

TC 7.5 Smart Building Systems
Program Subcommittee Meeting (misabeled in Conference agenda as Publications)
 2024 Annual Conference, Chicago, Illinois
 Monday, January 22 | 5:15 pm – 6:45 pm | Analysis (2) Marriott Marquis Chicago

Microsoft Teams: Click here to join the meeting Meeting ID: 236 470 136 553 Passcode: L6Nuwp	Or call in (audio only) +1 312-667-7145, 467274889# United States, Chicago Phone Conference ID: 467 274 889#
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Agenda

1. Self-introductions and sign in (5 minutes)
2. Chicago TC 7.5 sponsored and co-sponsored sessions (10 minutes)
3. Chicago conference sessions statistics (5 minutes)
4. Program tracks for Indianapolis Annual Conference (10 minutes)
5. TC 7.5 proposed program sessions for Indianapolis (10 minutes)
6. Program ideas for Orlando and beyond (10 minutes)

Annotated Agenda

Chicago TC 7.5 sponsored and co-sponsored sessions

Sponsored

Sponsoring Committee	Program Time	Session Chair	Session Title	Co-Sponsoring Committee
7.5 Smart Building Systems	Seminar 10 Sunday, 1/21 11:00 AM - 12:30 PM	Burak Gunay	Impact of occupant behaviour on demand response	No cosponsor
7.5 Smart Building Systems	Seminar 36: LIVESTREAM Tuesday, 1/23 8:00 AM – 9:30 AM	Srinivas Katipamula	How can connected communities support the U.S. DOE and ASHRAE goals for decarbonization and to mitigate climate change?	No cosponsor
7.5 Smart Building Systems	AHR Expo Session 5 Tuesday, 1/23 12:00 PM – 1:00 PM	Li Song	Field studies of smart thermostats for energy-efficient and grid flexibility operations in residential and light commercials	1.4 Control Theory and Application

Co-sponsored

Sponsoring Committee	Program Time	Session Chair	Session Title	Co-Sponsoring Committee
1.4 Control Theory and Application	Seminar 4, Sunday, 1/21	Frank Shadpour	The Significance of Selecting the Right Project Delivery Method for Building Automation Projects: One Size Does Not Fit All!	7.5 Smart Building Systems

7.6 Building Energy Performance	Seminar 25 Monday, 1/22 9:45 AM – 10:45 AM	Scott West	Grid-Interactive Buildings for a Decarbonized World	7.5 Smart Building Systems
9.12 Tall Buildings	Seminar 39 LIVESTREAM Monday, 6/26 9:45 AM – 10:45 AM	Mehdi Jalayerian	Indoor Air Quality, Automation and Artificial Intelligence in Tall Buildings	7.5 Smart Building Systems
1.13 Optimization	Seminar 46 Tuesday, 1/23, 11:00 AM – 12:30 PM	Christopher Laughman	Optimization to Enable Predictive Controls and Scheduling for Grid-Interactive Efficient Buildings	7.5 Smart Building Systems
6.7 Solar and Other Renewable Energies	Seminar 47 Tuesday, 1/23, 11:00 AM – 12:30 PM	Constantinos Balaras	The Future Is Electrifying: Zero-Carbon Case Studies Under Moderate Climate	6.7 Building Energy Performance; Other Sponsoring Committees: TC 9.7, TC 7.5, TC 3.2
9.12 Tall Buildings	Seminar 49 LIVESTREAM Tuesday, 1/23, 1:30 PM – 3:00 PM	David Norris	Emerging Technologies in Tall Buildings	7.5 Smart Building Systems
1.4 Control Theory and Application	Seminar 55, Wednesday, 1/24, 8:00 AM – 9:30 AM	Paul Ehrlich	True Building Controls Interoperability: New Digital Solutions Enabled by Proposed ASHRAE Standards 223P and 231P	7.5 Smart Building Systems
MTG.CYB	Seminar 59 Wednesday, 1/24, 9:45 AM – 10:45 AM	Carol Lomonaco	What's the Fuss About Zero Trust Cyber Security for BAS Control Systems	1.4 Control Theory and Application; TC 7.5 Other Sponsoring Committee
2.2 Plant and Animal Environment	Seminar 61. Wednesday, 1/24, 11:00 AM – 12:30 PM	Liping Wang	Challenges, Opportunities and Lessons Learned in Controlled Environment Agriculture	7.5 Smart Building Systems
1.3 Heat Transfer and Fluid Flow	Panel 4: LIVESTREAM Sunday, 1/21, 1:30 PM – 3:00 PM	Michael Ohadi	Thermal/Fluid Applications of AI in Advancing Energy Efficiency of HVAC/R Equipment and Building Energy Systems	Other Sponsoring Committees: TC 7.5, TC 8.5, TC 8.4, TC 1.1, TC 1.4

