



## 9<sup>th</sup> Annual REBUILD Conference Keynote & Breakout Session Course Descriptions

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### Morning Keynote: 7:45am-8:45am

#### **Title:** *Can Gamification and The Environmental Imagination Save the Planet?*

#### **Speaker:**

Katie Patrick, Environmental Engineer & Designer, Author of *How to Save the World*

#### **Presentation Overview:**

Games are a big deal. But can they save the planet? Since the recent tech startup boom, entrepreneurs have been investing in the art of getting their users *to do stuff* – triggering a renaissance in the field of behavioral psychology. Designers then took another step, looking to understand why games are so effective at getting their players hooked – and called this new approach *gamification*.

What happens when you put behavioral design, gamification, and technology entrepreneurship together with big environmental causes like climate change, air pollution, and deforestation? Can we change people's environmental behavior using gamification techniques? Can we make saving the world as fun as a game? Katie calls this emerging movement "Fitbit for the Planet" design.

#### **Key Learnings**

- The value of showing people real-time data from sensors and satellites to teach them their environmental footprint – CO<sub>2</sub>, water, waste, pollution – just as a Fitbit shows you the number of steps you've taken.
- The research and examples on environmental imagination exercises and how positive environmental futures drive action and behavior.
- Evidence-based Behavioral psychology that nudges people to take pro-environmental action.
- Why we need to illustrate a positive vision, an "I have a dream speech" for the sustainable future.

#### **About Katie:**

Katie Patrick is an Australian-American environmental engineer, designer, and author of *How to Save the World: How to make changing the world the greatest game ever played*. Her company, Hello World Labs, applies data-driven, game design, and behavior-change techniques to solve the world's most pressing environmental problems. Katie is the founder of Zerowastify.com, an app designed to better measure and report municipal solid waste, and UrbanCanopy.io, a map-based application that uses spectral imaging of urban heat islands and vegetation cover to encourage urban greening initiatives. She is the creator of the zero-waste behavior-change game, YouTube series, and book *Detrashed*.



Katie has been a media spokesperson on environmental issues and has been featured on TV, radio and in magazines including the BBC, Vogue Australia, and ABC. She was CEO of the VC-funded green-lifestyle magazine Green Pages Australia and was appointed environmental brand ambassador by the Ogilvy Earth advertising agency for Volkswagen, Lipton Tea, and Wolfblass Wines. She has served on the board of Australia's national eco-label, Good Environmental Choice Australia, and won the 2008 Cosmopolitan Woman of the Year Award for entrepreneurship. After graduating from the Royal Melbourne Institute of Technology with a Bachelor of Engineering in Environmental Engineering, she worked as an environmental design engineer for building engineers Lincoln Scott in Sydney Australia on some of the world's first platinum-LEED-certified commercial buildings. Katie lives in San Francisco with her young daughter, Anastasia.



## Morning Breakout Sessions 1: 9:15am-10:15am

### Breakout 1A

**Title:** *VEGA Americas: Creating Harmony Between People, Planet, and Prosperity by being Vital, Virtuous and Viable*

**Speakers:**

Daniel Lessing, LEED AP BD+C, CEM, Industrial Team Client Leader, BHDP Architecture  
John Groom, President, VEGA Americas

**Presentation Overview:**

People, planet, and prosperity: the three don't need to compete. In this presentation, John Groom, CEO of VEGA Americas, and Daniel Lessing, LEED AP, CEM, Client Leader at BHDP Architecture, will present VEGA Americas' new Mason, OH, headquarters. Starting with a company's ESG, we will show research, emerging trends, and strategies related to corporate sustainability. Attendees will learn how to determine their company's corporate goals and then understand how to align those with actionable targets for projects. From there, we will review the results of those actions using VEGA's recently completed corporate headquarters building and manufacturing site as a case study.

