



Meeting Agenda

Prepared by Li Song

TC 7.5 General Meeting

02/11/2025

3:30 PM– 6:00 PM Eastern Time (ET)

Hilton Orlando, Lake Florence AB (Lobby Level)

To join virtually click the link below

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Wi-Fi Access:

Network: TBD

Password: TBD

Schedule for TC 7.5 Meetings, Winter 2025:

Time in CT

Committee	Date	Start	End	Location	Chair
Enabling Technologies	02/09/2025	1:30 PM	2:15 PM	Hilton Orlando, Key Largo D (Lower Level)	Mike Galler
Bldg. Operations & Dynamics	02/09/2025	2:15 PM	3:00 PM		Donghun Kim
Fault Detection & Diagnostics	02/09/2025	3:00 PM	3:45 PM		Zufeng Wang
Smart Grid	02/09/2025	3:45 PM	4:30 PM		Greg Pavlak
Honors and Awards	02/09/2025	4:45 PM	5:15 PM		Carol Lomonaco
Handbook	02/09/2025	5:15 PM	6:00 PM		Li Song
Research	02/10/2025	4:45 PM	6:00 PM	Hilton Orlando, Key Largo C (Lower Level)	Kristen Cetin
Program	02/10/2025	6:00 PM	6:45 PM		Mike Brambley
Main TC	02/11/2025	3:30 PM	6:00 PM	Hilton Orlando, Lake Florence AB (Lobby Level)	Zheng O'Neill

Committee	Link	Password
Enabling Technologies	Join the meeting now Meeting ID: 249 142 776 437 Passcode: CHExzv	CHExzv
BOD		
FDD		
Smart Grid		
Honors and Awards		
Handbook		
Program	Join the meeting now Meeting ID: 255 952 470 945 Passcode: g7e5Kh	g7e5Kh
Research		

Main TC	Zoom Meeting ID: 987 2522 9263 Passcode: 249877 Join Zoom Meeting	249877
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1. Welcome (Zheng O'Neill).
Signin Sheet:
2. Roll Call and Introductions. Determination of quorum.
 - Current voting members (ending month):
Mike Galler (June 2025), Donghun Kim (June 2025), Carol Lomonaco (June 2025), Greg Pavlak (June 2025), Li Song (June 2025), Zheng O'Neill (June 2026), Kristen Cetin (June 2026), Michael Brambley (June 2027), David Yuill (June 2027).

<input type="checkbox"/>	Mike Galler
<input type="checkbox"/>	Donghun Kim
<input type="checkbox"/>	Carol Lomonaco
<input type="checkbox"/>	Greg Pavlak
<input type="checkbox"/>	Li Song

<input type="checkbox"/>	Zheng O'Neill
<input type="checkbox"/>	Kristen Cetin
<input type="checkbox"/>	Mike Brambley
<input type="checkbox"/>	David Yuill

3. Scope
TC 7.5 is concerned with the performance and interactions of smart building systems, the impact of smart systems on the total building performance, methods for achieving more intelligent control and operation of building processes, interactions of smart buildings with utilities, and documentation of the benefits of smart buildings and smart building systems as they relate to energy consumption, cost of operation, maintenance, occupant comfort, building commissioning, operations, and impact of the SBS on utilities and natural resources.

ASHRAE Code of Ethics Commitment – Chair

In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity and respect for others, and we shall avoid all real or perceived conflicts of interests. (See full Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>.)

4. Changes to Agenda?
5. Announcements: TBD
6. Liaison Reports:
 - Section Head (Money Khanna)
 - CEC (Kristen Cetin)
 - TC 1.4 (Chariti Young)
 - TC 1.5 (Parastoo Delgoshaei)
 - TC 7.3 (Josh Gemmel)
 - TC7.10 (Zheng O'Neill)
 - *MTG EBO* (Patrick Villaume)
 - *TC 1.9/1.10* (A new liaison is needed)
 - SPC 223 (Parastoo Delgoshaei)
7. Research (Kristen Cetin)
8. Fault Detection and Diagnosis Subcommittee Report (Zufeng Wang) –

