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Symposium Schedule

8:00 - 9:00 am.....Registration, Breakfast, and Expo
 9:00 - 10:00 am.....**Session I**
 10:00 - 10:30 am.....Coffee Break and Expo
 10:30 - 11:30 am.....**Session II or Tour I or Tour II**
 11:45 am - 12:45 pm.....**Session III or Tour III**
 12:45 - 2:00 pm.....Lunch and Expo
 2:00 - 3:00 pm.....**Session IV or Tour IV**
 3:15 - 4:15 pm.....**Session V**

Session Tags

Energy: Energy/Building Performance
GSI: Green Stormwater Infrastructure
LEED
LBC: Living Building Challenge
Other
Passive: Passive House
Policy: Policy/Advocacy
Schools
Urban: Urban/Neighborhood Design

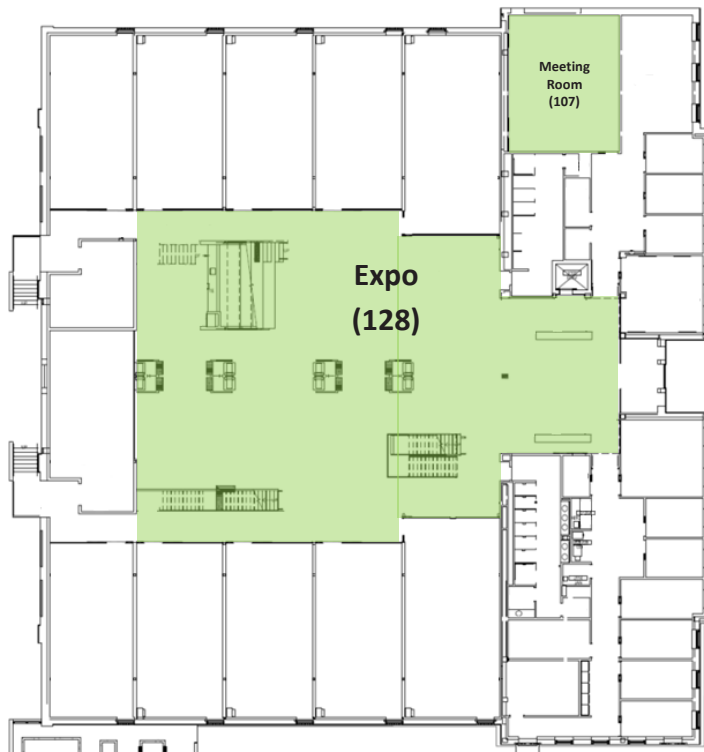
	Building 661 Room 107	Building 661 Room 201	Building 661 Room 202	Building 7R Room 103	Building 7R Room 209	Building 7R Room 211
Session I 9:00 - 10:00 am	WELL, You Can Bank On It Other	Phasing Out Aging Infrastructure While Developing Campus Energy Strategies Schools	Zero Energy Modular Homes as an Affordable Housing Solution Energy	The Navy Yard: A thriving river-front neighborhood Urban	Carbon Farming: The climatic, social, and economic implications of regenerative agriculture Other	Using CHP to Improve Energy Efficiency and Resiliency Energy
Session II or Tour I* or Tour II* 10:30 - 11:30 am	Turn and Face the Change: State codes and the Philly carve out Policy	Developing a Program for Deep Energy Savings in Multi-Family Low Income Housing Energy	Transitioning to LEED v4 and v4.1: The playbook LEED	Urban Eco-Villages as Alternatives to Gentrification Urban	Handprinting Workshop: An exploration of positive impact LBC	Creating Sustainable Headlines Other
Session III or Tour III* 11:45 am - 12:45 pm	Increasing the Value of Maintenance within the Green Stormwater Industry GSI	Energy Rules: Closing the circle between design and operations Schools	Is Pennsylvania on the Brink of Creating an Energy Policy? Policy	Beyond the BTUs: The non-energy benefits of building performance Energy	The Urban Infill Passive House in Three Movements Passive	Welcome to Biophilic Urbanism: A nature-full city is a resilient city Urban
Session IV or Tour IV* 2:00 - 3:00 pm	Global Leadership, Universal Methodologies, and Local Action Energy	Green Infrastructure: Applications and design approaches GSI	bMORE Resilient: A Baltimore regenerative community design Urban	1919 Market: Sustainable mixed-use tower in Philly's Market Street West Corridor LEED	How Portfolio Managers Impact Sustainability Strategies Other	50 Organizations, 100 Volunteers, 3000 Hours LBC
Session V 3:15 - 4:15 pm	Historic Pine Street Passive House Retrofit Meets the Environmental Bill of Rights Passive	Challenge Accepted: The AIA 2030 commitment and The 2030 Challenge Energy	Bringing Community Solar to Pennsylvania Policy	Aiming Beyond Zero Energy: A look at the Millersville University net positive energy building Schools	Make Local, Grow Local, Work Local Urban	Tenants as Team Members in Greening an Iconic Skyscraper LEED

*Tour descriptions can be found on page 8.

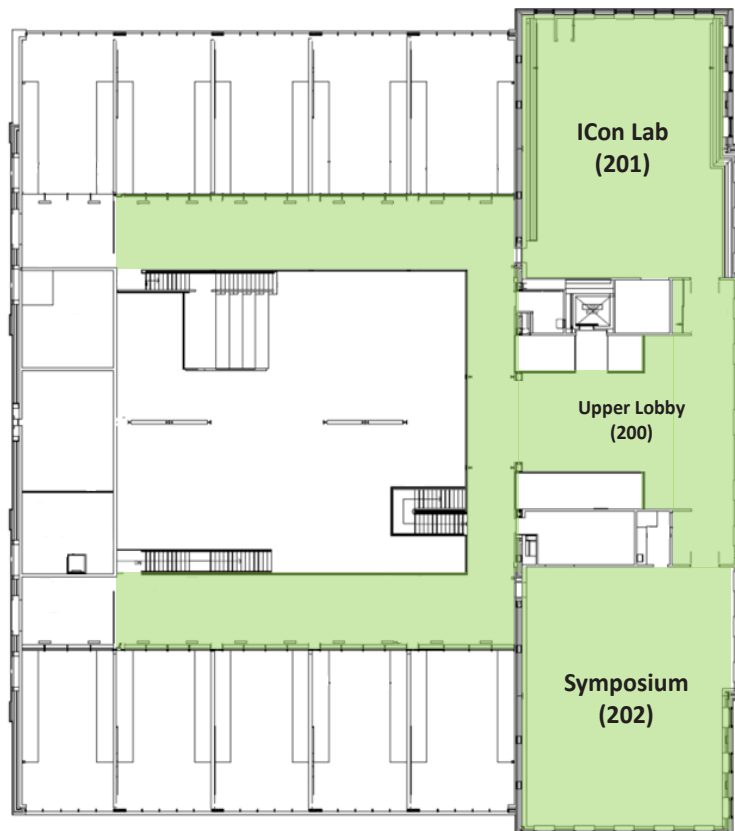
Each session is worth 1 AIA LU-HSW and 1 GBCI CE hour (LEED/WELL is specified with session description when applicable, starting on page 10).

