Note: Attendees will receive AIA/CES credit for BUILDING the Heartland sessions. AIA members will receive credit on their AIA transcript and by certificate for non-AIA members.

Monday, August 31

9:00 am – 5:00 pm

M100 USGBC LEED V4
Working in a team-oriented, workshop fashion, the Prairie Lab instructors will lead the students through a currently certified LEED project, except this time applying LEED v4. Instead of simply reading the new rating system, or watching a presentation on the changes, the attendees will put all the changes into practice and determine for themselves whether an existing building would have achieved certification under LEED v4. Prairie Lab will supply the project. The course will move through each section of the rating system in chronological order, ensuring that students have understood one section before moving to another. The cooperative learning experience allows the professionals to learn from each other while developing their individual understanding of the new rating system.
SUMMARY OF KEY OUTCOMES

- Attendees will have an understanding of the changes in LEED v4 relative to previous iterations of the rating system.
- Attendees will identify whether a project meets individual credits within the LEED v4 rating system.
- Attendees will further develop the ability to work within a group dynamic.
- Attendees will identify new tools needed to improve their designs to meet the new standard.

1:00 pm – 5:00 pm

M200 Chicago Architecture Foundation Boat and Walking Tours

5:00 pm – 6:30 pm

M300 ANN KALAYIL GSA GREAT LAKES KEYNOTE
Ann P. Kalayil, PhD, Regional Administrator for the U.S. General Services Administration's Great Lakes Region (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin)
LEARNING OBJECTIVES
Upon completion of this course, attendees will be more fully informed as to GSA Region 5's initiatives to:

Effectively design, construct, renovate, and operate sustainable federal government buildings that consume less energy and water; use clean, renewable sources of electricity; and integrate innovative energy and water efficiency technologies, thus reducing the total cost of ownership.
Reduce the real estate and environmental footprint of the federal government by leading a Workplace Transformation, allowing the workforce to work productively from anywhere at any time.

Integrate a cradle-to-cradle commitment throughout the federal supply chain and increase the availability and quantity of environmentally preferable products and services that GSA offers to federal agencies.

Leverage the market influence and expertise of the federal government to assist in building sustainable communities with strong small business-based economies and high levels of citizen engagement.

COURSE DESCRIPTION
Ann P. Kalayil, PhD, Regional Administrator for the U.S. General Services Administration's Great Lakes Region (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin), will review the Great Lakes Sustainability Plan 2020, the region's road map to making a more sustainable government and a stronger GSA. Kalayil will highlight the five key areas of sustainability that can help strengthen GSA's impact in the region:

1) Buildings, 2) Workplace Transformation, 3) Transportation, 4) Supply Chain, and 5) Sustainable Communities. She will describe the plan to reduce energy use in Region 5 government buildings 37% by 2020, water use by 34%, and waste by 61%, and cut GHG emissions by 690,000 tons in that time frame. The presentation will emphasize how the Great Lakes Sustainability Plan reinforces the GSA's mission: "To deliver the best value in real estate, acquisition, and technology services to government and the American people."

Tuesday, September 1

8:30 am – 10:00 am

T100 BOMA Owners' Keynote Panel
Panel: **Betsy Traczek**, Principal, The John Buck Company, **Jan Goldsmith,** SVP, Zeller Realty Group, **Bill Vail**, Senior Director, Asset Services at CBRE; Moderator: **Bob Quast,** BOMA/Chicago's Vice President and Vice President with Lincoln Property

LEARNING OBJECTIVES
Discuss the key factors in site selection, including code compliance, densification, sustainability trends, and market conditions.

List innovations in office buildouts and office building lobby renovations, including workplace hospitality, lighting, restrooms, and outdoor space.

Review the factors involved in deciding between reconstruction or renovation vs. new construction.

COURSE DESCRIPTION
A panel of distinguished experts representing BOMA/Chicago (Building Owners and Managers Association/Chicago) will discuss the full range of concerns from the property owner and developer's point of view. Betsy Traczek, of the John Buck Company, will take up the intricacies of site selection, with an update on current real estate market conditions in the Chicago region. Zeller Realty Group's Jan Goldsmith will provide insight on office buildouts, lobby renovations, and commercial building reconstruction. CBRE's Bill Vail will offer his views on new construction, densification, and building owner/tenant relations, as well as the latest amenities being demanded by building owners, developers, and tenants. Panelists will share their views on sustainability and the owner's stake in green building. Throughout the presentation, the panelists will offer advice as to how architects, engineers, contractors, and other building consultants can work most effectively with their own and BOMA/Chicago member companies.