**Key Learnings:**

- Attendees will learn current trends in ESG.
- Attendees will learn about VEGA's ESG goals and how they drove decisions on their project.
- Attendees will learn how to identify potential barriers and overcome obstacles to achieve their defined sustainability goals, whether seeking certification or not.
- Attendees will gain a better understanding of the sustainable priorities for a people-centric design.

### Breakout 1B

**Title:** *Innovative Sustainable Solutions: Rapid Fire Stories*

**Speakers:**

Michael Ball, Principal and Branch Manager, Engineering Economics, Inc.  
Kathleen Collier, Blue Ocean Strategies  
Jeff Dollar, EltiAire  
Sanyog Rathod, Sol Design & Consulting  
Colleen McSwiggin, Cincinnati Recycling and Reuse Hub  
Jeff Raser, Cincinnati Urban Design & Architecture Studio

**Presentation Overview:**

Witness a collection of rapid-fire stories focused on sustainability innovations. Speakers will have 20 slides and 20 seconds per slide to showcase their breakthrough service, technology or product that solves today's tough challenges. This Pecha Kucha style break out will expose attendees to six companies within the hour, including real time system verification, air quality tactics post-covid, and innovative concentrates replacing harmful liquid chemicals. Time will also be reserved at the end for advancing the conversation.

**Key Learnings:**

- Impact of efficiency on utility rates and true savings.
- What an un-bundled utility bill really looks like.
- How to win at the KW demand game and knowing your risk.
- Knowing a good energy efficient project from a bad project according to your Utility.



## Breakout 1C– GBCI CREDIT

### **Title: *Air, Water & Fire: A Building Science Medley***

#### **Speaker:**

Marcy Tyler, Director of Building Science, Tremco

#### **Presentation Overview:**

We've seen fire and we've seen rain. We've seen sunny days that we thought would never end. We've got energy efficiency and durability goals in mind as we welcome you to join us for this presentation featuring air, water, fire, and thermal performance of your building enclosure. Regardless of whether you are focused on new construction or restoration, commercial or residential construction, we feel as if you would benefit from this education. We have prepared an interactive presentation that will include instruction and hands on for all the elements of the building enclosure. We will start with building your structure with insulated concrete forms, to waterproofing and detailing all the connections throughout the enclosure, and with an innovative approach to the roof. We've got you covered on your building enclosure needs.

#### **Key Learnings:**

- Describe current International Building Code (IBC) requirements for prescriptive minimums and performance enhancements.
- Differentiate between the use of different roof and wall assembly construction methods and detailing opportunities.
- Compare high performance assemblies with code requirements and explain the performance impact of building beyond code.
- Identify construction methods and materials that can be incorporated into specifications to help ensure the resulting structure achieves the desired performance levels for energy efficiency, indoor air quality, wind and water resistance, and overall resilience and durability.

## Breakout 1D– GBCI CREDIT

### **Title: *Achieving Net Zero: Combining Integrative Design, Energy Modeling, and Post Occupancy Monitoring for A Successful Project***

#### **Speakers:**

Alex Zuro, Senior Building Performance Consultant, IMEG Corp

Ted Dodas, Lead Mechanical Engineer, IMEG Corp

#### **Presentation Overview:**

This session will walk through a successfully occupied Net Zero project from early schematic design planning to post occupancy performance verification. The discussion will include early system selection modeling, collaboration with the architect partner to identify sustainable strategies, the iterative energy modeling process quantifying each design decision and its effects on owner EUI targets, and post occupancy monitoring allowing the team to compare live energy data with simulations to identify and rectify building performance issues. The session reviews how this approach pushes the project toward an efficient and prosperous outcome the moment the pencil first hit the paper.

#### **Key Learnings:**

- Outline key HVAC systems, and envelope options to consider early in the design of a net zero building.
- Justify the value of utilizing energy modeling simulations to predict the building's hourly energy demand and further select appropriate renewables to offset building energy use.
- Recognize the benefit in monitoring post occupancy building energy data from viewing a live hourly comparison tool of real-time building performance vs building simulation.



