

## TC 7.5 Smart Building Systems

### Program Subcommittee Virtual Meeting

01/19/2021 12:30 PM to 1:15 PM

<https://ashrae-org.zoom.us/j/93837903776?pwd=bm5qS1dMMmFSTyszaFcxWHZPK1JXQT09>

#### Programs presented at Winter 2021 Conference

One workshop and 10 seminars were submitted at this conference and 5 of 10 seminars were accepted and listed below:

Sponsoring Committee	Program Time	Session Chair	Session Title	Co-Sponsoring Committee
7.5 Smart Building Systems	Seminar 55	Bing Dong	Future Smart Building Operations for Load Flexibility	MTG.OBB Occupant Behavior in Buildings
1.4 Control Theory and Application	Seminar 29	Chariti Young	Avoid the Headlines! Today's Top 10 Security Best Practices for Controls	7.5 Smart Building Systems, 1.5 Computer Applications
6.7 Solar Energy Utilization	Seminar 44	Konstantinos Kapsis	Decarbonization and electrification of the built environment: Designing Canada's future urban communities	7.5 Smart Building Systems, 2.5 Global Climate Change
1.4 Control Theory and Application	Seminar 26	Scott Hackel	Smarter Together: Integrating HVAC and Lighting Control	7.5 Smart Building Systems
6.9 Thermal Storage	Seminar 11	Kyle Gluesenkamp	Techno-Economic Comparison of Energy Storage Technologies WITH LIVE Q&A	7.5 Smart Building Systems

#### Program tracks and timelines for Phoenix, AZ | Jun 26–30, 2021

1	<p><b>Fundamentals and Applications:</b> Fundamentals are the foundation for understanding applications in engineering. Key components of ASHRAE fundamentals include thermodynamics, psychometrics, fluid and mass flow. 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&amp;R design are included.</p>
2	<p><b>HVAC&amp;R Systems and Equipment:</b> HVAC&amp;R Systems and Equipment are constantly evolving to address the changing requirements of the built environment. Papers and programs in this track will focus on the development of new systems and equipment, improvements to existing systems and equipment and the proper application and operation of systems and equipment.</p>
3	<p><b>Research Summit:</b> Active research, and the exchange of those research findings, are critical to the development of our HVAC&amp;R industry and built environment. The 8th annual</p>

	<p>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.</p>
4	<p><b>Professional Development:</b> As members of a professional organization, we not only participate 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. In short, the Professional Development Track will cover all aspects of business outside of engineering/technical applications and lends itself to interactive session types such as workshops and forums.</p>
5	<p><b>Design, Control, and Operation of Critical Environments:</b> Critical environments often present design, control, and operation challenges that require innovation, attention to detail, and a thorough understanding of the intended operational parameters. This track includes innovative designs and strategies that adapt to the standards and special requirements presented by healthcare, cleanrooms, data centers, laboratories, isolation rooms, and pharmacies. Papers and presentations will also address how controls systems, smart building technologies, and security systems and other technologies are adapting to the emerging needs of critical environments.</p>
6	<p><b>HVAC&amp;R for Indoor Plants &amp; Animals:</b> This track addresses HVAC&amp;R systems design for controlled environments that host plants &amp; animals. Papers and programs in this track will present the challenges and opportunities associated with energy and water utilization for indoor growing spaces, including standards and regulations that guide the design of plant &amp; animal habitats. Environmental parameters for indoor agriculture, including controlling temperature, humidity, air movement, air quality will be covered. This track will also address reducing consumption of energy &amp; water and compare how crop types and animal species impact HVAC analysis and design.</p>
7	<p><b>Future Proofing - Renewable, Regenerative, and Resilient:</b> The HVAC&amp;R industry faces many challenges including climate change, pandemics, natural disasters, catastrophic accidents, and terrorism. Rising to meet these challenges are a host of technologies and strategies, including grid-enabled buildings, demand response, decarbonization, resiliency, zero energy design, energy-efficiency and renewable energy systems. This track invites papers, abstracts, seminars and forums that highlight the innovative technologies and strategies that are reimagining our relationship with the built environment now and into the future.</p>
8	<p><b>Hot, Hot, Hot</b> The world is warming. The built environment faces increased challenges to meet the demand for comfortable Indoor and outdoor environments in warmer climates. This track is for papers and presentations that address humidity control, outdoor cooling, passive cooling, water scarcity considerations, other design opportunities, and innovative technologies that help HVAC&amp;R professionals adapt to the hottest climate trends.</p>

9 (Mini-track)	To be announced.
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**Deadlines:**

**Monday February 8, 2021:** Program Submissions Due / Extended Abstracts Due

**Friday March 19, 2021:** Program Submissions Accept/Reject Notifications

**Program ideas for the future**

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
Seminar	Zhou Joe	Training plan for facilities		Glenn/Joe
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-Premise 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	

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**NEXT IN-PERSON MEETING: June, 2021 – Phoenix, AZ**