Maps

Building 661 - 1st Floor

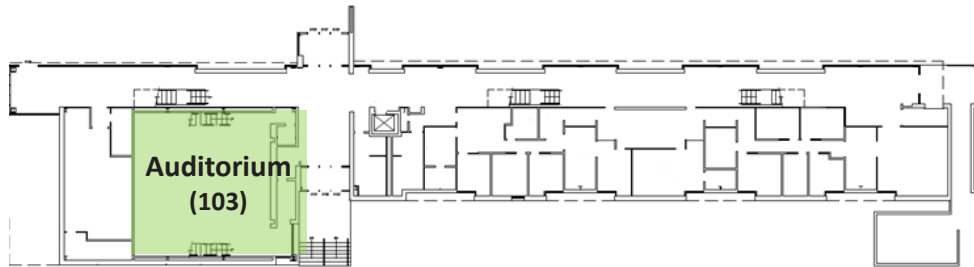


Building 661 - 2nd Floor

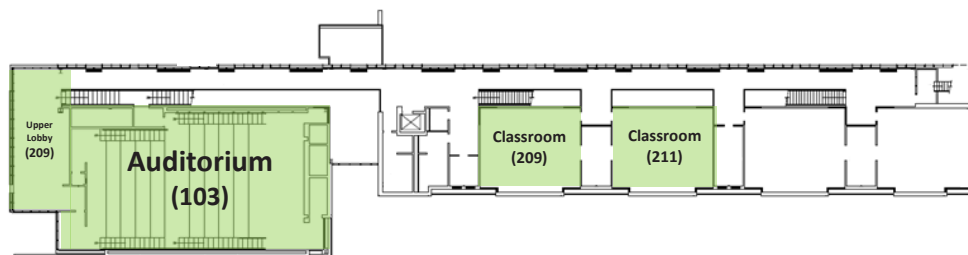


Building 7R

1st Floor



2nd Floor



Get involved with Demonstration Project 2018!

Passive Rowhouse Project



Living Building Challenge Affordable Infill Housing Project



We invite you to participate! The intent of the Demonstration Project is two-fold: establish the feasibility of renovating existing brick masonry rowhouses to the Passive House standard; and design infill affordable housing to meet the requirements of the Living Building Challenge.

No prior knowledge or experience required - we welcome your unique presence!

Learn more at greenbuildingunited.org/demonstration-project-2018



At Brandywine Realty Trust, we are committed to establishing quality sustainable practices within our buildings to enable the wellness, productivity and excellence of our tenants and employees. As such, we are proud to act as the **Founding Sponsor of Green Building United's Annual Sustainability Symposium**, as we work together in pursuit of a greener, more sustainable world.

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Welcome

Welcome to Green Building United's 2018 Sustainability Symposium. We are thrilled to be hosting you again this year with Penn State at The Navy Yard, and want to welcome all of our new attendees and sponsors, as well as many returning friends.

Now in its eighth year, the Symposium brings together a broad community of stakeholders – representing architecture, design, construction, real estate, energy services, community development, climate advocacy, and many more – to share examples of their work and best ideas on how to advance sustainability in the region.

We are grateful to our partner and Presenting Sponsor, Penn State at The Navy Yard, for hosting us today at their campus, which you'll see is a "living laboratory" for sustainable buildings. We also want to acknowledge Founding Sponsor, Brandywine Realty Trust, for supporting the Sustainability Symposium since its inception.

Finally, a special thanks to our Sustainability Symposium Planning Committee for helping to pull together an exceptionally strong group of education sessions and a superb Expo floor: Laura Blau, Mary Ann Boyer, Saleem Chapman, Amy Cornelius, Laura Emanuel, Rob Fleming, Troy Hannigan, Chris Lee, Fredda Lippes, Brad Molotsky, Tamara Mueller, Laila Reilly, Katrina Rogus, Christian Saveoz, Lisa Shulock, and Bahareh van Boekhold.

Sincerely,



Alex Dews and
Green Building United Team



From Left to Right:
Leah Wirgau, Education & Engagement Manager
Megan Sloomaker, Operations Director
Alex Dews, Executive Director
Margaret Salamon, Development Director
Katie Bartolotta, Policy & Programs Manager

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The Navy Yard is a thriving waterfront employment district, with 7.5 million square feet of real estate in a mix of eclectic historic buildings and new high-performance and LEED® certified buildings oriented around outstanding parks, waterfront trails, and restaurants. A dynamic community where companies and their employees thrive, the Navy Yard is home to businesses of all sizes and varieties, including life sciences, financial services, energy, defense, and manufacturing.

Each tour is capped at 25 seats. Get tour tickets at the Green Building United registration table.

Tour I | 10:30 - 11:30 am _____

Adaptimmune & Axalta Walking Tour

Join Liberty Property Trust, the Navy Yard's commercial developer, as they take you up close and personal, showcasing two of the Navy Yard's most recent developments in Life Sciences and Research. Participants will visit 351 Rouse Boulevard, home to Adaptimmune Therapeutics, which is scaling-up an immunotherapy treatment for cancer in a LEED Gold core & shell. The tour will continue to the soon-to-be-completed 1050 Constitution Avenue future home to Axalta Coating Systems, which researches coatings and paints for a variety of items such as Indy 500 race cars! The tour will focus on the construction of lab and office space while highlighting the unique and sustainable design elements in buildings constructed to meet commercial development budgets and unique building programs.

Tour II | 10:30 - 11:30 am _____

Urban Outfitters, Inc. Walking Tour

Join PIDC, master developer of the Navy Yard, on a scenic walking tour of the Navy Yard to Urban Outfitters, Inc.'s (URBN) award-winning global headquarters. URBN, which owns the brands Urban Outfitters, Anthropologie, Free People, BHLDN, Terrain, and the Food and Beverage division, has grown its corporate HQ in Philadelphia to more than 2,500 employees in the last 10 years. Participants will see URBN's 11-building multi-phased campus, one of the region's best adaptive reuse projects, which combines old and new. URBN's corporate office is home to dog friendly offices and design studios, a public café and coffee shop housed in a vast former pipe and coppersmith shop, a former dry dock turned floating park, its Bloom Box Energy system, consisting of stacked fuel cells that convert chemical energy from natural gas and water into electricity, and more.

Tour III | 11:45 am - 12:45 pm _____

1200 Intrepid & 201 Rouse Boulevard Walking Tour

Located in the heart of the Navy Yard, join Liberty Property Trust, the Navy Yard's commercial developer, for a tour of 1200 Intrepid, a 4-story built-to-suit designed by world-renowned architect Bjarke Ingels. This LEED Gold core & shell building has unique design features yet adherence to the necessary criteria for a Class A Commercial Development portfolio. 201 Rouse Boulevard reflects the individual corporate culture of FS Investments, which exemplifies the health and fitness of their employees. The tour will showcase world-class design that employs sustainable materials and LEED practices in a creative, yet cost-conscious manner.

Tour IV | 2:00 - 3:00 pm _____

Central Green, Rouse Boulevard, & Crescent Drive Walking Tour

Focusing on Central Green and green infrastructure in the Navy Yard Corporate Center, join Liberty Property Trust, the Navy Yard's commercial developer, on a scenic walking tour of the award-winning Central Green, designed by James Corner Field Operations, followed by a walk along Rouse Boulevard. The tour will highlight the characteristics that comprise this neighborhood of high performance buildings and green infrastructure, culminating at the double LEED Platinum home of GSK's US Headquarters.

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Duane Morris attorneys are deeply involved in and committed to sustainability, corporate social responsibility and the renewable energy and conservation markets. Duane Morris serves a diverse constituency in the global sustainability eco-system, including developers looking to build and/or adaptively reuse existing high-performance buildings; emerging businesses with CSR and/or ESG issues; new companies with innovative energy solutions; traditional energy companies seeking to develop new “green” and renewable energy sources; national and international government agencies; and entrepreneurial individuals looking to deploy technology in public-private partnerships.

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Session I | 9:00 - 10:00 am

WELL, You Can Bank On It - Building 661, Room 107

Learning Level 200: Understanding/Comprehension | *WELL-specific GBCI credit*

The WELL Building Standard was designed specifically to enhance the health and well-being of building occupants. With minimal focus on this topic in other green building rating systems, there is a lot of interest around WELL, coupled with a lot of questions. What is it about? What does it take to get certified? How do I make a business case for pursuing this certification? What are the outcomes of other organizations that have pursued it?

