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2019 SUSTAINABILITY SYMPOSIUM

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RMF Engineering, Inc. — rooflite — Rulon International — SageGlass
Sustainable Energy Fund — U.S. Green Building Council — Ventacuity Systems
Symposium Schedule

<table>
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<tr>
<th>8:00 - 9:00 am</th>
<th>Registration, Breakfast, &amp; Expo</th>
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<tbody>
<tr>
<td>9:00 - 10:15 am</td>
<td><strong>Welcome &amp; Session 1</strong></td>
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<tr>
<td>10:15 - 10:45 am</td>
<td>Coffee Break &amp; Expo</td>
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<tr>
<td>10:45 - 11:45 am</td>
<td><strong>Session 2 or Tour 1</strong></td>
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<tr>
<td>11:45 am - 12:45 pm</td>
<td>Lunch &amp; Expo</td>
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<tr>
<td>12:45 - 1:45 pm</td>
<td><strong>Session 3 or Tour 2</strong></td>
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<td>1:45 - 2:15 pm</td>
<td>Break &amp; Expo</td>
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<tr>
<td>2:15 - 3:15 pm</td>
<td><strong>Session 4 or Tour 3</strong></td>
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<tr>
<td>3:30 - 4:30 pm</td>
<td><strong>Session 5 or Tour 4</strong></td>
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**Session Tags**

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<tr>
<th>Energy</th>
<th>Equity</th>
<th>Green Spaces</th>
<th>Health</th>
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<tr>
<td>Materials</td>
<td>Other</td>
<td>Policy</td>
<td>Solar</td>
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The conference is worth 5 AIA LU-HSWs and 5 GBCI CE hours (LEED/WELL specific credit is noted with session description in program when applicable).

<table>
<thead>
<tr>
<th>Building 661</th>
<th>Room 107</th>
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<td>Other</td>
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<tr>
<td>Session 2 or Tour 1*</td>
<td>10:45 - 11:45 am</td>
<td>Community Solar for Greener Buildings</td>
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<tr>
<td>Session 3 or Tour 2*</td>
<td>12:45 - 1:45 pm</td>
<td>Designing a Hybrid Ventilation System for Occupant Comfort and Energy Savings</td>
<td>Energy</td>
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<tr>
<td>Session 4 or Tour 3*</td>
<td>2:15 - 3:15 pm</td>
<td>GSI Research to Practice: Lessons learned from the I-95 corridor reconstruction</td>
<td>Green Spaces</td>
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<tr>
<td>Session 5 or Tour 4*</td>
<td>3:30 - 4:30 pm</td>
<td>Smart For All: Smart thermostats in low income multifamily</td>
<td>Energy</td>
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*Tour descriptions can be found on pages 6 and 8.
Drive Awareness, Share Methodology, Take Action

materialsCAN.org  @materialsCANorg  materialsCAN
Welcome to Green Building United’s 2019 Sustainability Symposium. We are thrilled to be hosting you again this year at 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 ninth 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 Presenting Sponsor, materialsCAN, and our Founding Sponsor, Brandywine Realty Trust, for supporting the Sustainability Symposium, along with the many other organizations whose support makes this conference possible.

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.

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Angela Iraldi — Jim Kerr — Anne Larsson — Chris Lee — Brendan McGrath — Laura Maiale — Brad Molotsky
Lauren Moss — Brian Peifer — Scott Pusey — Christian Saveoz — Emily Smith — Bahareh van Boekhold
Cameron Wise — Alanna Wittet

Sincerely,
Alex Dews and the Green Building United Team

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Lisa Shulock, Consultant, Twice Green Consulting
E. Mitchell Swann, Principal, MDC Systems, Inc.
Bahareh van Boekhold, Program Manager, Applied Energy Group
Howard Ways, Associate Professor and Program Director for the MS in Real Estate Program, Jefferson University
At Brandywine Realty Trust, we are committed to establishing quality sustainable practices within our buildings to enable the health, wellness, productivity and excellence of our tenants and employees. As such, we are proud to serve as the Founding Sponsor of Green Building United’s Annual Sustainability Symposium, as we work together in pursuit of a greener, more sustainable world.
Tours

Thank you to our Symposium Tour Committee for coordinating an outstanding series of tours:
Ramune Bartuskaite — Kate Flint — Arpita Ganti — Rob Morin — Bridget Novielli —
Lisa Shulock. Special thanks to Jen Tran and Bill Fisher.

Each tour is capped at 25 seats.
Tours are worth 1 GBCI CE hour and 1 AIA LU-HSW each.
Pre-registration is required. See registration table for information.

Tour 1 | 10:45 - 11:45 am

Energy at the Navy Yard: Testbed for the future of electrification and transition to renewables

The Navy Yard runs its own private unregulated electric utility and this tour will have two exciting stops that highlight this unique feature. We will first visit the Network Operating Center to learn how the Navy Yard Electric Utility is modernizing and integrating distributed energy resources (solar PV, peak shaving plant, battery storage, EV program, and more) and energy efficiency, demand response, and alternative tariff structures to be the utility of the future.

Next we will see Penn State’s building-scale microgrid which includes solar PV, battery systems, microturbine, and building integration to discuss the value and future of microgrids.

