

Session 1 | Whole Building Life Cycle Analysis

Jordan Woodson, PE. Associate Structural Engineer, Arup
Erin Heidelberger, Environmental Performance Analyst, KPF

Title: A Case Study on Structural Systems and the Impact of Height

Description: Through a combined effort between Arup and KPF, research was completed to examine a whole building life cycle assessment on 17xM, a new 300,000-square-foot trophy office building in downtown Washington, DC. The analysis sought to examine if alternative structural systems (steel, timber) would offer potential carbon savings against the shorter, conventional post-tensioned concrete buildings of our nation's capital. This course will share our combined findings, as well as communicate lessons learned and insights gained during our research.

Session 2 | Materials

Cindy McLaughlin, Head of Product, Carbon Built

Title: Why Concrete Masonry Offers the Greatest Near-Term Opportunity to Reduce a Building's Embodied Carbon

Description: Architects in the New York area are widely convinced of the need to build lower embodied carbon into their projects at the design stage. New tools are helping architects iterate designs to dial in lower carbon materials choices from the very beginning. More suppliers are generating EPDs to enable this process. So what's the problem? Few materials exist today that both deeply decarbonize and are pragmatic from a cost and installation basis. Enter the humble concrete block. This product has inherent characteristics that allow Carbon Built to cut carbon upwards of 70-100% while maintaining the performance characteristics needed to use it as a like-for-like substitute with traditional block. NY and NJ have incentivized low-carbon concrete block use through LECCLA. Construction robotics and modest design strategies can neutralize the cost of using blocks instead of carbon-intensive tilt-up walls, for example. If the NY region is to make near-term progress on cutting embodied carbon, architects can lead the charge by examining how their project can incorporate more ultra-low-carbon concrete blocks into their projects.

Mujib Hisham, International Architecture Specification and Key Accounts Manager, Saint-Gobain

Title: Decarbonization of Buildings Through Low Embodied Carbon Glass

Description: Saint-Gobain and Saint-Gobain Glass present their strategy on sustainability and the roadmap to achieve their targets. One big step: their low carbon glass, Oraé. Why did they decide to launch it? How is it possible? How does it help to decarbonize buildings? How do they address circularity and what do they do regarding building glass recycling?

Steve Rys, PE, Building Solutions Specialist, Nucor

Title: Steel's Role in Decarbonization

Description: The iron and steel industry plays a pivotal role in the decarbonization of the building design and construction sector. Steelmakers have a responsibility to reduce their own GHG emissions, while also providing designers with innovative and high-strength products to allow for material quantity reductions. Explore the basics of steel production and sourcing. Then learn about the advancements being made in the industry and acquire some basic design tips to make your projects more sustainable.

John Bachenski, Architectural & Technical Services, Glenwood Mason Supply Co., Inc.

Title: Low-Embodied Carbon Concrete Masonry Units

Description: The concrete masonry unit (CMU) has evolved to address New York City's emphasis on controlling operational carbon in our buildings and embodied carbon in the materials used to construct the built environment. This is being accomplished by using carbon sequestered CO₂ and partial cement substitution during the manufacturing process. What makes this unique is the fact that locally sourced building generated CO₂ and curbside recycled materials (MRF) that would otherwise contribute to NYC's waste stream are utilized. In addition, for each NYC CMU produced, the resulting local construction and manufacturing jobs created qualifying concrete masonry as an integral component to New York's circular economy.

Session 3 | Circular Economy

Dan Bergsagel, Sustainability Lead, Schlaich Bergermann Partner

Title: A Steel Stadium and a Wood Stair: Two Circular Economy Case Studies

Description: Stadium 974 and Circulating Matters—one a steel-frame stadium built for the 2022 FIFA World Cup, the other a small temporary timber installation—are two

different case studies in implementing Circular Economy principles in construction. This brief presentation highlights some of the design methods used to allow for design for disassembly, and for the use of salvaged materials in new construction projects.

Alan Solomon, Partner, Sawkill Lumber

Title: Salvaging Five Woods that Built New York City

Description: During this presentation, Alan Solomon will discuss lumber salvage in New York City, profiling five old growth woods, their forest and tree sources, dimensional sizes, and the building types served. The presentation will briefly chronicle the wood from a single historical building at 261 11th Avenue, starting from an old growth forest in the 1500's and following its journey to the present day; as the wood is salvaged and remanufactured for modern architectural and design applications. The session will address the challenges of wood salvage in New York City (logistical, economic, aesthetic) and current efforts to expand the practice through current public advocacy that address' the issue of embodied carbon.

Session 4 | Building Envelope Life Cycle Assessments

Heather Walters, LEED AP BD+C, Fitwel Amb., WELL AP, LFA, Vice President, Thornton Tomasetti

Title: Thinking About the Box—Pushing the Boundaries of Envelope LCAs

Description: This session will explore the intricate world of Life Cycle Assessments (LCAs) building envelope. We emphasize the importance of defining clear system boundaries and navigating various LCA phases. It's not just about assessing the environmental impact of building envelopes; rather, we advocate for a comprehensive approach that considers both embodied carbon and operational carbon. We will discuss when we should consider expanding the boundaries of our assessments and embracing the entire lifecycle, enabling us to make informed decisions about building design.

Session 5 | Resiliency

Pallavi Mantha, LEED AP, WELL AP, Associate Carbon & Sustainability Consultant, Arup

Scott Bondi, PE. PhD. Principal, Simpson Gumpertz & Heger

Title: The Role of Passive Survivability in Resilient Decarbonization and Envelope Futureproofing

Description: This talk will introduce strategies to achieve and maintain long-term performance in our buildings through robust enclosure systems. We will also discuss a key component of resilience called survivability (passive and active) and the role it plays in the decarbonization of buildings. We will explore synergies between building-scale measures, emphasizing how durable and reliable building enclosure systems can simultaneously improve passive survivability while reducing emissions.

Dena Prastos, AIA, Founding Principal, Indigo River

Domenica Stasiak, PE., Founding Principal, Indigo River

Title: Futureproofing and Resilience

Description: This segment will be a discussion on futureproofing infrastructure for resiliency. Designers must find opportunities in the design challenges they are faced with today to overcome resilience issues. There are solutions that can lead to an improved built environment that will last and operate for decades. We will address these issues and discuss how to overcome them.

Session 6 | Policy Response to the Climate Crisis

Carl Ian Graham, PE., Independent Consultant Former Deputy Direct, Building Emissions, NYC DOB

Title: Compliance with LL97—Finding the Carats Among the Sticks

Description: In passing LL97 in 2019, New York City took a bold step toward combating climate change by limiting greenhouse gas emissions from buildings. Since initially being passed, the law has been modified by additional local laws, and compliance clarified by rules promulgated by the NYC DOB. Beginning January 1, 2024, the energy use of covered buildings will count, and by May 1, 2025, building owners must submit their first accounting of their greenhouse gas emissions. For the first time owners will be subject to penalties for excess emissions. Whether owners will actually accrue penalties for their GHG emissions will depend on their energy use, their knowledge of LL97 and its rules, their ability to take advantage of the compliance rules under LL97, and the actions taken to transition away from using fossil fuels.