This session will explore the basics of WELL in addition to taking a deeper look at strategies TD Bank has implemented to measure performance and how they approached WELL certification in some of their buildings.

Kristie Kozenewski, Re:Vision Architecture
Joseph Parisi, TD Bank

Phasing Out Aging Infrastructure While Developing Campus Energy Strategies - Building 661, Room 201

Learning Level 400: Mastery

As ideas related to sustainability and resiliency continue to grow on college campuses, college administrators and facilities directors look to develop plans that will phase out aging infrastructure while developing energy strategies to fulfill sustainability and resiliency goals on campus. This session will cover how Swarthmore College's partnership with The Stone House Group developed the first phase of Swarthmore's energy strategy for sustainability and resiliency through a: 4MW Generator Study, Facilities Condition Assessment, Energy Audit, Energy Capital Investment Plan, and Alternative and Renewable Energy Study.

An understanding of available incentives and grants for energy efficiency upgrades will help fund upgrades on Swarthmore's campus. The session will also discuss how each study contributed to the overall energy strategy, and the best practices that were used and learned through the process.

Lawrence Eighmy, The Stone House Group
Aurora Winslade, Swarthmore College

Zero Energy Modular Homes as an Affordable Housing Solution - Building 661, Room 202

Learning Level 200: Understanding/Comprehension

Over the course of just two days in 2011, hundreds of Vermont homes were destroyed during Hurricane Irene. The disproportionate effect of the storm on low-income Vermonters and mobile home residents inspired a call to action. As a result of a collaborate effort, the ZEM Program now provides low- and moderate-income homeowners with a comfortable, healthy, affordable, and above all, resilient housing option.

ZEM homes feature high performance envelopes and mechanical systems, rooftop solar PV, and optional backup battery storage. With a proven model in Vermont, the ZEM concept has expanded to Delaware. Both programs leverage existing local resources to bring this radical affordable housing solution to the people who need it most. During this session, program partners from Vermont and Delaware will discuss program design, ZEM technical specs, construction techniques, and case studies of both individual ZEM buyers and community redevelopment projects.

Phoebe Howe, Efficiency Vermont
Russ Huxtable, Milford Housing Development Corporation
Moderator | **Alison Donovan**, VEIC

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The Navy Yard: A thriving riverfront neighborhood - Building 7R, Room 103

Learning Level 100: Awareness

Learn about the Navy Yard - considered the most successful redevelopment of a former military facility in the country! A thriving riverfront neighborhood, the Navy Yard currently features more than 7.5 million square feet of buildings housing 13,000 employees working at 150 companies, ranging from headquarters for Urban Outfitters and GSK to technology startups, manufacturers, corporate R&D, and a graduate engineering and research satellite for Penn State University. Home to historic structures and new high-performance and LEED certified development, the Navy Yard offers diverse, flexible building choices with varying heights, vintages, and floor-plates, all powered by a nationally recognized microgrid oriented around miles of riverfront access and world-class open space. Growth at the Navy Yard is framed by a market-driven master plan that reflects a phased development trajectory. Future growth will support up to 10 million square feet of commercial and residential development. This session is a great supplement to the tours that will be featured during the Symposium.

Prema Katari Gupta, PIDC

Brian Cohen, Liberty Property Trust

Carbon Farming: The climatic, social, and economic implications of regenerative agriculture - Building 7R, Room 209

Learning Level 300: Application/Implementation

Carbon Farming is farming in a way that reduces greenhouse gas emissions or captures and holds carbon in vegetation and soils. It is managing land, water, plants, and animals to restore ecosystems, ameliorate climate change, and provide nutrient dense food and educational opportunities. Also described as Regenerative Agriculture, these goals are achieved through a focus on lower-sequestration strategies like no-till organic annual cropping, perennial crops, and managed grazing. Attendees will learn the overall concepts and specific metrics of this emerging practice through four business case studies, and will come to understand the implications for communities on how and where these types of food production can fit.

Chad Adams, Ground Plan Studio, Bio-Logical Capital

Tony D'Orazio, Carversville Farm Foundation

Moderator | Hannah Smith-Brubaker, Pennsylvania Association for Sustainable Agriculture

Using CHP to Improve Energy Efficiency and Resiliency - Building 7R, Room 211

Learning Level 300: Application/Implementation

This session will feature two CHP projects in non-industrial facilities: healthcare and higher education institutions. Presenters, representing Penn State Health Milton S. Hershey Medical Center, Geisinger Health Systems, and Messiah College will discuss their project criteria, project studies, development, construction and outcomes.

Kevin Kanoff, Penn State Health Milton S. Hershey Medical Center

Al Neuner, Geisinger Health System

Gary Fechter, UGI HVAC Enterprises (representing Messiah College)

Moderator | Dave Maurer, PPL Energy Efficiency Program

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Session II | 10:30 - 11:30 am

Turn and Face the Change: State codes and the Philly carve out - Building 661, Room 107 Learning Level 200: Understanding/Comprehension

This fall, Philadelphia is on track to adopt the 2018 IBC and 2015 IRC. Jumping ten years in code cycles will provide challenges and opportunities for the city, design professionals, and builders working in Philadelphia. This session will provide an overview of the local/state adoption process, implications for Philadelphia, and timelines by an Licenses & Inspections Official. Presenters will also discuss high-level challenges and opportunities from a “Builder & Design Professional” point of view related to building design and the enforcement of the new energy codes.

Elizabeth Baldwin, City of Philadelphia, Licenses & Inspections

Jim Maransky, E-Built, LLC

Emma Raymont, MaGrann Associates

Moderator | Roger Clark, Reinvestment Fund

Developing a Program for Deep Energy Savings in Multi-Family Low Income Housing - Building 661, Room 201 Learning Level 200: Understanding/Comprehension

Philadelphia has over 600 multi-family buildings catering to low-income households. While many of these buildings are in need of capital investment that can be financed through energy savings, the market in Philadelphia has not historically catered to them. PEA worked with CMC Energy, BlocPower, and StratIS to install a variety of energy and water-saving measures at four Philadelphia properties, totaling 200 units owned by Friends Rehabilitation Program and Mission First.

The program leveraged PECO and PGW incentive programs to reduce the total project cost. The project also used a unique approach of conducting retrofits in two stages. The first stage focused on low-cost direct install measures with nearly immediate payback, as well as control measures that allowed for data collection. The magic came from analyzing the data collected from tenant thermostats and boiler control panels. BlocPower’s analysis resulted in high-confidence energy saving measures for the project’s second phase that yielded deep energy savings in the properties.

Tom McAteer, CMC Energy

Andrew Anderson, Friends Rehabilitation Program

Jessica Moore, Mission First Housing Group

Moderator | Alon Abramson, Philadelphia Energy Authority

Transitioning to LEED v4 and v4.1: The playbook - Building 661, Room 202 Learning Level 300: Application/Implementation | *LEED-specific GBCI credit*

With the transition to LEED BD+C v4, many owners, developers, and design teams are following the traditional path to LEED certification. This is resulting in the misalignment of process with goals. This session will explore key changes that impact the way a team should approach certification, from timeline to budgeting, and manage expectations by discussing what has changed in “tried and true” credits. This is compounded with the pending release of LEED v4.1. Attendees will learn about what changes to expect with v4.1 and why these changes are being made. Finally, presenters will demonstrate how manufacturers and project teams can both prepare and work together to meet the requirements of the v4 and v4.1 Building Product Disclosure and Optimization credits.

Kristie Kozenewski, Re:Vision Architecture

Dennis Wilson, Saint-Gobain

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Urban Eco-Villages as Alternatives to Gentrification - Building 7R, Room 103

Learning Level 200: Understanding/Comprehension

During recent years, an urban eco-village movement has formed in Philadelphia, aimed to foster an exciting multicultural city that prospers through ecology and equity. These eco-villages in low-income neighborhoods combine low-cost passive solar housing, smart grid solar electric, food production from greenhouses and orchards, free clinics staffed by neighbors and volunteers, community cultural centers, and neighborhood currencies.