Rudy Terry, PIDC
Andy Mackey, ProtoGen Energy
Lisa Shulock, Twice Green
Rob Morin, Ameresco

Tour 2 | 12:45 - 1:45 pm

Green Stormwater Infrastructure at the Navy Yard: Innovation and resilience

Explore the green infrastructure masterplan for the Navy Yard and the role stormwater management plays in the resilience of a rapidly expanding urban neighborhood. The expansive green spaces increase the amount of pervious surfaces while encouraging physical activity and community engagement.

This scenic walking tour will feature the award winning Central Green (designed by James Corner Field Operations), League Island Park, and Langley Avenue. The tour will explore the innovative stormwater management systems throughout the Navy Yard. Rain gardens and bioswales will be highlighted by a walk along Rouse Boulevard, one of the many green streets.

Bill Fisher, Retired, Liberty Property Trust
Andrew Stathos, Pennoni
Katherine Weiss, Pennoni
Elizabeth Norton, Pennoni
Joseph Sikora, Sikora Wells Appel
We are committed to educating current and future leaders through our high-quality, innovative, and technologically progressive opportunities for lifelong learners. Graduate and continuing education programs are offered at the Navy Yard and at various Penn State campuses regionally.

**NAVY YARD PROGRAMS INCLUDE:**
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Penn State’s locations at the Navy Yard and in Malvern offer conference services which include auditorium seating, meeting rooms, and state-of-the-art technology. We work with businesses and organizations to create, host, and support customized events in an academic environment.

**LEARN MORE**

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610-648-3248 | nyskills@psu.edu
Making a Case for LEED: Case studies of a national and local brand |

This tour will comprise two fascinating cases of the LEED building standard applied on a national and local brand. The first is Courtyard by Marriott, a given hotel typology which was leveraged to redefine a national prototype. Tour attendees will learn how design guidelines intended for a typical suburban site were adapted for an urban site and maximize the efficiency and performance to make LEED an attractive feature for a Marriott franchisee.

The second building, FS Investments Headquarters, will serve as an example of a building that was designed to fit the owner’s company vision, unique culture, and wellness programs. Attendees will learn how a LEED building can encourage users to stay motivated, think creatively, and work hard for their investors, clients, and community.

Mark Sanderson, DIGSAU
Scott Erdy, Erdy McHenry
Nate Hamill, Erdy McHenry
Derek Beckman, Courtyard by Marriott
Ben Tamker, Liberty Property Trust
Tom Trala, FS Investments

Urban Outfitters, Inc.: Mixing past and present with adaptive reuse

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 headquarters in Philadelphia to more than 2,500 employees in the last 10 years. Tour attendees 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 headquarters 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 that consists of stacked fuel cells that convert chemical energy from natural gas and water into electricity, and more.

Jennifer Tran, PIDC
URBN Representative

Each tour is capped at 25 seats.
Tours are worth 1 GBCI CE hour and 1 AIA LU-HSW each.
Pre-registration is required. See registration table for information.

Tour 3 | 2:15 - 3:15 pm

Making a Case for LEED: Case studies of a national and local brand | LEED-specific GBCI credit

Tour 4 | 3:30 - 4:30 pm

Urban Outfitters, Inc.: Mixing past and present with adaptive reuse
At Jefferson, we’re creating a new model for humanity under the banner of sustainability.

Developed by a group of the top sustainable designers and experienced professionals across the country, our Sustainable Design program is an award-winning transdisciplinary, collaborative experience. Jefferson builds problem-solving skills to develop committed leaders who are changing the world through market-driven solutions.

Now offering **Passive House Design** and **Sustainability Leadership** courses!

**LEARN MORE and APPLY TODAY** at [Jefferson.edu/GreenSymposium](http://Jefferson.edu/GreenSymposium)
Welcome & Session 1 | 9:00 - 10:15 am

Real Estate Going Green: Maximizing green building valuation via real estate professionals, the MLS, and appraisers - Building 661, Room 107
Learning Level 300: Application/Implementation

Real estate is inherent to every green building project, but it is not frequently addressed within the green building community. Likewise, energy efficiency, water savings, wellness, walkable neighborhoods, and other green building features are burgeoning segments of the real estate market, yet they remain a limited focus for many real estate professionals and consumers. This panel aims to alter that dynamic as it explores the expanding synergies at the nexus of real estate and green building design.

The panel will detail how the real estate industry plays an increasingly complementary role to the green building sector, and identify where there is room for improvement. It will also highlight how the green building industry can better translate its features and benefits to real estate professionals and their clients.

Amanda Stinton, National Association of REALTORS®
Betsy Hanson, Council of Multiple Listing Services
Woody Fincham, Valucentric
Moderator | Keith Parsons, Keller Williams Real Estate

Meeting the Spiritual, Ethical, and Existential Challenges in the Age of Climate Change
Building 661, Room 201
Learning Level 100: Awareness

Synergy is when actions have an effect greater than the sum of their parts. Faith does this. The IPCC report is a clarion call to act. Our communities must do more than learn how to build sustainably. We must synergistically address the human beings inclusive of the whole natural world. We have intense feelings, conflicts, and challenges as we face, avoid, or deny the crisis. These distresses impact our ability to make the decisions to move in a positive collective fashion.