10:15 am – 11:45 am

T101 Security Strategies for K-12 Schools and College Campuses

LEARNING OBJECTIVES
Explore four basic principles of Crime Prevention Through Environmental Design (CPTED) as they apply to school and campus safety.

Describe key design considerations for creating a secure entryway for K-12 school buildings.

Review the relative merits of security technology involving video surveillance, electronic access control, communications systems, and smartphones.

Provide helpful resources for improving the learning environment.

COURSE DESCRIPTION
The presenter is president of a security consulting firm that advises school districts and institutions of higher learning on their safety/security policies, practices, and physical security measures. He will provide hands-on advice on ways to optimize security in K-12 schools and college campuses, based on his professional experience and research for his book, *School Security: How to Build and Strengthen a School Safety Program* (Elsevier, 2014). This interactive discussion will cover improvement measures for both new and reconstructed education facilities and campuses.

T102 From Vacancy to Resiliency – Sustainability, Reinvestment, and Profitability in Community Development
Dominique Davison, DRAW Architecture + Urban Design; **Jonathan Arnold**, Arnold Development Group; **Tim Duggan**, Make it Right; r, studioINSITE

LEARNING OBJECTIVES
Identify the various levels of data required for varying scales of analysis, from regional planning considerations to localized lot level criteria.

Recommend best-use practices for vacancy prevention and economic incentives that promote reinvestment, while combating climate change, promoting sustainability, transit, and walkability, and improving regional air quality and community health.

Implement successful repurposing and reuse interventions, such as green infrastructure, urban agriculture, and infill developments/sustainable reuse recommendations.

Develop highest and best management practices that address vacancy from the inside out: promoting community engagement and facilitation techniques that empower neighborhood residents to lead, inform, and progress toward healthy, safe environments that encourage reinvestment.

COURSE DESCRIPTION
Many industrial cities of the Midwest have suffered 30–60% population loss, which has left large numbers of vacant lots and structures that cities must manage and restore to productive use. The panel will address solutions for the best use of vacant properties and how to transform them into assets that can advance environmental sustainability, economic innovation, and social equity. Presenters will share experiences from the Scattered Sites Guidebook for Infill Lot Improvement Strategies (Kansas City); an implementation project (Monarch Manor); and Kansas City's Environmental Management Commission's Vacant Lot Task Force. Panelists will highlight the importance of community gardens, green infrastructure, and community plazas/shared centers, as well as successful techniques that encourage resident involvement, informed guidance, and stewardship. Environmental remediation and stormwater filtration opportunities will be identified, along with efforts that promote transit and walkability, improve regional air quality, enhance community health, and promote workforce development.

T103 Energy Efficiency and the Future of Affordable Housing
Paul Knight, Domus PLUS; **Tony Holub**, **Matthew McGrane**, Farr Associates

LEARNING OBJECTIVES
Discuss the history and resources available through the Illinois Energy Affordable Housing Construction Program and how to apply them to their own projects.

Describe a variety of affordable housing programs: Enterprise Green Communities, LEED for Homes, Passive House, and the Living Building Challenge.

List the standards that have informed the design of current projects in Illinois.

Apply lessons learned from the presented case studies to navigate obstacles to implementation of energy-efficient design strategies in their own affordable housing projects.

COURSE DESCRIPTION
This session will explore the history of energy-efficiency strategies employed on affordable housing projects through the Illinois Energy Efficient Affordable Housing Construction Program. The panel will then address current status and point to the future of energy efficiency in affordable housing in Illinois and the application to other states—notably Enterprise Green Communities program, LEED for Homes, Passive House, and the Living Building Challenge. The experts will discuss ways in which the rigorous requirements of the programs have informed strategies for the energy-efficient design of a new affordable housing development for the Granite City (Ill.) Housing Authority, the renovation of historic landmark buildings at the former Lathrop Homes in Chicago, and the upcoming conversion of the former Lawson House YMCA into 400 affordable micro-units.

T104 Creating a Culture of Sustainability: Employees as Green as the Building
Raj Shukla, Cool Choices; **Amanda Goetsch**, Inpro Corporation; **Theresa Lehman**, Miron Construction

LEARNING OBJECTIVES
Identify three ways that employee engagement increases project-level environmental achievements.

List four ways that employee engagement increases innovation and profitability.

Discuss three strategies for engaging employees and inspiring them to embrace sustainable behaviors.