These are situated on urban land trusts to remove lots from the speculative market and to restrain property tax increases. Eco-villages teach neighborhood management skills, which generate green jobs and green industries that employ at-risk youth. Such industries rely on reprocessed materials for remanufacturing. At full bloom, eco-villages transform surrounding neighborhoods. They reduce the environmental and household costs of fossil fuels. They lift neighbors beyond charity to ownership, and from crime to creativity. Attendees are invited to learn more about the EcoPhilly movement, which welcomes collaboration with elected officials, development professionals, planners, architects, students, and the general public.

Malaika Hart, One Art Community Center

Tommy Joshua, North Philly Peace Park

Tom Greene, SoFair Farms

Moderator | Sara Ozawa, Haverford College

Handprinting Workshop: An exploration of positive impact - Building 7R, Room 209

Learning Level 300: Application/Implementation

Sustainability professionals are familiar with a product's "footprint", or the negative impacts caused by its lifecycle. This session will introduce attendees to the concept of "handprints", or the positive impacts associated with that product. Handprints can be innovation in the manufacturing process or positive change in the product's supply chains, for example. Handprinting can provide an opportunity for concrete conversation around significant and measured impacts associated with a manufacturer's environmental initiatives.

This workshop-style session will explore the Net Positive Water, New Positive Energy, and Transparent Material Health Imperatives of the Living Product Challenge. Participants will have the opportunity to engage in product "handprinting" scenarios addressing each of the above-mentioned imperatives. Groups will assume the roles of manufacturers and product designers as they brainstorm innovative strategies that could be implemented to create a handprint for their concept products.

Jon Strassner, Humanscale

Natalie Walker, GreenCircle Certified

Jeremy Rafter, Sustainable Solutions Corporation

Moderator | Chris Lee, JacobsWyper

Creating Sustainable Headlines - Building 7R, Room 211

Learning Level 200: Understanding/Comprehension

As an early adopter of the 2030 District and an advocate for Greenworks, the City of Philadelphia is in the midst of a sustainability revolution. However, like with all important movements, media plays an integral role in shaping how the sustainability revolution is perceived by external influencers. This panel will delve into the role local media plays in shaping the city's sustainability agenda, including advancing building codes and helping Philadelphia become one of the greenest cities in America. Moderated by Laura Emanuel, Public Relations Director at Brownstein Group, this panel will consist of media representatives from The Philadelphia Inquirer, Philadelphia Magazine, WHYY, and the Philadelphia Business Journal, who are able to share unique insights into how they approach telling the city's sustainability stories. Media representatives will also share tips on the best ways to approach them with sustainability story ideas.

Catalina Jaramillo, WHYY

Natalie Kostelni, Philadelphia Business Journal

Sandy Smith, Philadelphia Magazine

Frank Kummer, The Philadelphia Inquirer

Moderator | Laura Emanuel, Brownstein Group

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Session III | 11:45 am - 12:45 pm

Increasing the Value of Maintenance within the Green Stormwater Industry - Building 661, Room 107

Learning Level 200: Understanding/Comprehension

Approaching the seven year mark of Green City, Clean Waters, we expect to see continued investment in green stormwater infrastructure (GSI) throughout the region and across the country, in both the public and private sectors, as its long-term benefits for stormwater management and improved water quality continue to be realized and proven. Continued success, however, depends upon our ability to provide the maintenance necessary to ensure the optimum performance of these systems over time. While the value of maintenance is becoming more commonplace, there is still a huge need to make it a greater player at the table.

This panel discussion will focus on bringing maintenance to the forefront and the need to do so across all areas of the GSI industry. Featuring perspectives from academia, PWD, and industry business, the conversation will explore what businesses and other organizations involved in GSI are doing to incorporate maintenance considerations throughout a project's entire timeline.

Andrea Welker, Villanova University

Vicki Lenoci, Philadelphia Water Department

Julie Snell, TEND Landscape

Moderator | Fran Lawn, GSI Partners, The Sustainable Business Network

Energy Rules: Closing the circle between design and operations - Building 661, Room 201

Learning Level 200: Understanding/Comprehension

Architects who look beyond design by determining how their buildings are actually performing are leading the way, gaining knowledge of best practices for future projects, meeting energy goals, and reducing climate risks. Learn to navigate through the maze of energy requirements and industry initiatives and translate design expectations into real world performance. Learn how an architect and owner collaborated around a common framework for measuring energy performance of buildings. Hear how a prominent K-12 school district's commitment to energy efficiency helped fight climate change by stipulating the same performance based energy targets for the design project and the building's operational performance.

Join the discussion with architects and an owner and learn how the modeled design energy connected with metered energy use and achieved fiduciary and environmental goals for K-12 schools. This session will not have all the answers; instead it will help you learn the right questions to ask.

John Lord, Loudoun County Public Schools

Meagan Jancy, MTFA Architecture

Moderator | Karen Butler, U.S. Environmental Protection Agency

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Is Pennsylvania on the Brink of Creating an Energy Policy? - Building 661, Room 202

Learning Level 200: Understanding/Comprehension

As green building enthusiasts in Pennsylvania, we do not always recognize good news coming from the state capital. Yet there are exciting developments emerging statewide and locally on clean energy policy.

Attendees will hear about: Philadelphia's new roadmap for a clean energy future highlighting state level opportunities to reduce Philadelphia's energy systems carbon footprint; A proposed energy market transformation model enabling advances beyond resilience based on Navy Yard distributed energy deployment experience; House Bill 1412 which provides a framework for PUC regulation of microgrids and energy storage, driving resilient micro grid expansion in Pennsylvania; The role that universities can play in providing interdisciplinary independent research and convening constructive dialogues; and Penn State's new Center for Energy Law and Policy's current and planned work with leaders in government, industry, and environmental organizations.

Richard Freeh, City of Philadelphia Office of Sustainability

Tom Bonner, PECO

Kevin Wright, ProtoGen Energy

Moderator | **Hari Osofsky**, Penn State Law and School of International Affairs

Beyond the BTUs: The non-energy benefits of building performance - Building 7R, Room 103

Learning Level 200: Understanding/Comprehension

Do you realize that the energy and money savings from increasing your building's performance is just the tip of the iceberg? This interactive session explores the non-energy benefits of building performance, and highlights the financial incentives to help you achieve your goals.

Many upgrades fail to reflect improvements in the soft costs that often dwarf the energy savings and associated operating cost reductions. Enhanced building performance improves tenant attraction and retention, occupant satisfaction, enhances worker productivity, builds net operating income, and raises facility value. Buildings with enhanced performance are also safer to operate and occupy, and carry less risk. If lowering your capital and operating costs will enable you to invest in your business, and reap more from your investment, then this is a must attend session!

Jen Robinson, PECO Smart Business Solutions

Kristin Sullivan, CBRE

Jamal Johnson, Liberty Property Trust

Moderator | **Tom Brubaker**, PECO

The Urban Infill Passive House in Three Movements - Building 7R, Room 209

Learning Level 300: Application/Implementation

Philadelphia's thousands of empty lots are being infilled with often disappointing speculative housing. These "missing teeth" instead need to be built-in with sustainable homes for a more resilient future. The construction of foam-free Passive Houses in a dense urban environment poses many challenges including dialoguing with historic context, problematic site constraints, client desires, tight budgets, inconsistent regulatory oversight, and a dearth of passive house builders. But limitations are what push innovation to foment market adoption of radical approaches. Presenters will showcase three newly constructed infill Passive House projects in Philadelphia: a single family home for two artists, a developer-driven duplex, and a co-housing model for an age-in-place couple and their physically disabled son. Each home experiments with different approaches to building envelope detailing, mechanical systems, and certification paths. Presenters will also discuss common assumptions related to designing and building Passive Houses and what was learned during every step of the process.