The panel - a Rabbi, Iman and Reverend, moderated by a spiritual atheist - will focus on sources and resources for sustaining hope in the face of mounting effects of climate change. What do our faith traditions offer not only as a charge or set of ethics/values to become active, but to support and sustain us through these troubled times? How might these resources be of value to everyone regardless of one's religiosity?

Daniel Swartz, Coalition on the Environment and Jewish Life
Alison Cornish, PA Interfaith Power and Light
Saffet Catovic, GreenFaith and Green Muslims of New Jersey
Moderator | Laura Blau, BluPath Design

Grid-Scale Solar: Elevating Southwestern PA’s impact on the state’s solar future - Building 661, Room 202
Learning Level 300: Application/Implementation

The Pennsylvania Department of Environmental Protection (DEP) established a goal for increasing solar electricity generation across Pennsylvania to 10 percent by 2030. Although Pennsylvania’s Alternative Energy Portfolio Standard requires only 0.5 percent, the current capacity is less than 0.25 percent. For the state to reach this ambitious new goal, 10 to 12 gigawatts of new production are needed across the Commonwealth. Reaching this target will require the deployment of grid-scale solar installations across the state. Optimizing siting and place-
For businesses, saving energy never looked so good.

Energy-efficient upgrades are a bright way for businesses of all sizes to reduce operating costs, increase comfort and grow the bottom line.

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PECO. The future is on.
Lessons from the Navy Yard: Sustainable commercial development - Building 7R, Room 103
Learning Level 300: Application/Implementation | LEED-specific GBCI credit

The Navy Yard is a dynamic, sustainable urban campus that arose from the transformation of the former Philadelphia Naval Shipyard. One of the nation’s oldest shipyards, the Navy Yard was closed in 1996. Since 2003, Liberty Property Trust (LPT) has worked to develop the Navy Yard, where more than $1 billion has been invested into the campus. Today, the Navy Yard is a mixed-use community filled with energy, ideas, and rich history, united together on more than seven miles of waterfront, occupying 7.5 million square feet of real estate in a variety of historic buildings and new high-performance and LEED certified construction.

This effort has impacted LPT’s approach to commercial development beyond the Navy Yard, positioning them as one of the nation’s leaders in sustainable, high-performance development. The panel will discuss specific lessons learned at the Navy Yard and describe how they have led LPT to develop the industry’s first procedure-based LEED Volume Program, which ensures that every Liberty industrial development achieves LEED certification. Within the context of this overview, panelists will describe the technical, economic, and financial challenges and the strategies and methods that have evolved over this multi-year, multi-building endeavor.

Jeff Goldstein, DIGSAU
Brian Cohen, Liberty Property Trust
Bryan Astheimer, Re:Vision Architecture

Living Air Conditioning and Carbon Sponges: Biophilic solutions to urban heat islands
Building 7R, Room 209
Learning Level 200: Understanding/Comprehension

The heat island effect is directly exacerbated by climate change and represents one of the most potentially devastating impacts for the health of urban populations. Climate scientists predict that within 30 years, Philadelphia will spend as many as 74 days/year above 90 degrees Fahrenheit - seven weeks more than we currently experience. While the sustainability field focuses on high-tech mechanisms to slow the accumulation of heat-trapping carbon dioxide, we must also work with nature’s low-tech expertise to cool our city. Biophilic solutions encompass not only carbon neutral initiatives, but carbon negative strategies, with well-designed, integrated natural materials that act as carbon sponges.

Using the Sustainability Office’s Heat Vulnerability Index, this session will incorporate the issue of equity (low income communities being the most vulnerable) into the larger, proactive, and positive discussion of how we can rebuild the city as resilient, vibrant habitat.

Helena van Vliet, Helena van Vliet LLC; BioPhilly
Laura Hansplant, Roofmeadow
Fredda Lippes, City of Philadelphia, Department of Public Property; BioPhilly
Moderator | Sadie Francis, BioPhilly
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The 2030 Challenge for Planning: Reducing transportation emissions - Building 7R, Room 211
Learning Level 300: Application/Implementation

Buildings and transportation are responsible for more than half of global greenhouse gas (GHG) emissions. To prevent the worst impacts of climate change, a concerted effort is needed on the global, regional, community, and building levels to limit GHG emissions. 2030 Districts bring together property owners and managers with professional and community stakeholders, local governments, and utilities to achieve voluntary reductions in energy and water use, and in transportation emissions by the year 2030.

Only five (of the 22) 2030 Districts across the United States and Canada baseline and track transportation emissions. As the fastest growing source of GHGs, there is a lack of standardized methodology to measure transportation emissions at a district scale. 2030 Districts provide a unique opportunity to create one. This session will provide a review of planning themes that are emerging across all 2030 Districts and present a potential standardization methodology for reducing transportation emissions in the districts.

Paul Levy, Center City District
Katie Bartolotta, Green Building United
Moderator | Yogesh Saoji, WRT

Session 2 | 10:45 - 11:45 am

Community Solar for Greener Buildings - Building 661, Room 107
Learning Level 200: Understanding/Comprehension

Community solar will provide access to solar energy for all Pennsylvanians, allowing customers to subscribe to a portion of a large array. Large community solar systems can provide energy at very competitive prices, offering multiple advantages to customers and green building owners, and making it easier to reach net zero and other green building standards. The PA Solar Energy Industries Association (PASEIA) and the Philadelphia Solar Energy Association (PSEA) are working with a broad coalition of organizations and bipartisan groups of legislators in both the House and Senate. Legislation has been introduced and is expected to pass in 2019.