9. Enabling Technologies Subcommittee (Mike Galler) –
10. Smart Grid Subcommittee (Greg Pavlak) –
11. Buildings Operations Dynamics Subcommittee (Donghun Kim) –
12. Program (Mike Brambley) –
13. Handbook (Li Song) –
14. Standards (David Yuill) –
15. YEA (Kristen Cetin) –
16. Honors and Awards (Carol Lomonaco) –
17. Web Page (Mike Galler) –
18. Membership (Zheng O'Neill) –
19. Old Business
20. New Business
21. Adjournment

Agenda - TC 7.5 Enabling Technology - Chair Mike Galler

2/9/2025 1:30 PM to 2:15 PM Orlando Hilton- Orlando Key Largo D



Subcommittee Scope: • The Enabling Technologies Subcommittee of TC 7.5: Smart Building Systems aims at exploring and developing technologies which will enable the development, implementation and commercialization of smart building applications such as fault detection and diagnostics, model-predictive control and optimization, and smart grid applications such as automated demand response. Three focal points of this subcommittee are **i) smart transducers**, such as sensors and actuators which provide diagnostic information, **ii) communications**, such as wireless devices and protocols enabling greater data exchange, and **iii) embedded metadata**, such as embedded equipment and system information to enable smart building applications. On these topics, the scope of this subcommittee includes identifying and sponsoring research projects, evaluating existing technologies, providing recommendations to building operators and practicing engineers, developing supporting tools for researchers in these areas, and organizing programs to disseminate research findings and advancements among ASHRAE members.

Agenda:

5 min	Call to Order- Introductions; Agenda, Chair Discussion
30 min	Program- Current meeting status and new idea proposals due for Phoenix: Program (Seminar, Forum, Workshop, Debate and Panel) Proposals Due Feb 26. Next Winter: Las Vegas, NV Jan 31 to Feb 4 2026.
10 min	Update/Discussion of Active Project/RTARs/Work Statement- as needed.

Program: New Ideas Open Discussion

- ChatGPT/AI: how can it be used at each stage of the building lifecycle? New developments?
- Cybersecurity, what is needed by ASHRAE and members?
- Electrification of buildings: how will this affect smart buildings? New vs retrofit?
- Refurbishing old buildings with new tech (energy, cyber): limitations, benefits, opportunities?
- Smart Transducers (sensors and actuators) update?
- Communications
- Embedded Metadata
- Open discussion on other topics

Next meeting (Phoenix) conference tracks:

1. Fundamentals and Applications	5. Industrial Ventilation, Refrigeration, Air-Conditioning
2. HVAC&R Systems and Equipment	Energy Utilization
3. Research Summit	6. Heat Pumps, Refrigerants and Decarbonization
4. Workforce Development	7. Onsite Energy Storage

Program: Previous Meetings:

Optimizing Thermal Energy Storage Integrated with HVAC (2023 Winter, Chair Kyle Gluesenkamp)
Standardized Building Datasets for Benchmarking Control Algorithms, Energy Efficiency, Modeling and Decarbonization (2023 Winter, Chair Farhad Omar)
How Common are Residential HVAC Installation Faults, and How Can We Detect Them? Results from the DOE Building America Program (2023 Winter, Chair David Yuill)
Managing the Complexities of Cybersecurity (2023 Winter, Chair Carol Lomonaco)
SPIRE, WELL, Building EQ: New Certifications for Smart, Healthy and Efficient Buildings (2023 Winter, Chair David Yuill)
What Happened to our Hospitals after the COVID-19 Fiasco? HVAC Design, Control and Operation (Toronto co-sponsor with 1.4, Chair Frank Shadpour)
Developing an ASHRAE Standard/Guideline to Assess the Performance of Occupancy Sensor Systems in Buildings (Toronto, Chair Kristen Cetin)
Smart Buildings as a Transactive Energy Hub: Decarbonizing by Enhancing Building-to-Grid Interactions (Toronto, Chair Ron Bernstein)
The Importance of O&M to Energy Efficiency, Comfort, IAQ and Energy System Decarbonization (Toronto co-sponsor with 7.3, Chair Mike Brambley)