Describe strategies for influencing occupant behaviors in high-performance buildings as a strategy for maximizing sustainable corporate objectives such as energy efficiency and carbon reduction.

COURSE DESCRIPTION
How can design, engineering, and construction firms—and their clients— create a culture where reducing waste and saving energy becomes "standard" behavior? This session will provide a case study of two firms that used Cool Choices—a game-based employee engagement program—to make sustainability fun, social, and easy. Their approach enables participants to realize the benefits of sustainable behaviors and choices in such a way that it becomes habitual. Representatives from a construction company and a building supply company will describe how the game affected their employees, impacted their operations, and resulted in positive change regarding their clients. Attendees will have an opportunity to practice using Cool Choices strategies and to identify ways they can implement such strategies in their own organizations and with building occupants.

12:00 pm - 1:30 pm

Lunch/Platinum Product Case Studies

2:00 pm - 3:30 pm

T201 DRONES: How Design, Engineering + Construction Firms - and Their Clients - Can Benefit From Their Use
Peter Merchese, Microdesk; **Ramesh Gulatee, Mark Degal**, Skypan

LEARNING OBJECTIVES
Define drone-related terms and acronyms, such as RC, UAV, and UAS.

Delineate the status and implications of the FAA’s stance on commercial use of drones in design and construction.

Discuss key points to safely operate and manage drone devices.

List up to three ways these platforms can be utilized for the AECO industry, for reality capture, general photography, construction inspection, and site management.

COURSE DESCRIPTION
Experts from the drone industry will describe how drones can be used as working tools for zoning, project feasibility, urban planning, and campus planning. They will explore how to use UAVs to facilitate understanding of air/light/view easements for real estate transactions, and how they can be used for visualization of architecture and interior design. The panelists will discuss the role of drones in pre-construction marketing and lease/sale of space, buildings, and property. They will guide attendees' understanding of the possibilities of using drones to confirm design validity on site before the project is built, facilitate preconstruction transactions by presenting visual conditions likely to be encountered during design/construction and into post-occupancy, and determine as-allowed versus planned variances and code issues.

T202 AIA Chicago Design Winners
TBD

T203 Building Performance: Connecting the Dots from Design to Occupancy in LEED Buildings
Gautami Palanki, US Green Building Council; **Beth Giltner**, Rand Construction; **Samantha Longshore**, Transwestern Sustainability Services

LEARNING OBJECTIVES
List up to three strategies implemented in design and construction to develop high-performing buildings.

Describe at least two strategies for use in existing buildings to optimize performance and engage stakeholders.

Evaluate the LEED Dynamic Plaque platform as a tool for building performance scoring.

Discuss LEED for Existing Buildings as a tool for building performance monitoring.

COURSE DESCRIPTION
The panel will offer lessons from LEED-certified projects. They will discuss the LEED Dynamic Plaque, a platform for ongoing LEED certification and the first global building performance scoring system. Strategies for improving existing buildings under LEED EB, covering existing buildings, will be a major focus of the discussion, with particular attention to tenant interiors and building renovations. The panel will explore how to optimize projects using LEED for Commercial Interiors and Commercial Interiors–Retail projects.

T204 Building Carbon Neutrality in Minnesota + Beyond
Richard Graves, University of Minnesota; **Becky Alexander**, LHB; **Janet Streff**, Minnesota Department of Commerce

LEARNING OBJECTIVES
Describe the strategies and programs that the state of Minnesota is using to achieve carbon neutrality in all state building construction by 2030.

Use the SB 2030 Energy Standard Tool to set energy and carbon goals for projects.

Leverage the B3 Case Studies Database as a resource for sustainable strategies used and performance outcomes for projects.

Identify lessons from the SB2030 program in Minnesota that could apply to other locales in the Midwest.

COURSE DESCRIPTION
The panel will illuminate the development and implementation of Minnesota's Sustainable Building 2030 Energy Standard, which mandates all state construction to be carbon neutral by 2030. SB 2030 translates the ideals of the Architecture 2030 challenge into a clearly defined and achievable program with calculable goals. To date, the state's 78 enrolled buildings have saved 490 million kBtu/year and 53,000 tons/year of GHG emissions. Projects are tracked through the online B3 Case Studies Database, which publicly displays information about the project type and location, design team, and annual performance metrics, along with listing the sustainable strategies used to meet the design targets. The panel will show how SB 2030 process and tools can be applied to any building project. Silver Creek Corner, an affordable supportive housing project that was operating at an energy use intensity double its design model's prediction, will be presented through three lenses—policy, design, and operations—by participants in each area. The session will include a demonstration of the SB 2030 Energy Standard Tool to set energy and carbon reduction goals.