Ron Celentano, PA Solar Energy Industries Association
Roger Clark, Reinvestment Fund
Liz Robinson, Philadelphia Solar Energy Association

Social Impact Investing Fact vs. Fiction: A real thing or just smoke and mirrors?
Building 661, Room 201
Learning Level 100: Awareness

Environmental, social, and governance (ESG) criteria are a set of operational performance standards that socially conscious investors use to screen potential investments. Environmental criteria look at how a company performs as a steward of nature. Social criteria examine how a company manages relationships with its employees, suppliers, customers, and the communities where it operates. Governance deals with a company’s leadership, executive pay, audits, internal controls, and shareholder rights. Stockbrokers have recently been introducing opportunities for their customers to invest in ESG through ETFs and other assets. Robo-advisors like Betterment have used ESG to appeal to younger investors that are concerned with more conscientious investments. In this introductory session we will explore what ESG investing is all about, and how its principals are being used as a filter, screen, and overlay for investing purposes.

Jennifer Wong, Glenmede
Daniel Alger, Goldman Sachs
Chris Pyke, ArcSkoru
Moderator | Brad Molotsky, Duane Morris
Having the environmental "IT" factor has never been more important.

When customers walk into shop, students enter a building for classes, or employees arrive for work—facilities must be clean and leave a positive impression. As a member of the U.S. Green Building Council (USGBC), we have the resources and expertise to help you implement cleaning programs comprised of sustainable products and processes.

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Health & Well-Being in High-Performance Offices: Pursuing WELL with the Wharton School Building 661, Room 202
Learning Level 300: Application/Implementation | *WELL-specific GBCI credit*

As seen in WELL and LEED v4, organizations are prioritizing wellness to improve employee engagement and satisfaction. This presentation shall feature a detailed case study of a high-performance office environment for the Wharton School at the University of Pennsylvania. This 20,000 square foot fit-out was completed in August 2018 and is pursuing Silver Certification under the WELL v1 Building Standard. Typically, Wharton requires LEED Gold Certification, but this shall be the first WELL project across the University’s portfolio.

Wharton chose WELL to demonstrate their commitment to health and well-being and to test innovative strategies for future projects. The presentation will describe our approach for managing the WELL certification process and incorporating wellness in design, construction, and operational practices.

With only 300+ WELL projects in the United States, this presentation is designed to inspire more project teams to incorporate wellness in project objectives and innovative strategies for positive health outcomes.

Chloe Bendistis, The Sheward Partnership
Michael Pavelsky, The Sheward Partnership
David Mazzocco, The Wharton School, University of Pennsylvania

Can your spec reverse global warming? - Building 7R, Room 103
Learning Level 100: Awareness

The building sector is the world’s single largest emitter of greenhouse gases (GHGs), accounting for 30 - 40 percent of total global GHG emissions. Although operational emissions account for more of a building’s carbon footprint over its entire life, between now and 2030 almost 75 percent of the carbon footprint of that 900 billion square feet will be embodied carbon, not operational emissions. Building products can reduce their carbon footprints and even become carbon sinks that help remove excess greenhouse gases from the atmosphere. Since organizations like Architecture 2030, AIA, and USGBC have traditionally focused on reducing operational carbon emissions, shifting some of our focus to address the more immediate challenge of embodied carbon requires wide-spread education on the emerging toolbox available to industry professionals.

This session will equip manufacturers, architects, designers, and other building industry professionals with specific and practical strategies for selecting products and materials that reduce embodied carbon emissions and move the industry toward making buildings part of the solution instead of less of the problem.

Megan O’Connell, materialsCAN: Skanska
Dennis Wilson, materialsCAN: CertainTeed
Jim Camp, materialsCAN: Gensler
Holly Harshman, materialsCAN: Gensler
Moderator | Lisa Conway, materialsCAN: Interface

Achieving Decarbonization Goals through Building Codes - Building 7R, Room 209
Learning Level 100: Awareness

Cities and states are setting ambitious climate and sustainability goals with specific carbon reduction targets by 2030, 2040, and 2050. Buildings are responsible for 40 percent of U.S. carbon emissions, and U.S. buildings alone use more energy than every country except China. Building energy codes are one of the most effective policies for reducing building energy use and are increasingly important in the absence of federal action to combat climate change, but without addressing critical obstacles to building energy code adoption, enforcement, and compliance, many cities and states will not be able to achieve their decarbonization goals.
Transforming Tomorrow

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This session will provide examples of city and state policies that use energy codes as tools to meet these goals. The session will also discuss obstacles to the adoption of progressive energy codes, challenges in code enforcement and compliance, and best practices for overcoming these hurdles.

**Mike Turns**, Performance Systems Development  
**Kim Cheslak**, Institute for Market Transformation  
**Katie Bartolotta**, Green Building United

### Headlining the Industry: How media shapes the sustainability narrative - Building 7R, Room 211  
**Learning Level 200: Understanding/Comprehension**

Due to the federal administration's vocal perspective on climate change, sustainability topics are gaining momentum and making more headlines than ever before. Buildings play an important role in this conversation because they are considered a major creator of CO2 emissions; however, the sustainability narratives we read on a daily basis come from the media who play an integral role in shaping this story.