- Establish a plan for incorporating energy modeling and post occupancy monitoring for successful design of net zero projects.

## Morning Breakout Session 2: 10:45am-11:45am

### Breakout 2A– GBCI CREDIT

#### **Title: *Using Biophilia to Solve Today's Workplace Design Challenges***

##### **Speakers:**

Amy Green, NCIDQ, Senior Interior Designer, emersion DESIGN  
Nikki Weitz, March, Designer, emersion DESIGN  
Andrew Morrison, Designer, emersion DESIGN  
Chad Edwards, RA, NCARB, LEED AP BD + C, LFA, Principal, emersion DESIGN

##### **Presentation Overview:**

We have heard and read up on Biophilia, but how do we use its principles to advance our design outcomes? This interactive workshop will give attendees a glimpse into a typical 8-hour Biophilia workshop. Participants will receive a brief overview of Biophilia then apply preselected set of themes to a fictitious, but realistic, workplace design. Small groups will each be facilitated to accelerate understanding of the process and help guide through this rapid paced exercise. Each group will explore one of the following categories: Natural Patterns, Direct Nature, Culture/ Place/ Community, Climate Hazards, and Man-Made Threats/ Hazards. At the conclusion, the small teams will report out their suggested findings to the full group. Attendees will walk away with a new appreciation for how nature can serve as inspiration for solving many of our design problems.

##### **Key Learnings:**

- Participants will receive a brief overview of Biophilia.
- Participants will identify design challenges in today's workplace environments.
- Participants will understand how to utilize the Biophilic Card exploration technique.
- Participants will learn how to use nature to solve design problems.

### Breakout 2B– GBCI CREDIT

#### **Title: *Carbon Emissions and Achieving Carbon Neutral Buildings***

##### **Speakers:**

Wyatt Ross, EIT, CEM, PVA, Building Science Engineer, CMTA, Inc.  
Jerry Noble, Vice President, Regional Director, Pepper Construction

##### **Presentation Overview:**

This course serves as an introduction to developing carbon neutrality pursuits within the AEC industry. Covering a myriad of case studies and topics, the course identifies where carbon emissions occur in the built environment, and the strategies being proposed to address them. With a full spectrum of considerations covering the entire span of a building's lifecycle, the presentation offers valuable information the attendees can apply to their future projects.

##### **Key Learnings:**

- Participants will demonstrate an understanding of the design issues affecting Carbon Neutral buildings.
- Identify the stakeholders responsible for achieving a Carbon Neutral building.
- Define the difference between embodied and operational carbon emission.
- Apply best practices to Carbon Neutral building design, construction, and operations.



## Breakout: 2C

### Title: *The Deep Energy Retrofit Initiative: The ABCs of DER*

#### Speakers:

Steve Mort, Technical Manager, Offsite Solutions, Tremco

#### Presentation Overview:

For facility managers, building owners, and contractors alike, adapting existing buildings to be more energy-efficient may seem like a daunting task. The Deep Energy Retrofit (DER) initiative is expanding across North America as a holistic building analysis and construction process to conserve the energy consumed by commercial and residential buildings. While the industry tackles this next wave construction innovation, the learning curve remains steep. Therefore, it is important that everyone takes on the task of learning about individual building inefficiencies and how they can be rectified. Join us for this informative presentation where we not only take you through the process that is needed, but also look at case studies where lessons have been learned and energy-efficient improvements have been made.

#### Key Learnings:

- Define the necessary improvements to a structure to influence the operational costs and to do so in a sustainable and repeatable manner
- Compare existing energy consumption of the large stock of existing buildings, and identify holistic opportunities, including the mechanicals and the entirety of the façade.
- Discuss the impact of local laws and state laws that are changing, like the climate mobilization act which will introduce fines associated with overuse of energy in these existing buildings.
- The cities and their buildings can have the greatest effect on climate change, this will be demonstrated in the review of existing retrofitted buildings.