3:45 pm - 5:15 pm

T301 Construction Field Technology + Tools: How One Contractor Makes them Work
Michael Behm, **Shawn Buehler**, **Neil Dose**, Leopardo Companies, Inc.

LEARNING OBJECTIVES
Evaluate several different technology applications—PlanGrid, Raken, and Predictive Solutions—regarding improved reporting and on-site safety implementation.

List up to three technology applications and how they can be utilized to reduce staff and project time.

Describe two ways to facilitate collaboration on the job site.
Discuss three ways to use technology such as tablets and smartphones to save money on major building projects.

COURSE DESCRIPTION
Construction experts will discuss a suite of sophisticated technological capabilities intended to reduce on-site problems, provide greater value to clients, and achieve better decision making on the job. The use of software, notably advanced applications for mobile, tablet, and desktop technology to allow save costs and time, improve accuracy, and gain overall efficiency, will be delineated. Digitized estimating, Web-based bid procurement and drawing distribution, cloud-based document management, and online collaboration, including the use of cloud-based applications—PlanGrid, Raken, and Predictive Solutions—for on-site daily reporting, document management, quality control management, and safety inspection will be explored. Panelists will reveal how real-time reporting dramatically improves the quality and accuracy of the daily reporting and provides greater focus and attention on project details, especially in the collection, analysis, and dissemination of job site safety information. This results is reduced risk, fewer safety incidents, and better communication.

T302 Greening of Corporate America: How Manufacturers Are Leading the Way in Sustainability
Ari Kobb, Siemens; **Patrick Boyle**, Sloan Valve Company; **Jeff Rehm**, W.W. Grainger

LEARNING OBJECTIVES
Understand the key trends on sustainability in corporate America from market research studies conducted from 2006 to 2015.

List key drivers, challenges, benefits, and obstacles to greening corporate America and how they have changed from 2006 to the present.

Discuss how sustainability leaders from Chicago area firms are approaching sustainability.

List three ways in which sustainability programs at these firms are addressing customer demand, stakeholder engagement, governance, and performance measurement.

COURSE DESCRIPTION
Since 2006, Siemens and Dodge Data & Analytics have conducted research on corporate sustainability from the perspective of senior executives at major U.S. corporations. The research will serve as the basis for an in-depth discussion of sustainability in corporate America by a panel of sustainability professionals from leading manufacturing firms in the Chicago area. Each of these experts will bring a unique perspective to the value and implications of the data, and will indicate what they think are the most important trends currently and which trends will be critical over the next five years. Audience members will be able to engage the experts in a Q&A discussion. The direction revealed by the data and by the successful practices adopted by the sustainability leaders on the panel will provide a vision of the sustainability market and help attendees to move their firms, vendors, and clients to more sustainable business practices.

T303 Buildings of the Future and Climate Resilience Strategies
Nora Wang, Pacific Northwest National Laboratory, **Scott Schuetter**, Seventhwave; **Saranya Gunasingh**, Seventhwave

LEARNING OBJECTIVES
Describe the process used to analyze climate impacts on building performance.

Discuss the expected climate impacts on building performance, and explain various climate change prediction models.
Identify at least two energy-efficiency technologies that could increase a building's resilience to climate variability and extreme weather events.

List three ways in which buildings can become self-aware and continuously anticipate and react to changes in weather and occupant needs to optimize energy and water use.

COURSE DESCRIPTION
Expert panelists will present their collective views of future buildings and the potential for groundbreaking technologies and trends that could revolutionize the built environment. The panel will explore a future where buildings are self-aware and continuously anticipate and react to changes in weather, time of day, and occupant needs to optimize energy and water use and contribute to a cleaner environment. They will present a future building vision that will help society develop innovative strategies and solutions toward a future where buildings become true assets. Speakers will discuss the projected impacts of climate variability on building energy use and demonstrate a variety of building models that take climate change into consideration. The impacts of future climate variability on energy peak demands, overall consumption, and costs will be analyzed via real-world examples, including a recent climate and energy resilience study completed at NASA's Stennis Space Center Campus.