This panel will delve into media's role in telling sustainability stories, including buildings' contribution to climate change and how local governments can create positive change in spite of the administration's intent. Moderated by Laura Emanuel, Vice President at Brownstein Group, this panel will include media from The Philadelphia Inquirer, GlobeSt.com, and The Architect's Newspaper, who will share their unique perspectives on how they cover sustainability news. They will also provide recommendations for how firms can best approach them with specific insights on larger trends and project-specific news.

**Frank Kummer**, The Philadelphia Inquirer  
**Steve Lubetkin**, NJ/PA Editor, GlobeSt.com  
**Gabrielle Golenda**, The Architect's Newspaper  
**Moderator | Laura Emanuel**, Brownstein Group

### Session 3 | 12:45 - 1:45 pm

#### Designing a Hybrid Ventilation System for Occupant Comfort and Energy Savings  
**Building 661, Room 107**  
**Learning Level 400: Mastery**

Hybrid ventilation systems can improve interior working conditions while also reducing energy consumption. This presentation will describe the experimental process of designing a hybrid system within a retrofit industrial building.

In 2015, KieranTimberlake adapted a pre-existing bottling factory into its new Philadelphia studio. With intent to minimize reliance on mechanical cooling, they engaged Transsolar to design a control strategy that would provide effective hybrid natural ventilation while balancing occupant comfort and energy consumption. Transsolar developed a model that was calibrated using comprehensive building performance data collected by KieranTimberlake. This strategy allowed Transsolar to iterate modes of operation with comparative results relative to occupant comfort and energy consumption.

This presentation will discuss the process and technical aspects surrounding the design and implementation of this system. It will explore lessons learned through trial-and-error and simulation. The principles derived from this case study can be applied to projects at multiple scales and locations.

**Jason Ciotti-Niebish**, KieranTimberlake  
**Kit Elsworth**, KieranTimberlake  
**Krista Palen**, Transsolar Kilma Engineering
Designers of Unisphere: one of the largest, site-powered commercial net zero building in the United States.

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Deploying Urban Solar: Bringing PV to a diversity of communities and buildings in Philadelphia - Building 661, Room 201
Learning Level 200: Understanding/Comprehension

Philadelphia is the fourth fastest growing urban solar market in the country. The number of solar photovoltaic (PV) installations in Philadelphia has more than tripled since 2016. Four-hundred and forty-eight (448) new solar projects came online in 2018 alone, making it a record year for the City’s burgeoning solar industry. Despite this recent progress, solar is still relatively new to Philadelphia and many sustainably minded building owners and architects may not know where to begin or how to best evaluate available financing options to take advantage of the energy-, cost-, and carbon-savings potential of this exciting technology.

Attendees will learn the principles of residential and commercial solar finance for urban markets, how to evaluate financing options for a diversity of building-types and ownership structures, and how Philadelphians can deploy more solar to currently underserved markets, including the commercial sector and low- and moderate-income households.

Thea Gudonis, Solar States
Matt Handel, Alliance Partners HSP | The Shidler Group
Chris Spahr, Centennial Parkside CDC
Moderator | Ben Vila, Philadelphia Energy Authority

C-PACE in Pennsylvania - Building 661, Room 202
Learning Level 200: Understanding/Comprehension

Pennsylvania became the 35th state to enable Commercial Property Assessed Clean Energy (C-PACE) in the summer of 2018. C-PACE is a financing tool for energy efficiency, renewable energy, and water conservation systems on commercial properties. Over $700 million has been invested through C-PACE in the last several years.

Attendees will hear about projects from across the region that have utilized C-PACE and will learn about local opportunities in Pennsylvania to finance commercial renewable energy and energy efficiency projects with C-PACE. This session will review Pennsylvania program technical requirements, including the baseline survey, measurement and verification, energy efficiency standards, and other guidelines.

Abby Johnson, Abacus Property Solutions
Julian Boggs, Keystone Energy Efficiency Alliance
Emily Schapira, Philadelphia Energy Authority
John Costlow, Sustainable Energy Fund

Regenerative Agriculture and Climate Change: Saving the planet with food - Building 7R, Room 103
Learning Level 300: Application/Implementation

Global climate change is accelerating. Extremely aggressive emissions reductions are required to limit the damage from these changes - over and above those negotiated in the 2016 Paris Agreement. Learn the state of the world from a climate scientist and explore solutions through agriculture.

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.

Edward Dunlea, Carnegie Mellon University - Mellon College of Science
Chad Adams, Ground Plan Studio
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Campus Energy Savings by Continuous Automated Commissioning at Temple University
Building 7R, Room 209
Learning Level 300: Application/Implementation

As part of a larger energy study for Temple University, a pilot project implementing Continuous Commissioning (CAC), sometimes called Fault Detection, was implemented at three buildings on Temple’s main campus. The presentation will start at the energy study phase, go through preliminary and final design, and wrap up with implementation and operations. Temple has been using the system for several years now and will present data and anecdotal information on the performance of the system. The presentation will cover the challenges and benefits of implementing CAC on campus systems.

