

BUILDING PERFORMANCE

Building Performance focuses on systems integration, materials and methods, operations, and metrics of a viable building that contributes to healthy work and living spaces.

SESSION 1

BP1 9:30–10:30 a.m. 1 LU/HSW Hour

The U.S. Steel Tower: Scaffolding Tenant and Landlord Efficiencies in a Landmark Building

Presenter: **Marc Mondor**, AIA, LEED Faculty, evolveEA

At more than 3 million square feet, the U.S. Steel Tower constitutes roughly 5% of Downtown Pittsburgh's office space. Starting in 2007, UPMC Health Systems, a major tenant with corporate headquarters, made an environmental commitment. Today, about 40% of the building's square footage is LEED registered and certified for Commercial Interiors. Significant energy retrofits on the building and systems side have allowed the building to work toward BOMA 360 and Energy Star certification. These parallel efforts have led to the building's signing on to the Pittsburgh 2030 District, a near-net-zero energy commitment for the Central Business District.

Join this case study to understand how repetitive floor scan can serve as a laboratory of ideas to discern evolving design and construction, and how landlord and tenant can divide responsibilities in the renovation of a building. Tenant-driven energy innovations in the context of a full-service lease and how to engage the larger Pittsburgh 2030 District through building benchmarking will also be discussed.

SESSION 2

BP2 11:00 a.m.–12:00 p.m. 1 LU/HSW Hour

BIM as a Tool for Energy/Daylight Performance Modeling

Presenters: **Mark Dietrick**, AIA, LEED AP, Case Technologies of PA, and **Rudolph Marnich**, LEED AP BD+C, Astorino

This course will provide an overview of integrated Building Information Modeling (BIM) tools that will simulate energy use, daylighting, and building efficiencies in order to assist with the early evaluation of sustainable strategies and optimize the design's performance. A real-time demonstration of BIM tools will be presented, along with case studies illustrating how these and other tools have been used in practice, supporting a performance-based design process. With this information, participants will be able to recognize how early strategic planning decisions can have a long-term effect on build performance and energy use; become familiar with graphic modeling tools that help to illustrate and inform optimal daylighting strategies; and discover how performance-based design strategies may be achieved through simulation, helping to reduce energy use, and meet the AIA 2030 initiative.

SESSION 3

BP3 1:45–3:15 p.m. 1.5 LU/HSW Hours

Building Occupant and Performance Measurement: Setting Standards and Measuring Results for Research-Based Design

Presenters: **Steve Orfield** and **Wes Chapman**, Orfield Laboratories, Inc.

Through presentations of case studies of the Olmstead County, MN, Community Services Department office building, and an elderly housing project in Iowa, the theory and practice of certified building performance standards, certified building performance measurement, and architectural dynamics will be presented and examined. Participants will gain an understanding of the current state of architectural research, and be introduced to the concept of certified building performance standards, certified building performance measurements, and architectural dynamics, which will all be illustrated through case study presentations.

SESSION 4

BP4 3:45–5:15 p.m. 1.5 LU/HSW Hours

Applying the AIA+2030 Series Strategies

Presenter: **Marc Mondor**, AIA, LEED Faculty, evolveEA

The AIA +2030 series has become the preeminent system for teaching design and construction professionals to deliver buildings that can meet net-zero energy goals. The series systematically demonstrates how goal setting, simulation, site planning, envelope, systems, and operations contribute to the creation of buildings that can meet the Architecture 2030 Challenge. This seminar will summarize AIA Pittsburgh's recently completed series of 10 seminars, organized by the Committee on the Environment and delivered by regional practitioners and experts, and explain how it relates to the 2030 Commitment, the 2030 Challenge, Architecture 2030, and the Pittsburgh 2030 District. Attendees of this course will be able to learn about how the AIA +2030 series breaks projects into component parts from goal setting to design, simulation to construction to occupancy, and discuss case studies from the recently completed series so that they can apply these principles to their projects.

DESIGN

Design courses include project planning, either new building or existing, from concept design through design development and documentation.

SESSION 1

D1 9:30–10:30 a.m. 1 LU/HSW Hour

Digital Fabrication: Bridging the Gap Between Designing and Making

Moderator: **Drew Weinheimer**, Astorino

Panelists: **Jeremy Ficca**, Digital Fabrication Lab, Carnegie Mellon University, and **Matt Verlinich**, TechShop

As the use of Building Information Modeling (BIM) continues to expand within the architecture, engineering, and construction industries, we are witnessing an unprecedented transformation of traditional architectural and construction processes. We are relying more heavily on virtual building prototypes as aggregators of knowledge and vehicles of communication throughout the project life cycle, and lines are beginning to blur between design and construction as we share information and collaborate more freely.

At the same time, technological advancements are occurring rapidly within materials science and manufacturing that allow for automated fabrication or 3D printing of more complex forms, both as scale mock-ups and as full-scale building parts and assemblies directly from our Building Information Models.