T304 What's in This Stuff? Ingredient Disclosure and the Commercial Marketplace
Jennifer Atlee, HPD Collaborative; **Colin Rohlfing**, HOK Inc.; **Kimberly Lombardozzi**, CBC Flooring

LEARNING OBJECTIVES
Explain the Health Product Declaration: how it was developed, why it is needed in the marketplace, and who are championing its use.

Interpret the significance of material ingredient reporting to improve the specification process and refine the next generation of available products.

Identify building rating systems, product certifications, and product labels that are harmonizing with the Health Product Declaration.

Discuss the manufacturer perspective and concerns associated with completion of LEED v4–compliant HPDs.

COURSE DESCRIPTION
The Health Product Declaration (HPD) is a new tool for consistent product ingredient reporting. This session will provide an opportunity for attendees to learn about simplified ways to inventory ingredients and their health impacts. The panel will discuss how the latest version of HPD v2 creates a common language that is integrated into building certification systems, product labels, and product assessments. The session will provide attendees with a tool to guide discussions between manufacturers and consumers. The course will also provide advice toward developing self-directed research and a deeper understanding of the critical importance of transparency as a contributing factor for the ultimate success of the building industry.

5:30 pm - 7:30 pm

Tabletop Reception

Wednesday, September 2

8:30 am - 10:00 am

W101 Optimizing Work Flow with BIM Scheduling: Taking the 'Information' Component of BIM Seriously

LEARNING OBJECTIVES
Describe the basic principles of "flowline" production-based 4D scheduling.

Analyze the challenges and benefits of flowline scheduling, including creation of Critical Path Method deliverables.

List the critical elements of successful VDC (virtual design and construction) and flowline scheduling implementation.

Identify the role of subcontractor collaboration in establishing an efficient and achievable schedule.

COURSE DESCRIPTION
The presenters will describe how their construction firm has implemented "flowline," or location-production–based scheduling. Flowline is tied to the project BIM model and optimized to reduce waste in the project's timeline. They will challenge the traditional critical path method in managing construction projects. The presentation will explore the use of flowline scheduling via three case studies: 1) a 15-building garden apartment complex in Denver; 2) a luxury apartment building in Houston; and 3) a new corporate headquarters in Texas. The expert panel will show how using a model-based scheduling approach can be used to: a) extract material quantities from the model to summarize what is being built; b) define expected "production factors" such as crew sizes, task durations, and productivity rates (how much each worker can put in place every day); c) apply the production factors to the quantity information to generate status reports by trade for each duration; and d) measure daily production expectations.

W102 How to Create a LEED v4 Beta Learning Environment: The Story of Lake Mills (Wis.) Elementary School
Theresa Lehman, Miron Construction; **Jon Evans**, **Manus McDevitt**, Sustainable Engineering Group

LLC; **Dean Sanders**, **Amanda Thompson**, Lake Mills Area School District; **Teresa Wadzinski**, Eppstein Uhen Architects

LEARNING OBJECTIVES
Analyze the benefits of utilizing an integrative process to pass the referendum and to design, construct, and operate a high-performance, healthy, and flexible 21st-century learning environment, while achieving LEED v4 certification in a cost-effective manner.
List and discuss several integrated design features, systems, and equipment that added value to the School District's goals, supported their mission, and yielded an opportunity for hands-on teaching and learning in the schools environmental education and STEM-based curriculum.

Describe the integrated design approach and financial rationale utilized to balance the initial costs and life cycle costs of energy-efficient and renewable energy systems and equipment, to meet the School District's energy-efficiency and financial goals, including capital cost, ROI, payback, operational and maintenance costs, and incentives earned.

Discuss how such features as natural daylighting, views to the exterior, transparency, acoustics, and low-/no-VOC materials and furniture have measurable benefits on the learning ability and behavior of the students.

COURSE DESCRIPTION
Lake Mills (Wis.) Area School District and its design-build team will offer attendees an inside look at the only K-12 project to pilot the LEED v4 Beta Program. The team will discuss the benefits of utilizing an integrative process to gain community support, the project delivery process, the criteria for selecting the project team, expectations from the project team, participants' involvement in the design and construction of the facility, and how the facility is operating. The panel will review the high-performance and renewable energy systems, indoor air quality, daylighting, acoustically sound spaces, and the open, collaborative atmosphere. School district officials will explain how the design of the school supports their mission and the project's financial rationale. Capital costs, ROI's, paybacks, operational/maintenance costs, and incentives the project received will be openly shared. The team will provide tips and tricks to achieve LEED v4 certification in a cost-effective manner. Attendees will learn how the Green Classroom Professional–certified staff has integrated environment education into the curriculum.