## Breakout: 2D

### Title: *Approaching Net Zero Energy in an 1835 Farmhouse*

#### Speaker:

Anton Harfmann, Professor and Director of Architectural Engineering, University of Cincinnati

#### Presentation Overview:

The challenge of achieving net-zero energy in older buildings remains an elusive goal largely due to the conflict between maintaining the historic character of a 200-year-old structure while mitigating energy loss. This presentation documents a comprehensive set of strategies on both the energy consumption and energy production aspects of the net-zero energy equation that were applied to an 1834 brick farmhouse with the goal of maintaining the architectural and historic character while approaching energy neutrality. Data on energy use and energy production were collected over a total period of 8 years both prior to and after energy measures were implemented.

#### Key Learnings:

- Participants will recognize how to utilize heating degree days and natural gas consumption to estimate heating demand in existing buildings.
- Participants will identify the benefits of incorporating thermal storage as part of a net zero strategy.
- Participants will compare return on investment perspectives of incorporating net zero energy strategies.
- Participants will discover the benefits of a multi-faceted approach to achieving net zero energy.



**Lunch Keynote: 12:15pm-1:15pm**

**Title: Can Buildings Function Like a Forest? Looking to Nature as a Model and Measure for Positive Impact and Regenerative Design**

**Speaker:**

Nicole Miller, Managing Director, Biomimicry 3.8

**Presentation Overview:**

In this presentation, Nicole will share how leading companies and their built environment teams are looking to nature to create, design, and retrofit facilities to have a positive impact on ecosystems, employees, and the communities in which they operate. The presentation will share the process and tools companies are using to inform key decision-making, including site selection, design guidelines, and reporting metrics that support their journey to delivering positive impact and regenerative outcomes.

**Key Learnings**

Built environment designers and key decision makers will learn how biomimicry can:

- Help develop strategies and solutions to become a welcome neighbor - a neighbor that provides clean air and water, enhances the soil, supports biodiversity, and benefits human health and well-being.
- Engage, recruit, and retain employees.
- Integrate systems solutions that generate cost saving and supports achieving multiple-reporting criteria.

**About Nicole:**

Nicole Miller serves as the managing director of Biomimicry 3.8, a certified BCorp and social enterprise dedicated to helping change-makers create a more sustainable world by emulating nature's designs and core principles. Since joining the company in 2012 Nicole's leadership has played a pivotal role in the growth and success of the company's core services.



Nicole's background in Corporate Sustainability and global supply chain development supports her work to bring biological intelligence-based innovation solutions to a wide range of global clients dedicated to innovation and sustainability. As managing director, she also drives internal strategy, projects and initiatives that support the legacy of Biomimicry 3.8, with her primary goal to create a 100-year company. She also works closely with key strategic partners and clients to get biomimicry into the hands of the designers, innovators, and changemakers that shape our world. This has included work with Google, Unilever, Johnson & Johnson, Target, Interface, Estee Lauder and other leading Fortune 100 innovators and sustainability leaders.

Nicole holds a bachelor's degree in Business Administration from the University of Montana. She is a Fellow of Columbia University's American Assembly Next Generation Project—a review of U.S. Global Policy and the Future of International Institutions. Nicole has been included in feature stories in The Wall Street Journal and Time Magazine, as well as profiled in Digital IQ Magazine. She has received the Utah Business "30 under 30" Award for her work at Overstock.com and was recently awarded "20 under 40" by the Missoulian for her work at Biomimicry 3.8.



### Afternoon Breakout Session 3: 1:45pm-2:45pm

#### Breakout 3A – GBCI CREDIT

##### **Title: *Promoting Health & Wellbeing through Indoor Air Quality Optimizations***

##### **Speakers:**

Casey Reddy, Facilities Engineer, The Kroger Co.