Amanda Bonelli, Bright Common

Travis Douglas, Future & Sons

Jake Liefer, The 5th Square

Moderator | **Jeremy Avellino**, Bright Common

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Welcome to the Sustainability Symposium. The former U.S. Navy recreational center, built in 1942, was recently transformed into an energy efficient building and features a brand new metal roof with a historic appearance.



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Welcome to Biophilic Urbanism: A nature-full city is a resilient city - Building 7R, Room 211

Learning Level 100: Awareness

The role of abundant wild nature in building a truly sustainable and inclusive city is often undervalued. Evidence shows that widespread integration of natural systems in the built environment not only helps cities cope with infrastructure problems, such as energy use and stormwater, but is also essential for the physiological health of urban populations. What does a biophilic city look like? What makes a biophilic city safe, healthy, and beautiful? In biophilic cities, residents are directly and actively engaged in learning about, enjoying, and caring for the nature around them. This session will give an insightful overview of initiatives underway now in Philadelphia to incorporate biophilic urbanist principles in policy, infrastructure improvements, and school programs that respond to the city's core environmental, economic, and public health challenges.

Helena van Vliet, BioPhilly
Craig Johnson, Interpret Green, LLC
Moderator | Sadie Francis, BioPhilly

Session IV | 2:00 - 3:00 pm

Global Leadership, Universal Methodologies, and Local Action - Building 661, Room 107

Learning Level 200: Understanding/Comprehension

Existing buildings account for 40 percent of global carbon emissions. With urbanization in many countries accelerating, there is a need to dramatically reduce carbon footprints associated with building operation. The “envelope first and with certainty” approach can serve as a significant solution component for new and existing structures. The UNECE framework to support this transformation needs to be adopted throughout the world, in the multitude of climate zones, as well as socio-economic, political, and market conditions. Panelists include the UN official charged with developing a global research, education, and outreach program for achieving aggressive carbon reduction from buildings, and two Pennsylvania-based architects/developers who have successfully designed and built net-zero energy buildings incorporating passive building principles. With tight envelopes and properly sized mechanical systems, energy efficiency can be increased and indoor air quality can be enhanced. Panelists will discuss the challenges and opportunities with integrating this “envelope first” design principle into mainstream building design.

Scott Foster, United Nations Economic Council for Europe
Brandon Nicholson, Nicholson Kovalchick Architects
Tim McDonald, Onion Flats
Moderator | James Freihaut, Penn State

Green Infrastructure: Applications and design approaches - Building 661, Room 201

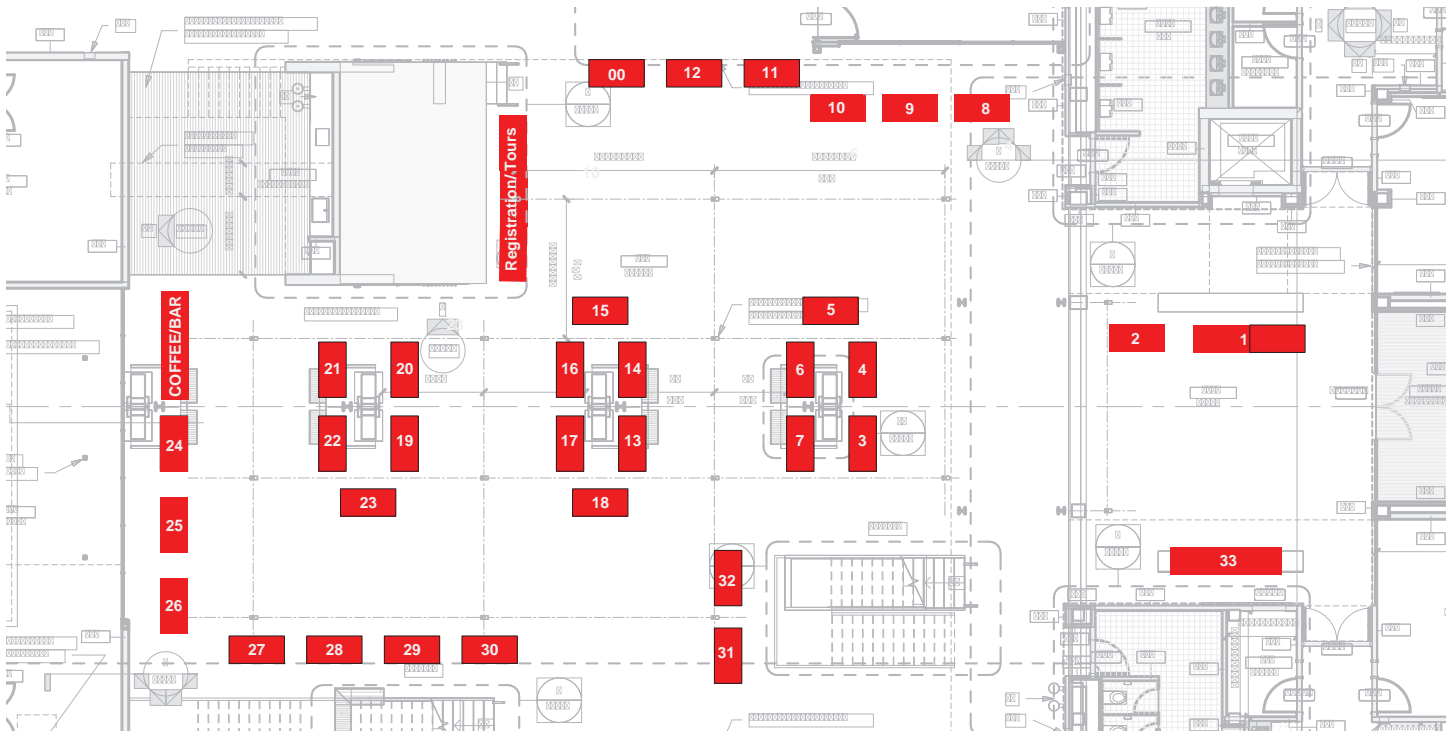
Learning Level 200: Understanding/Comprehension

This presentation will touch on several key aspects of green infrastructure and urban stormwater design. The presentation will provide you with the foundations for planning, locating, and implementing green infrastructure design practices in the urban environment. The presentation will briefly highlight the evolution of stormwater design, implementation techniques and challenges, and future advancements. Several design examples will be presented to highlight the process of planning, design, and construction.