W103 Building Between the Seams: Insurgent Architecture in Support of Urban Agriculture
Timothy Gray, Ball State University; **Lucas Brown**, Green Mountain College; **Tyler Henderson**, Growing Places Indy

LEARNING OBJECTIVES
Analyze case studies in community education and engagement.

Discuss ways to develop business, community, and education partners to foster economic and environmental sustainability in urban areas.

List the main elements of urban agriculture practices.

COURSE DESCRIPTION
In Indianapolis, urban farmers are creating a new economy through the cultivation of food on abandoned properties. Income is derived from farmer's markets, community-supported agriculture shares, and sales to farm-to-table restaurants. This course will review four projects designed and executed by design-build students working in partnership with urban farmers, professionals, community organizations, and businesses. The interventions required to support farming operations on borrowed vacant land and turn them into working farms and urban greenspace required finding creative and diverse avenues of approval. Three of the projects provide classroom and lab space for youth and community education, working tours, and outreach. All four projects used repurposed materials and incorporate sustainable building strategies intended to extend the

discussion of sustainable food systems and lifestyles to the built environment. The presentation will reflect on how the intricate relationships between design-build students, entrepreneurs, community organizations, professionals, and city authorities provide fertile soil for the transformation of blighted neighborhoods into thriving communities.

W104 Valuing Labor: GPRO Training Program Teams With Trades to Accelerate Building Performance
Joseph Clair, Urban Green Council; **Patricia Lloyd**, Leopardo Construction

LEARNING OBJECTIVES
Identify ways in which green building training programs improve the likelihood of effective, coordinated implementation of green strategies.

Discuss labor's role in improving design, especially in design-build projects.

List ways in which green building training for the labor force increases compliance with pollution prevention, construction indoor air quality, construction waste management, and commissioning plans.

Describe how engaging labor in the green building process improves outcomes, and how training increases the effectiveness of communication.

COURSE DESCRIPTION
Urban Green Council engages the building construction labor force in a training program that introduces experienced and developing trades people to the differences between green buildings and the building projects they typically had worked on. The GPRO Green Professional Training program has trained over 6,000 trade-specific building professionals over the past 5 years, and certified over 5,000 of them across training modules in Construction Management, Building Operations and Maintenance, Electrical Systems, and Plumbing Systems and Mechanical Systems. Through formal and informal partnerships with union locals, trade associations, institutions of higher education, and industry experts, GPRO recognizes the value that building professionals already bring to a project and prepares them for the changes that green building design will introduce in the coming decade. GPRO partners from contracting and trade education programs will share their experiences with the program and discuss how the role of labor is evolving as green building takes up a greater portion of the marketplace.

10:30 am - 12:00 pm

W201 Practical Uses of IT Tools in Design and Construction

LEARNING OBJECTIVES
Gain a basic understanding of new technologies—cloud computing, 3D printing, drones, augmented and virtual reality, etc.—being used in the design industry

Review case studies of such new technologies and their capabilities in design and construction

Discuss where such technologies may be headed in the reasonable future.

Determine whether and how your firm could be experimenting with these new technologies.

COURSE DESCRIPTION
This session will examine disruptive technologies that are allowing Building Teams to deliver greater value to clients. The experts will discuss the benefits of cloud-based services: Revit cloud rendering, file sharing, Box.com, Dropbox, Lynda.com (training), and PM via Basecamp and Asana. Simulation technology will be reviewed for its role in reducing RFIs and change orders and aiding energy modeling, clash detection, and

construction scheduling. Augmented and virtual reality will be discussed. Generative modeling via Grasshopper and Rhino will be analyzed, as will iterative design via Dynamo and Revit. The panelists will offer their advice on 3D printing and its impact on standards for physical models. Their experience with drones for design and construction will be taken up. The session will conclude with a look to the future of IT in design and construction, notably virtual workspaces and artificial intelligence.

W202 Advancing Energy Efficiency in Commercial Office Buildings
Ryan Tinus, Tishman Speyer; **Cory Roberts**, Boeing; **Myrna Coronado**, JLL; **Susan Helmer**, ComEd

LEARNING OBJECTIVES
Describe opportunities and options available to advance energy efficiency in commercial buildings.

Discuss strategies to get the property staff and ownership to buy into energy efficiency.

List strategies to engage tenants in the energy-efficiency process.
Use utility incentives to lower costs of energy-efficiency projects and accelerate project payback.