Steve Winbigler, Global Technical Leader - Facility Systems, Proctor & Gamble

Ryan Hoffman, Building Optimization Practice Director, Senior Principle, Heapy Engineering

##### **Presentation Overview:**

This session will present multiple case studies of Indoor Air Quality improvements installed by Cincinnati 2030 District Members' Kroger and P&G. Additionally, Cincinnati 2030 District member HEAPY will share insight on the recent innovation and industry focus on building indoor air quality. Topics include increasing/improving, air quality monitoring, air filtration, fresh air intake, humidification, air purification technologies such as Photohydroionization (PHI) system within existing buildings.

##### **Key Learnings:**

- Attendees will learn increasing air filtration within an existing building.
- Attendees will be introduced to the PHI air purification system and presented a case study of the installation as a COVID response promoting the health and safety of building occupants.
- Attendees will be exposed to multiple indoor air quality monitoring strategies with case studies from Kroger and P&G.
- Attendees will learn about industry trends and innovations for improving indoor air quality.

#### Breakout: 3B

##### **Title: *Pathway to 2030: Progress, Achievements, and What's Next for the Cincinnati 2030 District***

##### **Speakers:**

Tom Schultz, Data & Program Manager, Cincinnati 2030 District

Ralph Linne, Director of Facilities, Hamilton County, Ohio

Chuck Lohre, Trustee, Contemporary Arts Center

Tim Foster, Account Executive – Life Sciences, Siemens Smart Infrastructure

Aaron Leow, Utility Engineer, The Kroger Co.

##### **Presentation Overview:**

Since its inception in December 2018, the Cincinnati 2030 District membership has grown to 46 organizations encompassing 28.1 million square feet of buildings in the Greater Cincinnati Region. Despite the challenges brought about by the COVID-19 pandemic and adverse state-level policies, the District's growth underscores the market interest in collectively advancing sustainable and healthy practices in the region's built environment. This session will provide an overview of the Cincinnati 2030 District energy, water, transportation, and health pillars and the progress made by its members since its formation. This will be followed by a panel discussion featuring several 2030 District building members and stakeholders highlighting their accomplishments and interactions with the District. The sessions will also contextualize how the 2030 District can support the advancement of organizations' sustainability and ESG goals.

##### **Key Learning:**

- Learn about the Cincinnati 2030 District Model and its methodology for reducing energy, water, and transportation emissions while improving occupant health. The group will be provided an overview of how the 2030 District models scalable and operational for all types of buildings and organizations interested in advancing sustainability and health priorities within their organization.



- Discuss how the District creates energy baselines and leverages ENERGY STAR Portfolio Manager and other Energy Management Software to compile data and measure progress.
- Understand how the Cincinnati 2030 District connects building members and partner organizations to support in identifying gaps in facility plans and assist in developing an approach to scale sustainability within their built environment. Participants will learn the role of professional partners and how the District promotes those services to their membership.
- Gain perspective through learned experiences on funding the transition. Understand how the 2030 District International Network created a platform for broad information sharing on advancing sustainability efforts, as well as hear from organizations considering funding opportunities via the Infrastructure Investment and Jobs Act.

### Breakout 3C

#### **Title: *Lessons Learned from Green Building Advocacy in the U.S. Midwest***

##### **Speakers:**

Daniel Overbey, AIA, NCARB, LEED Fellow, LEED AP (BD+C, ID+C, O+M), WELL AP, EcoDistricts AP, Assistant Professor of Architecture Ball State University / Browning Day  
Joseph Yount, AIA, Architect/Sustainability Leader, RATIO Design  
Jennifer Miller, AIA, Architect, DELV Design

##### **Presentation Overview:**

The Midwest region of the United States is home to 20% of the US population, a hot spot for agriculture & manufacturing, a low cost of living, vast swings in temperature, and outdated energy codes; yet the need for tighter and more climate-responsive envelope design is most critical in this central and often overlooked part of the country. Major cities in the coastal regions are home to several successful and sustainable designs, but the given the Midwest's unique, and arguably more challenging climate (physical, economic, and political), a different playbook is called for. Through a guided panel discussion via the lens of three reputable sustainability professionals in the Indiana, this session will capture the struggles, and sometimes uphill battle that midwestern architects face in environmental stewardship.