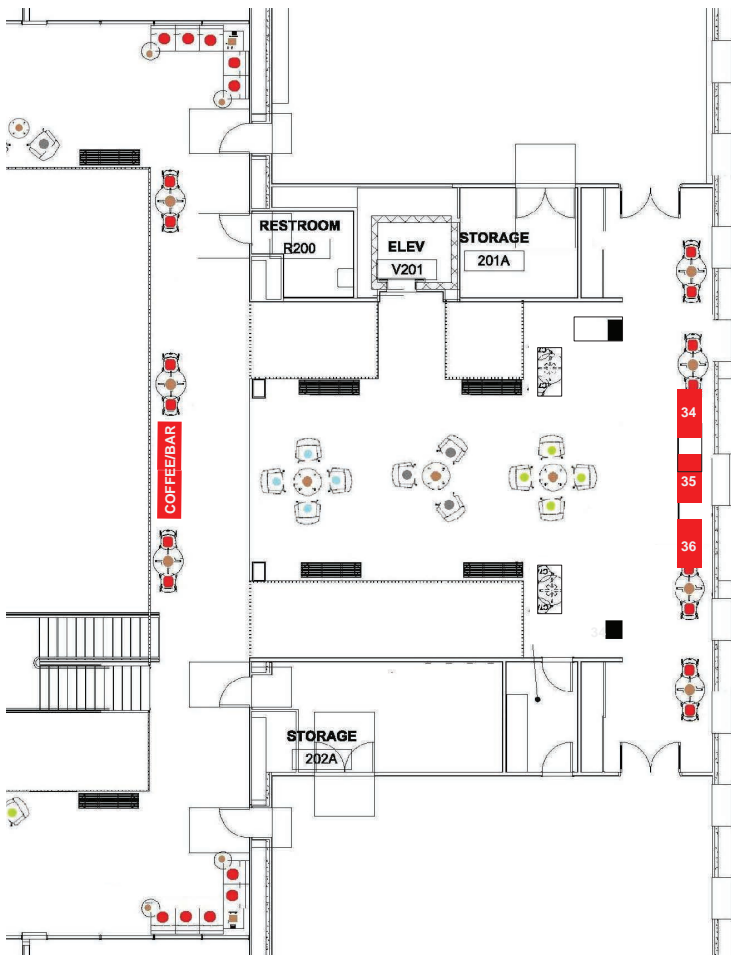
Vicki Chou, Arcadis U.S.
Shane DeGaetano, Arcadis U.S.
Andrew Anderson, Hazen and Sawyer
Moderator | Michael DeVuono, Arcadis U.S.

Expo Map

Level 1



Level 2



Coffee and Breakfast are available in both Buildings 661 (both floors) and 7R (2nd floor).

Lunch is available in both Buildings 661 (2nd floor mezzanine, both sides) and 7R (2nd floor). Please take full advantage of all indoor and outdoor spaces for lunch. Lunch can also be taken into all classrooms.

Happy Hour is available from 4:30 - 6:30 pm for registered Happy Hour guests only. Bars are available in 661 (both floors), and appetizers are available in 661 (2nd floor mezzanine, both sides).

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bMORE Resilient: A Baltimore regenerative community design - Building 661, Room 202

Learning Level 200: Understanding/Comprehension

In response to devastating disinvestment in minority-majority neighborhoods in Baltimore, and the simultaneous phenomena of high vacancy rates and an affordable housing crisis, the bMORE Resilient Co-op design team proposed a neighborhood design that would be resilient to potentially catastrophic climate events and infrastructure failures. Using a permaculture inspired approach, the design included integrated design solutions for sustainability and resiliency as well as education and workforce development models in all aspects of redevelopment.

The team modeled energy demand reductions resulting from deep energy retrofit designs of two RB single-family row homes, a multi-family building, a community space, and a light industrial commercial space. The team did feasibility calculations for stormwater capture, re-use and re-infiltration, onsite urban agriculture, and heat island effect reduction. The energy and water savings are paired with a cooperatively owned “islandable” micro-grid with PVs and limited storage, resulting in a self-sufficient community that meets all critical demands throughout the year. Alternative financing and ownership models including Community Land Trusts and Cooperative and employee owned enterprises would build the local economy and provide for the dramatic improvement of quality of life without the threat of displacement of current residents. The bMORE Resilient Co-op neighborhood design concept is now being used as the framework for a redevelopment project in one of West Baltimore’s most disadvantaged neighborhoods.

Michael Hindle, Passive to Positive

Carri Beer, Brennan+Company Architects

Ulysses Archie, Baltimore Gift Economy

1919 Market: Sustainable mixed-use tower in Philly’s Market Street West Corridor

- Building 7R, Room 103

Learning Level 300: Application/Implementation | *LEED-specific GBCI credit*

In the heart of the Market Street West Corridor, this site, originally planned as the twin tower for IBC, remained vacant for 30 years. Learn how the LCOR/Brandywine Realty Trust Partnership developed this dynamic new sustainable mixed-use tower, which was a catalyst to fuel a transformation of this now-vibrant neighborhood. Presenters will provide insight on the various challenges and opportunities in achieving LEED v2009 NC Gold Certification, for a large-scale, complex mixed-use project. Opportunities for innovation will be discussed, including site connectivity, vegetative roofs, and alternative transportation. Presenters will take a deeper dive into the major challenges for this mostly glass window wall tower, including Energy Performance and Envelope, Lighting and Thermal Controls, and Day-lighting and Views. They will also walk through the decision-making process of which goals were considered and were or were not pursued, based on feasibility, schedule, and cost.

Jeff DiRomaldo, BartonPartners Architects Planners

Wes Lawson, Bala Consulting Engineers

Brian McGillin, Hunter Roberts Construction Group

Moderator | **Pete DiLullo**, LCOR/Brandywine Realty Trust

How Portfolio Managers Impact Sustainability Strategies - Building 7R, Room 209

Learning Level 200: Understanding/Comprehension

Sustainability involves the active participation of many different stakeholders. There has been much attention paid to the role played by those on the front lines, such as property managers, consultants, and technical experts. An important bridge to the investors of real estate properties are the Portfolio Managers. While most discussions address this group as a homogenous cohort, the reality is that this group is composed of professionals whose individual commitment to sustainable practices cover a wide spectrum. This session will seek to demystify the workings of this cohort, and offer guidance on engaging them to further the potential achievements of an approved sustainability strategy.

Doug Lawrence, 5 Stone Green Capital

Jim Landau, MetLife

Cavarly Garrett, JPMorgan

Moderator | **Nicholas Stolatis**, EPN Real Estate Services, Inc.

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50 Organizations, 100 Volunteers, 3000 Hours - Building 7R, Room 211

Learning Level 100: Awareness

When the Philadelphia Living Building Challenge Collaborative (now the Green Building United Living Building Challenge Community) was formed in 2014, they asked, “what do we really want to do as a volunteer organization?” Driven by their goals to teach and learn as well as impact the community, they chose to realize an ambitious (and initially, not totally cooked) idea of demonstrating that Living Building Challenge projects are achievable here in the region. This began as a feasibility study and conceptual building and site design for two buildings for Pendle Hill, a local Quaker retreat campus with global reach.

Following the resounding success of the inaugural Demonstration Project, the Living Building Challenge Community has embarked on a second project in collaboration with Green Building United’s Passive House Community. Attendees will hear from past and current Demonstration Project leaders about the genesis, process, and results of these 100 percent volunteer-driven efforts.

Nina Dudas, Holistic Habitat Design
Wolfram Arendt, LAYER Architecture
Drew Lavine, Re:Vision Architecture
Jen Karsten, Pendle Hill

Session V | 3:15 - 4:15 pm

Historic Pine Street Passive House Retrofit Meets the Environmental Bill of Rights

- Building 661, Room 107

Learning Level 200: Understanding/Comprehension

Historic structures pose unique challenges when attempting to meet Passive House criteria. We will chronicle our Pine Street project, an 1845 row home in Philadelphia’s Rittenhouse Fittler Square Historic District. Technical building science issues, legal and local approvals, and construction implementation challenges including construction phasing will be explored. Our goal is to demonstrate a path towards achieving intense energy efficiency, improved indoor air quality, comfort, and acoustics, while maintaining the character and livability of historical structures. Achieving serious energy reductions requires close analysis of the historic building’s unique opportunities and constraints.

The design and legal team will share their experience with the preservation community and how several breakthrough precedents were achieved with the Philadelphia Historic Commission by invoking the Pennsylvania Environmental Bill of Rights. Case studies provide realizable design and construction strategies to meet Passive House EnerPhit standards, while safely preserving historic character and structure for a post-carbon future.