COURSE DESCRIPTION
This session will focus on three buildings owned or managed by members of the Building Owners and Managers Association of Chicago (BOMA/Chicago). Panel members associated with the building will describe their experiences in reducing energy consumption and costs with proven strategies for optimizing technology, practices, people, and incentives. Building property managers and experts will discuss four distinct strategies proven successful in identifying, implementing and tracking energy saving opportunities: 1) utilizing real-time data/MBx; 2) accessing demand-response; 3) engaging tenants and staff; and 4) utilizing utility Incentives. The panel discussion is targeted at building owners, property and facility managers, and building engineers who serve as decision makers in building operations, as well as service providers—architects, engineers, and contractors—who specify energy-efficiency products and services.

W203 LEED Certification Tricks of the Trade
Claudia Fischmann. dbHMS; **Ted Krasnesky**, Pepper Construction Company; **Frank Saldano**, Related Midwest

LEARNING OBJECTIVES
Identify up to three best practices to follow throughout the LEED certification process to ensure a smooth path.

Discuss the cost, time, and documentation impact of the different credits to be able to think critically about the LEED process and determine what is achievable.

Describe an integrated approach to the LEED certification process that includes all of the key players from the start of the project.

List at least two elements of the LEED process from the viewpoint of the different parties involved.

COURSE DESCRIPTION
Experienced LEED pros will demystify the LEED certification process through their “tricks of the trade.” Case studies of current and completed projects will be used to illustrate optimal design and construction practices within the LEED framework. Attendees will gain an understanding of how to achieve a streamlined and painless LEED certification process for their buildings. Panelist Claudia Fischmann will discuss common mistakes to avoid, documentation best practices, how to help your LEED Administrator help you, tricky definitions, and thoughts on the "LEED world" versus the real world. Panelist Frank Soldano will present the developer’s point of view: how to work with consultants, contractors, and suppliers to streamline the process; how to get the credits with the best bang for your buck; and how to sell sustainability. Panelist Ted Krasnesky

will address the document-heavy Construction Review credits and provide ways to keep organized and ensure that these credits are earned.

W204 Tackling Climate Change Through Systems Thinking
Michelle Halle Stern, The Green Facilitator; **Helen Kessler**, HJKessler Associates

LEARNING OBJECTIVES
List the main elements of a system, including stocks, flows, reinforcing, and balancing loops, and their application to buildings and climate change.

Recognize places to intervene with systems, and why some interventions lead to unintended results

Identify the effective systems that are adaptive, resilient, and self-organizing.

Apply systems thinking principles to buildings in order to mitigate climate change.

COURSE DESCRIPTION
What happens when you use systems thinking to tackle the issue of the built environment's effect on climate change? Designers by nature must look at a building as a system, but they often limit the boundaries of system analysis to the site's property line. The presenters teach "Systems Thinking for Sustainability" at Northwestern University, where they analyzed buildings as a subsystem of climate change. The presenters will describe this system in terms of stock, flows, balancing and reinforcing loops, resiliency, and adaptation. They will share the analysis of leverage points, possible interventions with the system, and their likelihood of effectiveness. In the second part of the session, the presenters will facilitate a hands-on exercise to reach consensus among participants regarding possible actions that the Midwest regional construction community can take to incorporate systems thinking into building development, design, and construction, in order to mitigate climate change, at least locally.

12:15 pm – 1:30 pm
W100 Unlocking Global Adaptation Solutions
Joyce Coffee, LEED AP, Managing Director of the Notre Dame Global Adaptation Index for global resilience

LEARNING OBJECTIVES
List up to three ways to unlock global adaptation solutions.

Examine key critical risks and opportunities in a climate-changed world.

Discuss how corporations, governments, and charitable organizations can prioritize investments by comparing vulnerabilities and the readiness to adapt.

Explain the applicability of the Notre Dame Global Adaptation Index (ND-GAIN) to the built environment.

COURSE DESCRIPTION
Joyce Coffee, LEED AP, Managing Director of the Notre Dame Global Adaptation Index for global resilience, will describe the origins and workings of the ND-GAIN Index and how it promotes adaptation by identifying the places most vulnerable to extreme weather and changing climate. The index can also help in identifying real-world solutions that can prevent these changes from becoming disasters.

Earlier in her career, Coffee directed Chicago's Climate Action Plan and managed water and air resources in the city's Department of Environment. Coffee started her career in Asia with the World Bank and U.S. Agency for International Development's U.S.-Asia Environmental Partnership.