##### **Key Learnings:**

- Describe the current regulatory impediments to code updates in Indiana and much of the U.S. Midwest.
- Explain how model energy standards and codes are shifting toward increased energy efficiency and will eventually require zero net energy buildings.
- Define energy benchmarking and how it can create competition and opportunity in the marketplace for high-performance design and deep energy retrofits.
- Identify numerous environmental and economic benefits of regularly updated building codes.

### Breakout: 3D – GBCI CREDIT

#### **Title: *Eliminating Construction Waste via the Circular Economy***

##### **Speaker:**

Kyle Ritchie, LEED AP BD+C, ID+C, WELL AP, EcoDistricts AP, TRUE Advisor, Sustainable Design Lead, CannonDesign

##### **Presentation Overview:**

AEC Industry will create 2.2 billion tons of C&D waste, annually, by the year 2025 – the same weight as 14.5 million blue whales. Despite growing efforts in material recycling, more and more C&D waste is generated each year. The solution? Utilize the circular economy framework as a tool to design out waste, circulate building materials through material lifecycle management, and, as a result, regenerate natural material stocks.





**Key Learnings:**

- Discover how the Circular Economy transforms the linear “take-make-waste” approach to materials and creates circular loops of “make-remake-reuse-recapture” instead.
- Connect LEED and Well to the Circular Economy to reduce toxins, improve embodied carbon, and eliminate and design-out waste.
- Discover how to reverse engineer a clear roadmap to achieve waste-free and net-positive financial outcomes using the Circular Economy framework.
- Identify strategies to design out waste by focusing on material lifecycles over time.

**Afternoon Keynote: 3:00pm-4:00pm**

**Title: *Passive House: A Proven Path Toward Carbon Reduction, Resilience and Energy Efficiency***

**Speaker:**

Lois Arena, Director of Passive House Services, Steven Winter Associates, Inc.

**Presentation Overview:**

The Passive House (PH) building standard is the most stringent energy efficiency standard in the world. It is quickly being identified as one path to achieving the carbon reduction goals set forth by a multitude of states and municipalities around the country and the world. Even though the work “House” is in the title, the principles can be successfully applied to all building types and sizes and for new and retrofit projects. Projects range from single family dwellings to large scale multi-family mixed use buildings to commercial spaces and industrial buildings. The concepts are a consistent roadmap to achieving high performance, net zero ready and net zero carbon buildings.

The benefits of the PH building standard for building owners and occupants far exceed energy savings. Comfort, resilience, affordability, and durability are just a few. This session will explore how and why this standard has made such inroads into the market, how it is helping achieve climate action goals in the US and the financial case for widespread implementation. Case studies of completed projects (new and retrofits) will be reviewed and compared to cost data and financial and energy savings.

**Key Learnings:**

- Explain the basic concepts of the Passive House Standard.
- Understand the benefits of the Passive House Standard.
- Identify the ways it helps achieve Net Zero & carbon reduction goals.
- Name three building typologies that are great candidates for its application.

**About Lois:**

Lois Arena, Director of Passive House Services at Steven Winter Associates, Inc., possesses over 25 years’ experience in the building science field and has extensive experience with new and existing buildings. Lois holds both US and international Passive House consultant certifications and is currently consulting on some of the largest and most difficult Passive House projects in the world. She has co-authored and presented training programs about energy efficient building practices to professionals in all sectors of the building industry and is regularly invited to present at conferences and private firms around the world to discuss the benefits of and roadblocks to PH adoption.