Chicago Conference Session Statistics

Session Type	Proposals Submitted	Proposals Scheduled
Debate		
Forum		
Panel		
Seminar		
Workshop		
Total		
Total with Paper Sessions		

Program tracks for Indianapolis Annual Conference

1. Fundamentals and Applications

Fundamentals are the foundation for understanding applications in engineering. Key components of ASHRAE fundamentals include thermodynamics, psychrometrics, fluid flow and heat and mass transfer. This track provides opportunities for papers and presentations of varying levels across a large topic base. Concepts, design elements and shared experiences for theoretical and applied concepts of HVAC&R design are included. **Track Chair: Atilla Biyikoglu** | abiyik@gazi.edu.tr

2. HVAC&R Systems and Equipment

HVAC&R Systems and Equipment are constantly evolving to address the changing requirements of the built environment. Papers and programs in this track focus on the development of new systems and equipment, novel applications of existing systems and equipment, improvements to existing systems and equipment and the proper application and operation of systems and equipment. **Track Chair: Ng Yong Kong** | nyk@nyk.com.my

3. Research Summit

Active research, and the exchange of those research findings, are critical to the development of our HVAC&R industry and built environment. The 11th Annual Research Summit invites researchers to share those results, including ASHRAE-sponsored research and research of interest to the ASHRAE community. Researchers are invited to present papers, extended abstracts, seminars, forums or participate in panel discussions. The Research Summit includes a partnership with ASHRAE's archival journal, *Science and Technology for the Built Environment*. **Track Chair: Kristin Cetin** | cetinkri@msu.edu

4. Professional Development

As members of a professional organization, we participate not only for the great value of technical exchange, but also the interpersonal exchange. We recognize that the single greatest strength of our organization is its membership. This track is designed to allow those professionals an opportunity to develop in the areas of presentation skills, leadership, team building, understanding various business operations, interpersonal skills, etc. The Professional Development Track covers all aspects of business outside of engineering/technical applications and lends itself to interactive session types such as workshops and forums. **Track Chair: Ahmed Abdelsalam** | ahmed.abdel-salam@usask.ca

5. Electrification: Possibilities and Pitfalls

Global legislative efforts are pushing for full electrification of the building sector. This track features programs that explore the required technology to meet legislative targets and the seen and unforeseen challenges and consequences of rapidly electrifying the built environment in parallel with other sectors. Submissions are encouraged in the areas of relationships between electrification and decarbonization, electrification of space and water heating, building/grid interactions in a highly electrified environment, onsite energy generation and storage, district energy systems and all other areas related to the electrification of building systems.

Track Chair: Kevin Brown | kevin@kbsquared.net

6. Artificial Intelligence and the Built Environment

Artificial Intelligence and Machine Learning have the potential to transform how we design, optimize, and operate buildings and equipment. From the automated design of heat exchangers to adaptive controls to the development of new working fluids, the possibilities are vast. This track highlights papers, case studies, and programs that separate the hype from reality and explore the possibilities of AI and ML tools for advancing technology for the built environment.