Coffee is a board member of the American Society of Adaptation Professionals and was a founding board member of the Alliance for Water Efficiency and a Great Lakes delegate to Brookings International Young Leaders Climate Change Summit. She is a Chicago Council on Global Affairs Emerging Leader and an Aspen Institute Socrates Fellow. She earned a BS in biology, environmental studies, and Asian studies from Tufts University and a Master's in city planning from MIT. She is the author of the Climate Adaptation Exchange Blog.

1:45 pm – 3:00 pm

W301 Commercial Lighting: The Latest Design Trends, Products, and Systems
Myung Kim, **Sara Schonour**, Cannon Design

LEARNING OBJECTIVES
List the essential characteristics of quality LED luminaires through case studies.

Discuss the concept of a lighting Life Cycle Cost Analysis and key outcomes from such an analysis.

Describe the benefits of a task and ambient lighting strategy.

Understand how lighting and Lighting Power Density (LPD) impact a building's energy performance

COURSE DESCRIPTION
The presenters will discuss three case studies: 1) University of Pennsylvania Health System South Tower's Center for Advanced Cellular Therapies. The lighting needed to support multiple equipment types and configurations, while simplifying lighting maintenance to minimize operating costs. The panelists will review the cost-benefit analysis of LED technology through a detailed life cycle assessment. 2) CJ OnlyOne R&D Center, in South Korea, used LED ambient and task lighting through the LCA and daylight and occupancy sensors, resulting in optimized function, energy savings, and flexibilities. 3) MASSPORT Facilities Maintenance and Engineering groups sought to replace existing metal halide luminaires in two parking garages at Logan International Airport. After analyzing numerous luminaire types, evaluating in-situ mockups, and performing a comprehensive LCA, the design team narrowed the options down to a three-name LED spec at MASSPORT. The final installed LED upgrade will cut energy consumption and operating costs by more than half.

W302 A Commonsense Path for Owners to Save Energy in New and Existing Buildings - Strategies that Work!
Kristine Chalifoux, **Jean Ascoli**, SEDAC

LEARNING OBJECTIVES
Evaluate and discuss the importance of including energy efficiency and load-reducing improvements in existing buildings and new building design projects.

Identify the most cost-effective, proven strategies to employ in development of beyond-code, energy-efficient new building designs and retrofit projects, and learn how to avoid common design and operational mistakes that can limit the building's energy savings potential.

Appraise new and emerging technologies developed to support the mandate for high-performance, energy-efficient buildings, and identify key resources to support ongoing evaluation of such technologies.

List available funding sources to pay down costs of energy improvements in Illinois facilities.

COURSE DESCRIPTION

This session will uncover the most effective strategies to consider for building projects, whether new construction or reconstruction of an existing building. Building owners, designers, engineers, and contractors will learn how to choose the best course of action for a given building and where to go for more assistance. While improvements typically go hand in hand with increased capital costs, there are many sources of funding to help to cover these increases. The session will review the incentives, grants, and assistance available and how to access them.

W303 Enhancing Indoor Air Quality: How Ventilated Facades Can Improve IAQ and Occupant Health
Luke Leung, Skidmore, Owings and Merrill LLP; **Stephen Ray**, SOM & North Park University

LEARNING OBJECTIVES
Identify environmental conditions that warrant more than standard air improvement techniques.

Specify natural ventilation control systems that improve indoor air quality.

Quantitatively describe the improvement to indoor air quality provided by an internally ventilated double wall.

Apply lessons from indoor-air-improving strategies from three case studies and identify two options for advanced air filtration.

COURSE DESCRIPTION
According to the World Health Organization, indoor air pollution accounts for 4.3 million deaths per year. This presentation will explore two design and engineering technologies to improve indoor air quality: 1) ventilated façades and 2) advanced filtration systems, which can work either independently or in tandem with ventilated facades. The panel will present two case studies from Skidmore, Owings & Merrill: Greenland Group Suzhou Center and Kunming Junfa Dongfeng Square. These two super-tall towers illustrate how incorporating air-quality monitors can improve IAQ in naturally ventilated buildings. When natural ventilation is not feasible, double wall façades, such as the one at Pearl River Tower, can create a thermal buffer and also flush any infiltration that would otherwise diminish indoor air quality. The presenters will explore ways to improve IAQ through advanced filtration techniques currently under study in SOM's Chicago office.

W304 Energy Benchmarking + Policy Progress in Six Midwest Cities
TBD