

Phipps Conservatory and Botanical Gardens – From Treasured Icon to Regenerative Leader



Constructed in 1893 as a gift to Pittsburgh by steel magnate Henry Phipps at the height of the last industrial revolution, [Phipps Conservatory and Botanical Gardens](#) emerged as a manifestation of the idea that there was no limit to the amount of resources we used or pollution we produce, and that people would ultimately conquer nature. Following privatization in 1993, Phipps evolved from this extractive view of the world to a less-bad view, with an emphasis on reducing harm; this resulted in the design and construction in 2005 of the first LEED® certified visitor center in a public garden, LEED Platinum production greenhouses, and one of the world’s most energy-efficient conservatories.

For further expansion plans, Phipps initially pivoted to a do-good view, placing an emphasis on producing more energy than we consume and providing a healthy place for staff, before ultimately embracing a regenerative view, in which we see ourselves in an interconnected relationship with everyone and everything on the planet. This change in perspective shaped the construction of three of the greenest buildings in the world: the Center for Sustainable Landscapes (2012) which is the world’s only building to achieve seven of the highest green construction certifications; the Nature Lab at Phipps (2015), a net-positive classroom built with non-toxic materials; and the Exhibit Staging Center (ESC, 2019) a net-positive energy adaptive reuse of an old public works building. Pending the ESC’s successful completion of the Living Building Challenge’s performance period, Phipps will host three Living Future Institute-certified buildings, each representing a unique construction type — new, modular and adaptive reuse — and demonstrating the potential of regenerative thinking and design.

In creating places that are good for people and the planet, the Phipps team discovered the need to go beyond buildings and lead by example and initiated a holistic rethinking of how we interact with the public and the world. Today, regenerative values influence every facet of Phipps, from buildings and operational practices to programming. Read on to learn more of what Phipps has done to model best-in-class regenerative practices in the built environment and beyond.

Center for Sustainable Landscapes – 2012

Phipps' education, research and administration facility is the first and only building to meet seven of the highest green certifications.



LIVING
BUILDING
CHALLENGE



2019
SITES PLATINUM

BREEAM® USA
delivered by bre

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- World's only building to achieve **Living Building Challenge, LEED Platinum, WELL Building Platinum, Zero Energy Certification, SITES Platinum, Fitwel 3 Star and BREEAM Outstanding In-Use.**
- **Net-Positive Energy** -new construction - three-floor, 24,350-square foot building
- Produces all of its own renewable energy on-site from the sun and wind
- Uses 14 geothermal wells to efficiently heat and cool the building
- Uses 75% less energy than a typical office building (EUI=18)
- Generates enough electricity annually to power 12 homes
- Captures, treats and reuses all sanitary and rainwater on-site with 80,000 gallons of underground storage.
- Manages 3.25 million gallons of storm water yearly, enough for 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
- First WELL Platinum and first SITES Platinum certified building, and first BREEAM Outstanding building in the U.S.
- Features over 100 native plant species
- A former Brownfield site now provides food sources and shelter for local wildlife, including frogs and fish that live in the campus' 4,000-square-foot rainwater-capture lagoon

Nature Lab at Phipps – 2015

Inspired by a concern that modular classrooms are unhealthy places for children, the Nature Lab maximizes student wellness and potential, showing what healthy spaces look like for young people.



- Awarded **Living Building Challenge Petal Certification** for achieving five imperatives: Place, Water, Energy, Equity and Beauty
- **Net-positive energy** – modular construction
- Powered by solar panels on the roof
- One of the nation's first sustainable, modular classroom spaces
- Emphasizes natural daylight and ventilation
- Rainwater collected for classroom use and toilet flush water; sanitary water cleaned by a constructed wetland; rain garden collects excess rainwater
- Mechanical, electrical and plumbing systems exposed for interactive learning
- Constructed from non-toxic materials
- Structural Insulated Panels which provide R-49 ceiling and R-40 wall insulation
- Approximately 260,000 modular classrooms are in use across the country, and they are frequently cited for the potential health risks they pose due to inadequate ventilation, prominent levels of toxins, excess moisture and inadequate lighting.
- As a home of Phipps' science education programs — along with internship classes for high school students, field trips, citizen science initiatives, and professional development opportunities for teachers — the Nature Lab reimagines what healthy learning spaces can look like for children

Exhibit Staging Center – 2018

A 1960s public works building rehabilitated to be a building of groundbreaking efficiency, the Exhibit Staging Center proves that any building can be one of the greenest and healthiest buildings in the world.