Presenters of this session will illustrate how new emerging technologies allow for fabricating building components and scale mock-ups directly from digital models; explore the implications that this technology may have on the future of design and construction; and discuss the specific process of utilizing common Building Information Models to create digital prototypes, as well as the resources that are available to get involved in this process. Learn about how the convergence of these trends is beginning to transform our industry.

SESSION 2

D2 11:00 a.m.–12:00 p.m. 1 LU/HSW Hour

Passive House Strategies: Affordable and Effective for Nearly Any Building Type

Presenters: **Laura Nettleton**, AIA, Thoughtful Balance, Inc., and **Michael Whartnaby**, Thoughtful Balance, Inc.

The passive house concept represents a substantial decrease in a building's heating energy consumption. By employing "passive" strategies such as an airtight building envelope, increased insulation, high performance windows, and increased ventilation and solar energy, minimum "active" systems are required. The resultant mechanical system is able to provide an inviting comfort level as well as a constant supply of fresh air. This course will focus on passive house strategies and the challenges involved in adaptive reuse and new construction by looking at both commercial and residential projects across an array of building types.

SESSION 3

D3 1:45–3:15 p.m. 1.5 LU/HSW Hours

Code Highlights: Energy, Accessibility, and Existing Building

Moderator: **Dina Snider**, AIA, LEED AP BD+C, Strada Architecture LLC

Presenters: **Jim Bruwelheide**, Code.sys Code Consulting, Inc.; **Erik Harless**, MCP, City of Pittsburgh; and **Henry A. Hegerle**, PE, Code Consultant

This seminar will address some of the common code issues related to the 2009 International Energy Conservation Code (2009 IECC), accessibility codes, and 2009 International Existing Building Code (2009 IEBC). In addition to explaining the basics of the 2009 IECC, presenters will discuss the common oversights related to the accessibility codes and common project issues that arise when using the 2009 IECC. Also, a City of Pittsburgh Master Code Professional will be on hand to highlight code issues that are encountered during the design process for renovation projects that utilize the 2009 IEBC.

SESSION 4

D4 3:45–5:15 p.m. 1.5 LU/HSW Hours

Working through It: Insulation, Air Barriers, and NFPA 285

Moderator: **Jeff Light**, AIA, MacLachlan Cornelius & Filoni

Presenters: **Pete Eritano**, Construction & Maintenance Solutions, LLC; **Gary Gardner**, AIA, Bayer MaterialScience; and **Kris Kennedy**, Florida Consulting, LLC

Insulation and air barriers are increasing in number, and the rhetoric regarding what is required and when can be misleading. This course will first discuss the importance of NFPA 285 and then discuss a thought process on how to work through continuous insulation and air barrier assemblies to best meet the requirements of NFPA 285 as well as thermal performance and air barrier requirements.

Upon completing this course, attendees will be able to better select a complete insulation and air barrier assembly. Additionally, they will be able to understand the relationship of Chapter 26 of the International Building Code regarding insulation, air barriers, and their requirements for testing NFPA 285; the relationship between increased R values and moisture issues; and the detailing issues in a complete system.

LEADERSHIP

Leadership is knowledge that inspires change and transformation in thinking and practice in regard to issues of society, firms, and organizational entities.

SESSION 1

L1 9:30–10:30 a.m. 1 LU Hour

Building Next-Generation Leadership

Presenters: **Tami Greene**, AIA, IKM Incorporated, and **Michael P. McDonnell**, AIA, IKM Incorporated

This course will focus on the key elements of talent identification and development, as well as the training necessary to build the next group of firm and industry leaders. Participants will gain an understanding of where leaders come from and what it takes to become a leader, the tools available to those seeking leadership roles and those seeking leaders, and the keys to succession planning.

SESSION 2

L2 11:00 a.m.–12:00 p.m. 1 LU Hour

Crafting a Results-Based Participatory Planning Process for Clients and Communities

Presenters: **Ken Doyno**, AIA, LEED AP, Rothschild Doyno Collaborative; **Tiffany E. Haile**, AICP, LEED AP BD+C, IDC Architects; and **Ivette Mongalo-Winston**, AICP, LEED AP, Mongalo-Winston Consulting, LLC

Meaningful citizen and client participation is a key part of any well-designed project. Yet building a meaningful engagement process is often a secondary consideration to physical design. Committing to and crafting a transparent process that engages all relevant stakeholders and the community in an authentic manner often leads to improved results, expedited approval processes, and a greater commitment to implementation.

Presenters of this course will discuss the importance of community engagement as a critical component of the design process; explore considerations when developing an outreach or engagement plan that is appropriate to your project context; and identify tools and methods for increasing participation throughout the process, particularly for disenfranchised populations in the community context.

SESSION 3

L3 1:45–3:15 p.m. 1.5 LU Hours

A New Concept in Practice: Leading the Delivery Process

Presenters: **Ron Dellaria**, CSI, DBIA, Astorino, and **Mark Dietrick**, AIA, LEED AP, Case Technologies of PA

Recognizing a need for change to address demands for more efficiency, project complexities, and sustainable results, the AEC industry is slowly transitioning to more integrated project delivery (IPD) methods, fostering more collaboration. Concurrently, some firms are leveraging the benefits of BIM's emerging technology to not only work smarter, but to ultimately facilitate this change in the way projects are delivered.