Track Chair: Vinod Venugopal | vinodpvgopal@gmail.com

7. Building Lifecycle Assessment

The explosion of computational capacity and data collection capability is rapidly expanding the scope, complexity, and practical applications of modeling and performance characterization both during design, construction, end-of-life, but even more so for fault detection, diagnostics, and operational optimization. These data can provide better insights on the whole life cycle impact of building construction and operation on efficiency and decarbonization goals. This track welcomes programs related to all aspects of building life cycle assessment, with a particular interest in successful applications that have extended modeling into operational phases of the building life cycle. **Track Chair:** Money Khanna | khannamoney@gmail.com

8. Legislation, Standards, Codes, and Guidelines

Legislation such as the US Inflation Reduction Act (IRA) of 2022 and global F-Gas regulations can dramatically impact the building sector by incentivizing different technologies and approaches to managing building energy systems. In addition, ASHRAE is well known for its standards and design guidelines and their continuous evolution to improve the built environment and its systems in terms of IEQ, resource efficiency and energy consumption. ASHRAE members must be able to keep up with the rapidly evolving legislative environment and prepare to inform future legislation, standards, and codes. The programs in this track highlight recent changes and opportunities to inform new legislation, standards and guidelines and their impact on the buildings sector. **Track Chair:** Cindy Callaway | cindy.callaway@p2sinc.com

TC 7.5 proposed program sessions for Indianapolis

Type	Session Chair / Speakers	Proposed Title	Status	Updates
Seminar	Michael Brambley	Navigating utility building demand management programs—promises and pitfalls	Resubmit?	Not accepted for Winter 2024
Seminar	Xin Jin	Affordable Residential Electrification for Supporting Decarbonization Under Electrical Panel Constraints	Resubmit?	Not accepted for Winter 2024
Seminar	Donghun Kim	Accelerating Decarbonization with the California Load Flexibility Research and Deployment Hub	Resubmit?	Not accepted for Winter 2024

		To be Completed with Input From Subcommittee Meetings		
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Program ideas for Orlando and beyond

Type	Session Chair / Speakers	Proposed Title	Status	Updates
Seminar	Guanjing Lin, New Heaven University for FDD for Rooftop Unit	Users' experiences for FDDs in commercial buildings		Related to the RTAR.
Seminar	Glenn Remington	Cybersecurity & Control & Smart Grid		Could be; Zheng & Jin can contribute (MTG Mike Galler), Qun Zhou
Seminar	Kristen Cetin/Zheng O'Neill	Smart products for residential and commercial buildings		In the future
Seminar	Donghun Kim	Smart Grid – Building Envelope Interaction/Dynamic Facades		In the future (Donghun to follow up)
Seminar/Debate	Carol Lomonaco	IOT Security		
Seminar	Edward Tsui	Best practice of monitoring and instrumentation		Glenn Remington
Seminar	Eric Yang	Battery Control Strategies and its impact to life cycle cost	Christie Kjellman, Carol, Glenn Remington, Srinivas Katipamula	
Seminar	Peter Armstrong	What to do with optimal control?		
Seminar	Andreas Athienitis	Model accuracy impact study on model predictive control		BOD sc. David/Andreas
TBD	TBD	What data the lawyer would like to know –needs to define scope	In future	
Seminar	Peter Armstrong & Li Song	Building optimal / predictive control	For Future	
Seminar, co- sponsor TC 7.9	Li Song & Carol Lomonaco	How BAS can Enhance Existing Building Commissioning	For Future	
Seminar	Armstrong	Edge computing, Cloud Analytics, and On-Premises Systems – Architectures for Smart Building Systems	For future	
Seminar	Nick Gayeski / Speakers from Armstrong	Smart Transducers with Embedded Diagnostics	For future	

Seminar	Kristin Heinemeier / Kristin & Jon Douglas, someone from TC 7.9?	Fault Detection and Retro- commissioning: Where is the Line and Does it Matter?	For future	
Workshop	Kristin Heinemeier	Lab Methods for verifying that FDD tools for RTUs really work: Will Standard 2007 really work?	For future	
Seminar	Chris Kinney/Michael Munroe/Glenn Remington	FDD and Clouds?	For future	