William Pitz, RMF Engineering, Inc.
Nicholas Beale, Temple University
Jim Harven, The Efficiency Network

LEED in the City: Lessons learned by the City of Philadelphia - Building 7R, Room 211
Learning Level 200: Understanding/Comprehension | LEED-specific GBCI credit

With over 600 facilities in its portfolio, the City of Philadelphia amended its code in 2009 to require that new construction and major renovations for many facilities meet LEED Silver specifications, specifically to target energy efficiency goals. Since then, the City has learned valuable lessons on what can work within the structuring of City contracts and building maintenance and operations, ultimately affecting the design and construction process. Hear lessons learned from project professionals representing Philadelphia’s Office of Sustainability and Department of Public Property as they talk about municipal projects of the past and present covering design, construction and post-occupant operations.

Roy Conard, City of Philadelphia, Department of Public Property
Michelle Shuman, City of Philadelphia, Department of Public Property
Paul Spiegel, Practical Energy Solutions
Moderator | Dominic McGraw, City of Philadelphia, Office of Sustainability

Session 4 | 2:15 - 3:15 pm

GSI Research to Practice: Lessons learned from the I-95 corridor reconstruction
Building 661, Room 107
Learning Level 300: Application/Implementation

The Pennsylvania Department of Transportation (PennDOT) is incorporating extensive green stormwater infrastructure into the reconstruction of the I-95 corridor in Philadelphia, which will take place over the next 25 years. These stormwater management practices (SMPs) are designed to capture the first inch or more of stormwater that falls on the highway and allow it to infiltrate rather than enter the storm sewer network. The use of SMPs to manage stormwater runoff stems from requirements of the Pennsylvania Department of Environmental Protection and the Philadelphia Water Department’s Green City, Clean Waters program, which were designed to address combined sewer overflow problems in Philadelphia.

Villanova University, in partnership with Temple, has developed and is continuing a fundamental and applied research program to advance the knowledge base of the profession, and to assist and inform PennDOT and its consultants on stormwater management design and maintenance practices implemented as part of the I-95/GIR project, which are transferable across the Commonwealth. Presenters will discuss what has been learned from the research to-date.

Edwina Lam, AECOM
Erica McKenzie, Temple University
Bridget Wadzuk, Villanova University
Christian Lynn, AECOM
Moderator | Robert Traver, Villanova University
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 from 4:30 - 6:30 pm at Acid Bath, URBN, Building 543, 500 S Broad Street.
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WELL and Fitwel: Fads or keys in our evolution towards sustainable, livable work spaces?
Building 661, Room 201
Learning Level 200: Understanding/Comprehension

In 2011, the Center for Active Design (CFAD) was launched by then-Mayor Michael Bloomberg to transform New York City’s groundbreaking Active Design program into an international movement. Over the last five years CFAD has gone global, reaching over 180 countries and informing the design of buildings and public infrastructure projects around the world. The Fitwel Certification System marks a new chapter in CFAD’s work. By providing a standard for the building industry, Fitwel supports widespread adoption of health promoting strategies through a user-friendly digital portal. This comes at a time when health has become increasingly important to building owners and developers in response to growing demand from consumers.

WELL is a building standard curated by the International Well Building Institute that focuses on various components of an individual experience within the built environment to measure specific health outcomes. With over 1,548 WELL projects worldwide, 313 million feet of WELL certified space in over 48 countries, and over 7,619 professionals certified or working on certification in 81 countries, WELL continues to grow in reach and depth. In this session we will explore the shift towards the individual, and productivity measuring – via WELL and Fitwel.

Joanna Frank, Center for Active Design
Jessica Cooper, International Well Building Institute
Moderator | Brad Molotsky, Duane Morris

Staying Below 1.5°C: Where cities, states, and regions fit into global climate action
Building 661, Room 202
Learning Level 300: Application/Implementation

The imperative for rapid, massively scaled climate action grows with each passing year. Broad scientific consensus sets the limit for a livable future at 1.5°Celsius in global temperature rise, and the only way to achieve this is through deep, sustained cuts in greenhouse (GHG) emissions to achieve carbon neutrality. While this goal is clear, the path to carbon neutrality is complex and fraught with challenges.

Working backward from 2050, this panel will briefly review the tools and technologies available to achieve the required reductions in carbon emissions (good news, they already exist!). This will be followed by an in-depth discussion on the roles of various actors to achieve a just transition to carbon neutrality, focused on health, equity, and economic prosperity. Cities can play a leadership role on innovative policy and program implementation, but their scope of impact is limited. States have more regulatory power to move energy markets, but can be very slow to change. Regions leverage broader economic footprints, but lack central governance. Better collaboration across these scales will also be necessary to maximize the potential of current climate efforts.

Alex Dew, Green Building United
Ariella Maron, Lion Advisors

Regenerative Community Redevelopment: From disinvestment to regeneration
Building 7R, Room 103
Learning Level 200: Understanding/Comprehension

For too long, sustainability has been understood as incremental improvements to business as usual. True sustainability of life on the planet would imply that every human intervention and every design decision would serve to meet our current needs while not impairing future generations from doing the same. Our industrial economy is inherently extractive and the planet is decidedly finite. As runaway climate change and chemical pollution illustrate, we need a total reversal from “less-badism” to “regeneration”.

