dining experience, named a “Best Museum Restaurant” in the U.S. by Food & Wine Magazine

- No junk food – no soda = over 24,000 glasses of soda not served per year
- No bottled water – free filtered water saves thousands of bottles per year
- Composts all pre- and post-consumer waste, about 500,000 pounds per year
- 3 Star Green Restaurant certified
- 53,588 cups composted and kept from entering waste stream per year
- Showcases food grown locally, organically and on-site
- Hormone-, antibiotic- and nitrate-free meats
- Vegan and vegetarian options daily
- The “Dirty Dozen” fruits and vegetables are always organic
- Cage-free eggs



© Adam Milliron



For over 125 years, Phipps Conservatory and Botanical Gardens has showcased nature’s wonders. Today our history of excellence provides a platform for exploring the intersection of the built and natural worlds and how it relates to both human and environmental wellness.

We approach this work by showing that people, plants, health, planet and beauty are all interconnected and that sustainable actions — from constructing the world’s greenest building to planting a home vegetable garden — are the key to ensuring a healthy future for all life on Earth.

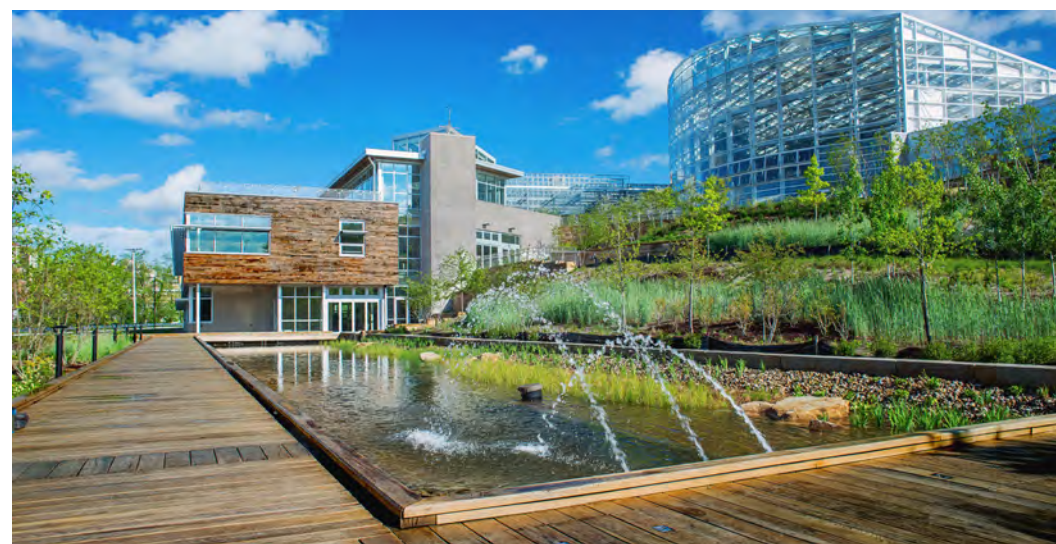
## Reducing CO2 Emissions

Setting a new standard

- Phipps reduced CO2 emissions by 56% per square foot from 2005 to 2016, far exceeding the goals set by the Paris Agreement for 2025.
- All new building projects are energy-efficient and/or LEED certified or higher since 2005.
- Living Building Challenge (including net-zero energy) has been used as Phipps’ standard since 2007.
- 100% of campus electricity is produced on-site with solar and wind power or by purchasing renewable energy credits.
- We purchase offsets for 100% of the carbon produced from heating our buildings.



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## Research

Understanding the connection between human and environmental health

- Phipps Research Institute for Biophilia and Science Engagement conducts collaborative research with local universities on sustainability and human and environmental health.
- The Botany in Action fellowship program supports Ph.D. students conducting research internationally.
- Phipps helps lead the Pittsburgh Biophilic Cities Initiative.
- The One Health One Planet™ symposium unites scientists, professionals, community members, educators and students to explore environmental, human and animal health.



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© Annie O'Neill

# GREEN HEALTHY SPACES

Built for Wellness and Inspiration

The Phipps campus encompasses internationally recognized glasshouses and extraordinary buildings that demonstrate the most energy-efficient and healthy built environments in the world.

## Outreach in the Community

Sending the message beyond our front doors

- Homegrown, a program dedicated to increasing access to healthy, fresh produce, installed over 235 vegetable gardens since 2013 in underserved neighborhoods and expects to install an additional 150 gardens by 2022.
- Let’s Move Pittsburgh, a collaborative effort to improve the wellness of children, offers free community events, digital resources and programming to help families make healthy choices.
- Studio Phipps, which helps commercial clients identify opportunities to integrate their own natural and built environments, specializes in working with hospitals, businesses and schools.
- Biophilia: Pittsburgh, a network of creative minds, meets monthly at Phipps to find ways to strengthen the bond between people and the natural world.
- Phipps Sustainable Landcare, an education program and standard for organic, sustainable design and maintenance, certifies lawn and landscape professionals.
- Make the Switch at Phipps: Green Power Drive offers guests a free one-year membership when they switch their home electricity generator to 100% green power during their conservatory visit, reaching over 4,200 families since 2017.



© Phipps Staff



© Cory Doman



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## Education for All

Bringing knowledge and inspiration to our region and beyond

- Presentations, docent-led tours and dynamic science education programs reinforce the importance of human-environment connections, with emphasis on urban green space and gardening, healthy food initiatives and sustainable building practices.
- Programs connect themes of sustainable living to positive actions visitors can take.
- Integrated Pest Management (IPM) program combines an array of methods to control pests, minimizing pesticide use and choosing the least toxic pesticides as a last resort.
- Online resources including Easy Steps with Big Impact for Climate Change, Eco-Friendly Pest Management Guide, Top 10 Sustainable Plants List, Green Building Toolkit Series and more provide expertise from Phipps staff on how guests can have a positive impact in their daily lives.
- 5,000 adults and 40,000 family groups attend Phipps education programs each year.