Laura Blau, BluPath
Michael Sklaroff, Ballard Spahr, LLP
Kent Lessly, Lessly Associates LLC
Moderator | Paul Thompson, IEI Architects

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Challenge Accepted: The AIA 2030 commitment and The 2030 Challenge - Building 661, Room 201

Learning Level 300: Application/Implementation

Since 2006, the 2030 Challenge has invited firms to use the simple metric of site pEUI to measure their progress toward designing carbon neutral buildings for their entire portfolio. In 2009, the AIA adopted the Challenge and enlisted firms to join the AIA 2030 Commitment where they track and report the proposed energy reduction for their projects. In last year's AIA 2030 Commitment report, energy reductions for over 14,000 buildings were reported, presenting not only a wealth of data for designers and owners, but an indication that firms are well on their way to designing carbon neutral buildings. The potential energy savings from these projects represent approximately 16.7 million metric tons of greenhouse gas emissions, the equivalent of running almost five coal-fired power plants. Hear how Philadelphia firms have accepted the challenge, are using new tools to strengthen their practices, transform how they work, and design better buildings for their clients.

David Hinchey, KieranTimberlake

Jeff Goldstein, DIGSAU

Aaron Dahlstrom, In Posse

Moderator | Brian Smiley, HOK

Bringing Community Solar to Pennsylvania - Building 661, Room 202

Learning Level 200: Understanding/Comprehension

As many as 70 percent of Pennsylvanians cannot benefit from solar energy due to the shading of their roofs; they may be renters, or may not qualify for conventional financing. Advocates statewide are currently working to develop the right framework for community solar in order to bring the benefits of solar energy to all businesses and residential customers. This session will help participants understand the issues involved, diving into the details of how community solar can be implemented statewide. This has significant benefits for multi-family building owners, small businesses, and residential customers, offering the promise of switching to clean, renewable energy, while also reducing cost.

Ron Celentano, Celentano Energy Services

Roger Clark, The Reinvestment Fund

Pari Kasotia, Vote Solar

Moderator | Liz Robinson, Philadelphia Solar Energy Associates

Aiming Beyond Zero Energy: A look at the Millersville University net positive energy building - Building 7R, Room 103

Learning Level 200: Understanding/Comprehension

The Lombardo Welcome Center at Millersville University has recently been occupied and is aiming to be Positive Energy. Located at the heart of campus and serving both students and visitors to the campus, this building makes a statement about Millersville's commitment to sustainability. The owner and project team wanted a building that went beyond just positive energy and also included a focus on feng shui, responsible stormwater management, and an educational experience for occupants on how the building saves energy and how it generates energy from three different PV strategies. Learn how the project team, owner, and occupants worked together to design, construct, and monitor the building as it completes its performance period. In this session attendees will also gain an understanding of the factors that need to be considered when designing for positive energy from the perspectives of the architect, engineer, owner, and occupants.

Shannon Kaplan, In Posse LLC

Russel Pacala, Spillman Farmer Architects

Chris Steuer, Millersville University

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Make Local, Grow Local, Work Local - Building 7R, Room 209

Learning Level 300: Application/Implementation

There are two ways to deliver a product or service to a customer more quickly. The first method, increasing speed, is what has made systems like Amazon Prime so popular, with delivery times shrinking from the old 5-7 days to 2 days, to 1 day, to 1 hour. But the other method is to shrink the distance. And that's where cities come in. The emerging trends of urban industrial development, urban agriculture, and co-working have something in common: they create value through minimizing the costs of moving products and people. And in the process, they contribute to a more diversified, sustainable urban landscape, with fewer miles travelled, a more varied mosaic of economic opportunities for workers, and more visibility of the supply chains that have become so forefront in human lives.

\$1.5 trillion was spent on transportation and logistics in 2015, or eight percent of the United States' GDP, leaving a great deal of room for efficiency, and room for change. This panel's concept is to investigate new models in urban industrial development, urban agriculture, and co-working. What kinds of urban spaces do these varied functions occupy? How can the sustainable impact they provide be maximized? And how can they be best designed to intentionally reap the benefits of a localized community?

Ed Klimek, KSS Architects

Thomas Dalfo, PIDC

Henry Gordon-Smith, Agritecture Consulting

Shelton Mercer, 1776/Benjamin's Desk

Tenants as Team Members in Greening an Iconic Skyscraper - Building 7R, Room 211

Learning Level 200: Understanding/Comprehension | *LEED-specific GBCI credit*

Pittsburgh's iconic US Steel Tower, one of world's largest office towers, has undergone a transformation. In the last decade, Steel Tower has grown from inefficient to exemplary due to an innovative combination of building leadership and tenant engagement. This three million square-foot building, still the eighth largest in the U.S., has undergone a series of steady, leveraged improvements over the last decade, including LEED CI certifications for nearly one million square feet, leadership of Pittsburgh's 2030 District, BOMA 360 certification, the creation of a Tenant Sustainability Committee, and the building's achievement of Energy Star certification.

Steady improvements show an energy use decline as occupancy has increased. The building has been able to pace 2030 District peers towards energy, water reduction, air quality and transportation goals, establishing it as a regional leader and resiliency hub. Tenants have played a key role in this transformation through engagement, collaboration, and outreach.

Marc Mondor, Evolve LLC

Angelica Ciranni, Green Building Alliance

Moderator | **Brad Molotsky**, Duane Morris LLP

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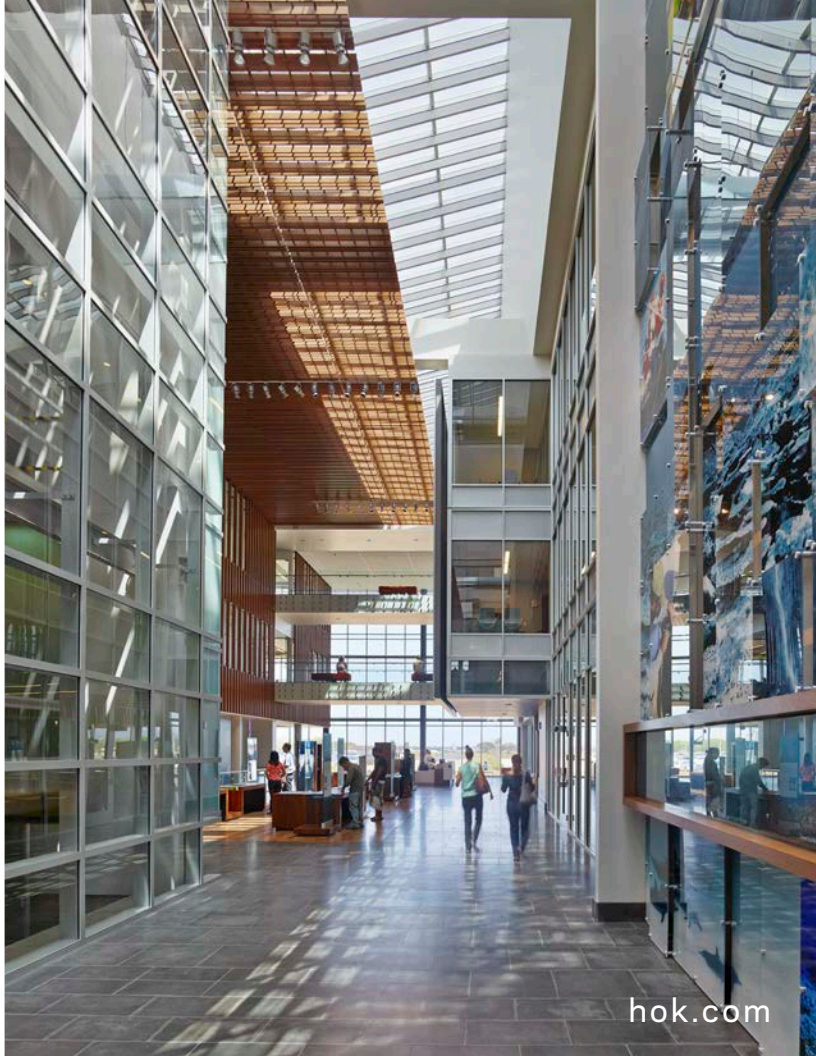
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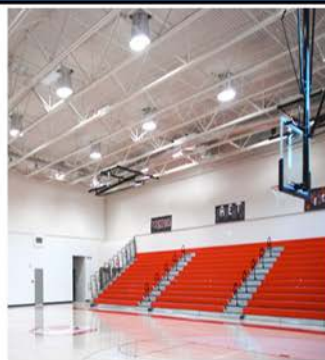
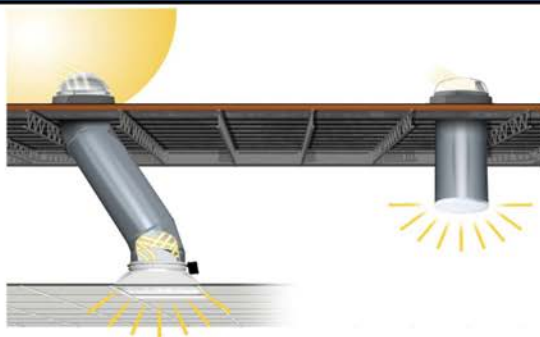
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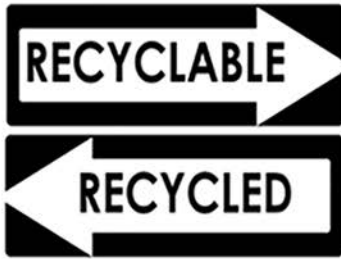