Drawing on a half-century history of regenerative design and systems thinking practice, our team endeavors to achieve regenerative design and practice while working within the constraints of the affordable housing and
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Regenerative Community Development cont’d

collection industry. We will share an introduction to regenerative design principles and process, and case studies from three projects in Baltimore and Pittsburgh. All of the projects discussed have the general goals of Passive House performance, the aspiration of Zero Energy, low carbon construction, and true community partnership. Special focus will be placed on the process and early outcomes of community engagement and equity efforts.

**Michael Hindle**, Passive to Positive

**Carri Beer**, CommONEcology

**Candace Chance**, The VPI Firm

**Moderator | Courtney Koslow**, Beacon Communities

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**We Should Know Better: Top 10 multifamily design mistakes** - Building 7R, Room 209

Learning Level 200: Understanding/Comprehension

The residential building industry has made incredible progress toward sustainability and energy efficiency goals. At the same time, registered architect, building scientist, senior green rater, and session presenter, Steve Klocke, has found that many new buildings underperform because designers continue to make simple, avoidable mistakes. The affordable housing market in particular has the most to gain (and lose) when mistakes impact health, durability, tight schedules, and tighter budgets. Smart design choices yield buildings that are easier to build, resulting in lower costs, more predictable construction schedules, and higher quality buildings. The inspections, testing, and commissioning are more successful, and most importantly, a building that incorporates smart design decisions is more valuable to owners and occupants. Based on lessons learned while certifying nearly 1,500 dwelling units over the past eight years, Klocke will present the top ten design mistakes being made over and over again, and how to avoid them.

**Steve Klocke**, Steven Winter Associates

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**Equity Is: Perspectives from business, communities, and practice** - Building 7R, Room 211

Learning Level 200: Understanding/Comprehension

What do we mean when we say “equity”? Does the answer change in business, in development, in the workforce? How does a diverse project team produce better outcomes? How does equitable development benefit a local community and the larger society?

This panel discussion will seek to define the term “equity” in sustainable design, business, construction, and development. Experts from across the city, region, and nation will provide wisdom, insights, and case studies to show the challenges and benefits of achieving equity in their fields and within the communities they serve.

**Beth McConnell**, PACDC

**Samantha Porter**, City of Philadelphia Office of Community Empowerment and Opportunity

**Moderator | Kristen Suzda**, WRT
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Session 5 | 3:30 - 4:30 pm

Smart for All: Smart thermostats in low income multifamily - Building 661, Room 107
Learning Level 200: Understanding/Comprehension

This session will review the initial outcomes of a large scale utility pilot aimed at determining the potential savings impacts of smart thermostats in low and moderate income multifamily rental units. Speakers will discuss the challenges encountered from a technical perspective, as well as insights into the user experience from resident and building owner perspectives. The pilot installed almost 1000 thermostats across a variety of building and system types, provided a range of building level connectivity solutions, and included multiple thermostat brands. Speakers will also discuss an assessment of market potential, taking into account the limitations and opportunities encountered in the pilot.

Impact evaluation will be ongoing through 12 months post-installation (through end-of-2019), so this session will focus on the wealth of lessons learned from the initial design and implementation experience, with presenters from the utility, implementer, and IoT teams.

Ben Adams, MaGrann Associates
Rachael Fredericks, Public Service Electric & Gas
Charlie Hill, STRATIS IoT

The AIA COTE Top Ten Toolkit: Closing the information gap - Building 661, Room 201
Learning Level 200: Understanding/Comprehension

In December 2018, the AIA Committee on the Environment (COTE) released a new sustainable design tool - the COTE Top Ten Toolkit - along with an easy to use, interactive “Super Spreadsheet”. This tool draws from the collective wisdom of over 20 years of exemplary projects in the COTE Top Ten Award program and gives project teams the resources to create high performing, sustainable designs for all projects, even those not pursuing awards. In this PechaKucha-style session, presenters from different sized design firms will review the purpose behind this new design tool, give an overview of the Ten Measures in the Top Ten Framework, and demonstrate how Design teams are using the “Super Spreadsheet” to make specific projects more sustainable.

David Hincher, Ballinger; AIA COTE® Top Ten Toolkit Committee Member
Daphne More, Daphne More AIA, LLC
Paul Thompson, IEI Architects
Sherman Aronson, BLT Architects
Jonathan Weiss, Jacobs
Brian Smiley, HOK, Inc.; AIA Philadelphia COTE® Chair; AIA Pennsylvania COTE® Co-Chair

Renewables, Nuclear, and How Pennsylvania’s Electricity Grid Might Change - Building 661, Room 202
Learning Level 200: Understanding/Comprehension

This session will explore how Pennsylvania’s grid is changing through three different lenses. First we will explore and understand the City of Philadelphia’s Power Purchase Agreement (PPA) with Adams Solar LLC, which will help build the state’s largest solar project today. Using this as an example, next we will discuss how institutions and organizations can do PPA’s. Attendees will learn about how PJM, the regional grid operator, and Federal Energy Regulatory Commission, influence the electricity markets and how businesses can get involved. Lastly, we will discuss what the Pennsylvania state legislature is considering to influence and change Pennsylvania electricity grid with specific emphasis on how nuclear and renewable energy power plants might benefit.