- **Living Building Challenge** in pursuit; **LEED® Platinum** achieved April 2022; **WELL Platinum** achieved June 2021
- **Net-positive Energy** – adaptive reuse of an existing building - solar panels on the roof power the building
- Uses direct DC current from solar panels and batteries to efficiently power all lights
- Uses geothermal wells to efficiently heat and cool the building by harnessing the natural energy from the earth's consistent 55-degree internal temperatures
- Nana Walls are used to increase sunlight and air flow on warm days
- 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 and grounds crew, whose well-being is often overlooked
- Building materials are free from Living Building Red List toxic chemicals
- Biophilic design elements and art, including a vegetative living wall, add to the healthy impact of the building on occupants and guests
- Green roof over the vestibule helps to manage storm water

Highlights from Our Journey

Phipps Conservatory and Botanical Gardens didn't become a worldwide green leader overnight. Here are some of the milestones that shaped our comprehensive approach to addressing climate change.



- 2005 [Welcome Center](#) opens, first LEED-certified visitor center in a public garden
Switched to 100% renewable electricity campus-wide
Organic lawn care and reduced irrigation
- 2006 First LEED-certified [production greenhouses](#) (Platinum EBOM)
[Tropical Forest Conservatory](#) opens among most energy-efficient in the world
Plastic disposable café service ware eliminated
All food waste composted
- 2009 Disposable bottled water eliminated
- 2010 Begin to annually offset all carbon produced from heating our buildings
- 2011 Soda, junk food and factory farm meat eliminated from café
- 2012 [Center for Sustainable Landscapes](#) opens – Our first Net-positive Energy building
- 2015 [Nature Lab](#) opens, a Net-positive Energy modular classroom
- 2015 Divested from fossil fuel investments
- 2017 Investment portfolio shifted to socially responsible investments
- 2018 [Exhibit Staging Center](#) opens, a Net-positive Energy adaptive reuse of existing building
- 2019 More than 70% of café menu now vegetarian or vegan
- 2020 Launched [The Climate Toolkit](#) to help gardens, museums and zoos address climate change
- 2021 WELL Health-Safety Rating achieved for entire Oakland campus
- 2023 Commissioned a plan for a 40% reduction in fossil fuel derived steam heating

Awards

For its groundbreaking efforts in sustainable leadership, Phipps is the recipient of more than 80 awards.

2022

Gold Award, Urban Design and Architecture Awards
Architecture Press Release

2021

Top Project Award
Environment + Energy Leader

BREEAM Award, Commercial Projects – In-Use
BRE Global

Champion for Sustainability
Carnegie Science Awards

Second Award, Global Future Design Awards
Architecture Press Release

Finalist, Global Energy Awards
S&P Global Platts

Shortlist, Environment Award
Energy Institute

2020

Gold Award, Project Leadership Awards
Construction Owners Association of America

Governor's Award for Environmental Excellence
Pennsylvania Department of Environmental Protection

Sustainability Excellence Award, Programming Category
American Alliance of Museums

Intensive Commercial / Industrial / Institutional Award of Excellence
Green Roofs for Healthy Cities

Initiative Award, Sustainability in Historic Preservation
Preservation Pennsylvania

Second Award, World Design Awards
The Architecture Community

Award of Merit, MidAtlantic Best Projects
Engineering News-Record

Finalist, Building Excellence Awards
Master Builders' Association of Western Pennsylvania

Environmental Initiative Award
The SEAL Awards

2019

Metamorphosis Award, Adaptive Reuse
Retrofit Magazine

Honorable Mention, Cultural (Built)
Re-Thinking the Future

Workplace Wellness Award
Pittsburgh Business Times

2018

Award of Excellence, General Design
PA DE ASLA

Sustainable Tourism Award, Major Tourist Attraction
Skål International

25th Anniversary Award
Green Building Alliance

Sustainability Leadership Award
Business Intelligence Group

Beyond Green™ High-Performance Building and Community Award
National Institute of Building Sciences

2017

Honorable Mention, Stephen R. Kellert Biophilic Design Award
International Living Future Institute

Leadership in Green Power Education
United States Environmental Protection Agency and Center for Resource Solutions

Katherine Coffey Award
Mid-Atlantic Association of Museums

2016

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

Operational Sustainability Award
American Public Gardens Association

Regenerative Business Prize for a Not-for-Profit
The Regenerative Business Alliance

2015

Award of Merit, Beyond Green High Performance Building Awards
Sustainable Buildings Industry Council, Washington, D.C.