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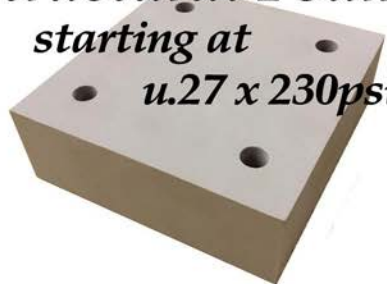
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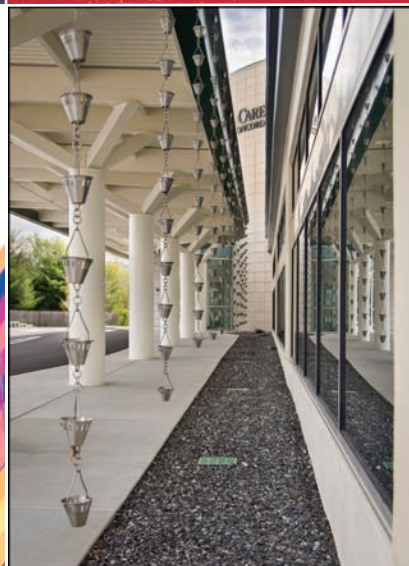


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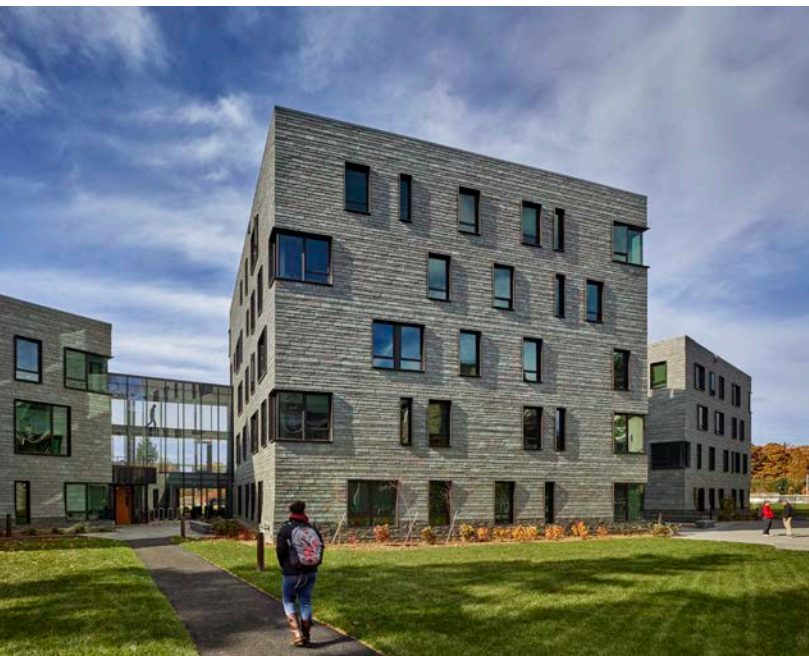
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In October 2017, Green Building United launched a new initiative, the Philadelphia 2030 District.

The Philadelphia 2030 District brings together property owners, managers, utilities, energy service companies, and community organizations to achieve substantial reductions in energy, water use, and transportation emissions by the year 2030.

With buildings accounting for 60 percent of carbon emissions in Philadelphia, the 2030 District presents a critical opportunity to reduce the region's impact on climate change. Philadelphia requires that the city's largest buildings track and publicly disclosed their energy and water use, creating awareness and a wealth of data on building performance. The Philadelphia 2030 District seeks to turn this awareness into action by supporting some of the city's largest buildings in voluntary efforts to reduce their environmental impact while saving money.

Property Partners

The following property partners have committed over **17 million square feet** of building space in Center and University City to meeting the rigorous, voluntary goals of the Philadelphia 2030 District:

Brandywine Realty Trust
Drexel University
SEPTA
Philadelphia Ronald McDonald House
School District of Philadelphia
Independence Blue Cross

City of Philadelphia
CBRE
Bedrock Group LLC
2101 Cooperative
Kaiserman Company

Participating property owners and managers gain access to a network of peers to share strategies, best practices, tools and resources to improve upon the performance of and add value to their assets, including financing information, aggregate building performance data and building operator trainings.

Property partners will reach their goals through sophisticated operations, robust tenant engagement, as well as strategic investments in conservation and efficiency strategies.

Meeting Level Sponsors

Thanks to our Philadelphia 2030 District sponsors, without whom we could not provide the necessary resources to assist our property partners in meeting their goals.



Individual Membership

When you become an individual member of Green Building United, you invest in our mission, and have the opportunity to engage at the local level in green building issues that have community, regional, and global impacts.

	Chapter Member	Chapter Member w/ USGBC Member Company Discount*	Student or Emerging Professional**
STANDARD	\$100	\$75	\$25
PRO ***	\$150	\$125	\$75

Every single event I attend with Green Building United makes me energized and optimistic about our future. My involvement keeps me engaged with movers and shakers in the green building industry. The professional connections I have developed through Green Building United membership have been a huge business advantage.

– Kristen Suzda, Architect, WRT

* Must be employee of a USGBC Member Company to be eligible. See if your company is a USGBC Member by searching at usgbc.org/organizations

** Students must be enrolled full-time and emerging professionals must be out of school and under 30 to be eligible

*** Members who take advantage of the Pro option receive free access to all webinars, valued at up to 30 CEUs

Benefits

- > Discounted admission to Green Building United events including educational programs, tours, and LEED exam preparation courses, with opportunities for earning GBCI and AIA continuing education credits
- > Free admission to quarterly happy hour networking events
- > Opportunity to participate in selection of webinar topics
- > Eligibility to serve on committees and run for seat on Green Building United's Board of Directors
- > Special recognition in newsletters, social media, and on website's Member Spotlight page
- > Opportunity to vote on important Green Building United issues
- > Other Member discounts

Leadership Level Members

Members can also support Green Building United by donating at the individual leadership level as a Champion (\$1000), Steward (\$500), or Supporter (\$250). Leadership Members receive all Pro Membership benefits and are specially recognized on our website.

For questions about Sustaining Partnership and Event Sponsorship, please contact Margaret Salamon, Development Director, at msalamon@greenbuildingunited.org. For questions about Individual Membership, please contact Leah Wirgau, Education and Engagement Manager, at lwirgau@greenbuildingunited.org.

Thank You To Our Sustaining Partners

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