Adam Agalloco, City of Philadelphia
Mark Szybist, NRDC
Lessons from a Certified EnerPHit Industrial Building in Sri Lanka - Building 7R, Room 103
Learning Level 300: Application/Implementation

Jordan Parnass Digital Architecture and Steven Winter Associates have been working remotely with a project team across the world to retrofit an outdated factory in Katunayake, Sri Lanka and turn it into an EnerPHit certified garment manufacturing facility. Construction began on the facility in fall 2016, preliminary testing and verification took place in fall 2017, and final testing was conducted in the spring of 2018. The project was certified to as EnerPHit Pilot project in summer of 2018 and over a year’s worth of utility data is showing up to 60 percent in energy savings when compared to the pre-retrofit factory.

This presentation will focus on the challenges of: 1) Certifying projects in hot humid regions of the world; 2) Remotely performing QA/QC to ensure the Passive House standard is being met; and 3) performing air leakage testing in remote areas.

Dylan Martello, Steven Winter Associates
Jordan Parnass, Parnass Digital Architecture

Closing the Loop on Transparency - Building 7R, Room 209
Learning Level 300: Application/Implementation

Creating a healthy materials economy requires participation from across the building and design industry. Over the past several years, building product manufacturers across multiple product categories have responded to the calls from the design community for more ingredients and environmental transparency through the creation of hundreds of Declare Labels, EPD’s, HPD’s, and others. In July 2018, 38 leading building product manufacturers wrote a letter to the architecture and design community urging them to take the next steps to close the loop on transparency by specifying and advocating to owners for transparent materials.

During this interactive session, presenters will explore the role designers and specifiers need to play in the materials economy. Presenters will discuss current barriers for incorporating materials transparency and potential solutions to these barriers in an open dialogue with event participants. Participants will also hear from Tarkett about the company's sustainability journey and how it ultimately led them to pursue the Living Product Challenge.

Gemma Antoniewicz, GreenCircle Certified
Dhruv Raina, Tarkett USA Inc.
Christopher Lee, Jacobswyper Architects

Beyond Benchmarking: Tapping into market resources and tools to close building performance gaps - Building 7R, Room 211
Learning Level 300: Application/Implementation

Benchmarking is just the first step. To activate your plan, you need to know where and how to get started. PECO Building Assessment Reports (BAR) offer customers a site-specific and easy-to-digest summary of annual energy usage, costs, and specific recommendations for potential savings opportunities. By using facility information and 30-minute kW interval data to show energy variations based on weather, day-of-week, and building schedule, customers can easily “see” where their systems are falling short, prioritize, and immediately take action. Reports include recommendations for building retrocommissioning, controls, maintenance, and energy efficiency projects to assist with reducing overall energy use and fulfilling the City of Philadelphia’s energy benchmarking requirements.

This presentation will also highlight utility, PJM, State, and commodity-based incentives that can assist in funding facility upgrades.

Jeff Byers, PECO
Andrew Kreider, US EPA Region 3
Chris Pyke, ArcSkoru
Moderator | Tom Brubaker, PECO
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**THE SOLUTION**

Dynamic glass automatically modulates its visible light transmittance, and in turn its solar heat gain, based on climate conditions. This dynamic property can reduce total energy loads by 20% and peak demand by 26%. In so doing, it also delivers enhanced comfort by maximizing daylight while controlling heat and glare.

**THE BENEFITS**

PHFA is targeting passive house certification, thanks in part to SageGlass®. PHFA is among many buildings around the country using dynamic glass to meet targets such as LEED® Gold, LEED® Platinum, Net-Zero and Passive House.
THE CHALLENGE

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Interested in other energy code trainings? Check out the new content in our on-demand webinar library seen below.

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- Philadelphia Energy Code Changes for Additions and Alterations
- How Do We Get from Passive House to Truly Low-Carbon Net-Zero Buildings?
- Hard Lessons Learned: Architects, engineers, and achieving high performance buildings
- Is Pennsylvania on the Brink of Creating an Energy Policy?
- and more!

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- Drexel University
- Pennrose Properties
- SEPTA
- School District of Philadelphia
- Independence Blue Cross
- City of Philadelphia
- CBRE
- Philadelphia Ronald McDonald House
- 2101 Cooperative
- Kaiserman Company
- Bedrock Group

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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.

### 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 Green Building United happy hours and networking events
- Opportunity to participate in selection of educational topics
- Eligibility to serve on committees and run for seat on Board of Directors
- Opportunity for special recognition in newsletters, social media, and blog
- Select invitation 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.

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*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

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**Discount**

<table>
<thead>
<tr>
<th></th>
<th>Chapter Member</th>
<th>Chapter Member w/ USGBC Member Company Discount*</th>
<th>Student or Emerging Professional**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STANDARD</strong></td>
<td>$100</td>
<td>$75</td>
<td>$25</td>
</tr>
<tr>
<td>**PRO *****</td>
<td>$150</td>
<td>$125</td>
<td>$75</td>
</tr>
</tbody>
</table>

*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

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Contact Us: 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 Director, at lwirgau@greenbuildingunited.org.
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