The slow progression of this transition is often linked to those practitioners that are resisting the required cultural shift in the way designers practice. Risk acceptance, traditionally the architect's biggest nightmare, may be the key reason for this ambivalence, yet this attitude also prevents potential reward. Presenters of this course will review the principles of IPD and collaboration and discuss why they may intimidate design professionals. Additionally, new approaches that integrate present at-risk contracts to a more collaborative, shared risk/reward approach will also be addressed. To that end, the presenters will demonstrate how architects have an opportunity to participate in this collaborative project orchestration, potentially differentiating themselves in today's competitive project climate.

SESSION 4

L4 3:45–5:15 p.m. 1.5 LU/HSW Hours

Knowledge-Based Practice and the T-Shaped Architect

Facilitator: **F. Jeffrey Murray**, AIA, IDC Architects/CH2M HILL

Presenters: **Marilee Lloyd**, AIA, IDC Architects/CH2M HILL; **Michael Maiese**, AIA, Bohlin Cywinski Jackson; and **Ed Shriner**, FAIA, CCS, Strada Architecture LLC

Architects have traditionally been generalists, but in an increasingly complex and specialized world, many firms and individuals demand more specialized knowledge and expertise in order to thrive. Clients increasingly value innovation and expertise, based on either new knowledge or old knowledge seen in new ways. Many leading firms are seeking to differentiate by developing their own structured research programs and hiring specialists.

This course explores the value of knowledge and expertise, both generalized and specialized, to firms that want to advance their practice and individuals who want to advance their careers. Presenters will discuss their personal experiences as subject matter experts in their respective areas, and the positive impact this expertise had on their practice and careers.

PRACTICE

Practice track courses address processes, procedures, and policies involved in running a firm and/or managing projects and may include discussions regarding safe and sustainable built environments, project delivery systems, contracts and agreements, intellectual property, ethics, and risk management as they are practiced within firms, corporations, government agencies, and other organizations.

SESSION 1

P1 9:30–10:30 a.m. 1 LU/HSW Hour

Managing Design and Contract Administration Services: Proactive Steps to Resolve Project Issues and Manage Claims

Presenters: **Michael J. Cremonese, Esq.**, Burke Cromer Cremonese LLC, and **Eric O. Pempus, AIA, LEED GA**, Oswald Companies

Design and construction phase services include multiple duties and responsibilities, all of which should be documented in the regular course of project management. Proper documentation of a project manages the design professional's, the project owner's, and to some extent the public's interests and risks. Proper documentation also reduces the design professional's professional liability insurance costs.

This seminar will discuss the importance and types of project documentation and outline tools and strategies for proper documentation of a successful project from design through construction contract administration.

SESSION 2

P2 11:00 a.m.–12:00 p.m. 1 LU Hour

Cloud-Based Collaboration and Management Tools

Moderator: **Conor Ryan**, ARC Document Solutions

Panelists: **William S. Derence**, MBA, CM-BIM, Mascaro Construction Company, and **John Lingley**, LEED BD+C, Perkins Eastman

There is an incredible buzz around emerging cloud computing applications and information mobility but little understanding of what comprises them and how they may best be utilized to enable collaborative project delivery processes.

This panel conversation will present a practical introduction to the components, benefits, and business objectives of project collaboration using cloud-based and information mobility applications highlighted through project case studies. Special attention will be given to the “must-have” features, best practices, and requirements to effectively implement such applications.

SESSION 3

P3 1:45–3:15 p.m. 1.5 LU Hours

Profit: A Small Margin for Error

Presenter: **Stephen McCarron**, First Federal Savings Bank

Businesses that aren't profitable fail. In the professional design industry, open discussion of fees, profit, and associated margins is discouraged by general counsel and practically taboo. But in a climate where margins must be competitive, it is necessary to understand the law that governs them, the methods and technologies available to calculate them, and the factors that influence them.

Join this session to gain a better understanding of the Sherman Antitrust Act and the shifting legal climate of fee structures. Learn how to calculate your firm's critical numbers, identify trends that impact profit margins, and explore the technologies available to assist professionals in profit tracking.

SESSION 4

P4 3:45–5:15 p.m. 1.5 LU Hours

Leveraging Big Data for Greater Certainty and Improved Value

Presenter: **Mark S. Sands, PE**, Performance Building Systems

This course will illustrate how the outcomes for complex projects, including costs, can be easily modeled and measured, even in the early planning stages if there is well-structured data available from completed projects. Emerging big data analytics technologies are capable of capturing massive amounts of information about existing facilities and structures and analyzing it in ways that predict the outcomes of proposed facilities based on common attributes. The age old axiom ‘that which gets measured gets improved’ then takes root, leading to process and performance improvement.