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© Lofty Views



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### Center for Sustainable Landscapes

One of the greenest buildings on Earth, open to visitors year round

- A site for research, education and administration
- Three-floor, 24,350-square foot building
- Produces all of its own renewable energy on-site from the sun and wind
- Captures, treats and reuses all water on-site
- Generates enough electricity annually to power 12 homes
- Uses 75% less energy than a typical office building (EUI=18)
- Manages 3.25 million gallons of storm water per year, enough to fill five Olympic swimming pools
- Sanitary water cleaned by constructed wetlands = 79,000 gallons per year
- Uses 90% less potable water than a typical office building
- Features over 100 native plant species
- Provides food sources and shelter for local wildlife, including turtles and fish that live in the campus' 4,000-square-foot rainwater-capture lagoon
- Houses a dedicated classroom for Phipps' science education programs for over 5,000 children per year
- Atrium and green roof are fully integrated into the visitor experience at Phipps, which attracts nearly half a million guests a year
- Awarded the four highest green building certifications – the only facility to do so:
  - Living Building Challenge™ – Net-Zero Energy certified
  - First WELL™ Platinum Building
  - Highest number of points for LEED® Platinum v2.2
  - First SITES™ Platinum Certification
- Honored with more than 80 prestigious local, national and international awards

### Exhibit Staging Center

The greenest building in the most unexpected space

- A former public works building rehabilitated to be a building of groundbreaking efficiency
- Designed to achieve Living Building Challenge, LEED® Platinum and WELL™ Platinum certifications
- Prioritizes the health and well-being of all staff members; features a yoga room, fitness room and meditation room for staff to encourage mental and physical wellness
- Primary occupants are maintenance staff and grounds crew, a group whose well-being is often overlooked
- Visitors can get a unique behind-the-scenes look at the Conservatory's flower shows as they watch display props being constructed in real time
- Uses geothermal wells to efficiently heat and cool the building by harnessing the natural energy from the earth's consistent 55-degree internal temperatures
- Photovoltaic solar panels on the roof provide energy to power the building
- NanaWalls are used to increase sunlight and air flow on warm days
- Conventional buildings convert the direct current (DC) electricity generated by solar panels to alternating current (AC) electricity, and then back to DC again to power LED light bulbs, wasting 10 – 15% of the energy. The ESC breaks this wasteful convention by using direct DC from the solar panels and batteries to all of the lights in the building
- Building materials are free from Living Building Red List toxic chemicals
- Biophilic design elements and art, including a vegetative living wall, celebrate the bonds between humans and nature, adding to the healthy impact of the building on occupants and guests
- A green roof over the vestibule helps to manage storm water

### Nature Lab at Phipps

A new modular learning facility, expanding Phipps' capacity for children's programs

- Awarded Living Building Challenge Petal Certification for achieving five imperatives: Place, Water, Energy, Equity and Beauty
- Net-zero energy – uses sun for power
- Rain water collected for classroom use and toilet flush water
- All mechanical, electrical and plumbing systems exposed, making the classroom an interactive learning tool
- Sanitary water cleaned by a constructed wetland
- Constructed from non-toxic materials



### Production Greenhouse

The first and only greenhouse in the world to achieve LEED certification (Platinum EBOM), managed by state-of-the-art computer controls to create 16 different growing climates

- Open roof system eliminates greenhouse effect
- Operates 39% more efficiently than similar greenhouses



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### Tropical Forest Conservatory

This revolutionary glasshouse with an unconventional design that eliminated the greenhouse effect was the most energy efficient conservatory when it opened and has been toured by over 4 million guests to date

- 100% passively cooled – always cooler inside than out in warm weather
- 1,800 feet of underground earth tubes provide free air-conditioning
- Massive roof venting releases hot air
- Two stage shading system – maximizes air flow



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## The Green Heart of Pittsburgh Connecting Human and Environmental Health

2005

Welcome Center Opens



2006

Welcome Center LEED Silver Certified

2006

Production Greenhouses Open

2006

Tropical Forest Conservatory Opens

2009

Pittsburgh G20 Summit



2009

Café Phipps 3-Star Green Restaurant Certified

2010

Individual Leadership Award for an NGO U.S. Green Building Council (USGBC)



2011

Zero Waste Pittsburgh Certified

2012

Production Greenhouses LEED Platinum EBOM Certified



2012

Production Greenhouses LEED Platinum EBOM Certified



2012

Living Building Hero Leadership Award International Living Future Institute (ILFI)

2012

Center for Sustainable Landscapes (CSL) Opens



2013

CSL LEED Platinum Certified

2013

CSL 4 Star Sustainable SITES Certified



2013

CSL 4 Star Sustainable SITES Certified



2014

Net-Zero Energy Certified

2014

CSL WELL Building Platinum Certified



2014

CSL WELL Building Platinum Certified

2014

Global Best Green Project Award Engineering News-Record

2014

Catalyst Award Carnegie Science Awards

2014

Legacy Award Green Building Alliance

2014

Innovative Star of Energy Efficiency Award Alliance to Save Energy

2015

CSL Living Building Challenge Certified



2015

CSL Living Building Challenge Certified

2016

Top Ten Award The American Institute of Architects Committee on the Environment (AIA COTE)

2017

Nature Lab at Phipps Living Building Challenge Petal Certified

2019

CSL SITES Platinum Certified



2019

Exhibit Staging Center (ESC) Opens



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