Sustainability Leadership Award
Pennsylvania Resources Council

Green Power Partner of the Year
United States Environmental Protection Agency

Finalist, Place by Design Awards
SXSW Eco

Clean Water Star Award
Allegheny County Sanitary Authority (ALCOSAN)

Winner, EBie Awards
Urban Green Council

Sustainability Champion Award
The Duquesne University Center for Green Industries and Sustainable Business Growth

Designer of the Year, International Landscape Design Awards
Association of Professional Landscape Designers

2014

Legacy Award
Green Building Alliance

Who's Who in Energy
Pittsburgh Business Times

Trustee Award
Audubon Society of Western Pennsylvania

Honorable Mention, Public Building Built
Re-Thinking the Future

Sustainability Excellence Award, Programming Category
American Alliance of Museums

Innovative Star of Energy Efficiency
Alliance to Save Energy

Global Best Project Award, Green Project Category
Engineering News-Record

Buildy Award

Mid-Atlantic Association of Museums

Catalyst Award
Carnegie Science Award

2013

Sustainable Project of the Year
Engineers' Society of Western Pennsylvania

Civil Engineering Sustainability Award
American Society of Civil Engineers, Pittsburgh Section

Green Design Award
USGlass Magazine

Design & Build with FSC Award
Forest Stewardship Council U.S.

Finalist, Best of the Year Awards
Interior Design Magazine

Long List, Sustainable Building of the Year
World Architecture News

Green Design Citation
American Institute of Architects, Pittsburgh Chapter

Who's Who in Energy
Pittsburgh Business Times

Green Good Design™ Award, Nonprofit Category
The European Center for Architecture Art Design and Urban Studies; The Chicago Athenaeum; Museum of Architecture and Design

Honorable Mention, Inspiration Awards
Contract Magazine

Excellence in Design Award
EDC Magazine

Energy Leadership Award
Pittsburgh Business Times

2012

Enviro-Star Award
Allegheny County Health Department

Bronze Level of Honor, Most Sustainable NGO Category
International Green Awards

Foodservice Sustainability Award
Hobart Center for Foodservice Sustainability

Living Building Challenge™ Heroes Award
International Living Future Institute™

Award of Merit
Carnegie Mellon Steinbrenner Institute

Buildy Award
Mid-Atlantic Association of Museums

2011

Green Power Leadership Club, Exemplary Green Power Procurement
EPA Green Power Partnership

2010

Green Power Leadership Club, Exemplary Green Power Procurement
EPA Green Power Partnership

First LEED®-Certified Welcome Center
Green Building Alliance
GreenSCENE Celebration

Leadership Award
U.S. Green Building Council

2009

Leadership Award
American Society of Interior Designers, Western Pennsylvania Chapter

Finalist, New Environmental Technologies
Investing in Nature Awards, The Nature Conservatory

Environmental Heroes Award
Southwestern Pennsylvania Group Against Smog & Pollution

2008

Award for Excellence in the Environmental Field
Carnegie Science Awards

Evergreen Award, First Place, Commercial Category
eco-structure Magazine

Finalist, Tropical Forest Conservatory
Melbourne World Sustainable Building Conference, Australia

Sustainable Buildings Challenge
U.S. Green Building Council

2007

Green Design Citation
American Institute of Architects, Pittsburgh Chapter

Award of Merit
Carnegie Mellon Steinbrenner Institute

Green Power: Turn It On! Award
Citizens for Pennsylvania's Future

Project of the Year Award
Engineers' Society of Western Pennsylvania

Shades of Green Leadership Award
Green Building Alliance

Beyond Green High Performance Building Award
Sustainable Buildings Industry Council, Washington, D.C.