Impacts on Occupants' Experience in Grid-Interactive Efficient Building Operations (Toronto, Chair Li Song)
Cybersecurity, Securing Building Control Systems: Are We Meeting Industry's Needs? (Toronto, co-sponsor with 1.4, Chair Ron Bernstein)
Fundamentals of Division 25: Integrated Controls and Cyber Security (Toronto, co-sponsor with 2.10, Chair Beth Tomlinson)
Using Building Automation to Safely Return to Classrooms after COVID-19 (Toronto, co-sponsor with 1.4, Chair Frank Shadpour)
Can Connected Buildings Save the Grid? (Toronto, co-sponsor with 1.9, Chair Randall Higa)
Gas sensing technologies – Zach Siefker, Kristen Cetin. Seminar 10 Building-Integrated Indoor Air Quality Sensors, (Las Vegas Jan 30, 11:00 AM – 12:30 PM)
Technology for Cybersecurity- supporting need for more seminars on topic.
Building-Smart Grid Interface- Glenn Remington Seminar 12 Renewables and the Smart Grid, (Las Vegas Jan 30, 11:00 AM – 12:30 PM)
New Sensing Technology- Chair: Carol Lomonaco
Impact of IoT on building control & monitoring (2021 Annual, Chair: Carol Lomonaco)

Research: Update/Discussion of Active Project/RTARs/Work Statement

List of current RTARs:

Warmup/Setback

Occupant-Centric DR

WS-1875 Virtual Sensors

WS-1934 Data Drive MPC

WS-1812 Detection and Diagnosis of Circulating Fluid Leakage from Hydronic Systems

Next Meeting Time- Phoenix, same time? Do we need a virtual meeting between conferences?

Adjourn Meeting_____

Sponsored by TC 7.5 at this meeting:

Seminar 1: AI-Driven Alarms: Boosting BAS Controls with Instant ROI

Sunday, February 9 8:00 AM – 9:00 AM EST

Hilton Orlando, LL, Orlando VI

Seminar 31: Powering a Resilient Future with Microgrids

Monday, February 10 11:00 AM – 12:00 PM EST

Hilton Orlando, LL, Orange B

Seminar 32: What Are the Changes Required for Climate Change-Resistant Infrastructure for Industrialized Construction?

Monday, February 10 11:00 AM – 12:00 PM EST

Hilton Orlando, LL, Orange C

Seminar 39: LIVESTREAM: International Energy Agency Energy in Buildings and Communities Programme (IEA EBC) ANNEX 81: Data-Driven Smart Buildings

Tuesday, February 11 9:45 AM – 10:45 AM EST

Hilton Orlando, LL, Orlando V

Workshop 4: Practical Application of Guideline 13-2024-Specifying Building Automation Systems; Control Systems Network Architecture Design and Integration

Tuesday, February 11 11:00 AM – 12:30 PM EST

Hilton Orlando, LL, Orange B

Seminar 48: Casting a Wider Net: Future-Proofing to Meet AEC Industry's Talent Demands

Wednesday, February 12 8:00 AM – 9:30 AM EST

Hilton Orlando, LL, Orange A



Agenda

TC 7.5 Building Operations Dynamics 2:15 PM - 3:00 PM EST, 02/09/2024 Hilton Orlando: Key Largo D (Lower Level)

Prepared by Donghun Kim

Subcommittee Scope: The Building Operations Dynamics Subcommittee of TC 7.5 is concerned with the dynamic characteristics and interactions of comfort conditions, the active components of HVAC systems, the passive components of HVAC systems, control systems and operation strategies and the building. The committee is concerned with the methods of building system operation which minimize energy used through the consideration of dynamics and interactions. It is also concerned with methods which consider dynamic and interactive characteristics in the design or comfort conditioning systems.

[Join the meeting now](#)

Meeting ID: 249 142 776 437

Passcode: CHExzv

Agenda

5 min	Call to Order	
	Self-introduction, announce the subcommittee scope and other announcements.	
15 min	Program	
	Current meeting status and new ideas proposals	See below for more information
10 min	Update/Discussion of Active project/RTARs/Work Statement	See below for more information
15 min	New ideas and discussions	

Agenda Summary

- 3 new programs
- One on-going WS (WS- 1809)
- One active research project (WS-1934, RP?).
- One RTAR is under development
- New ideas

Program Discussion (15 min)

Program	Title	Lead	Previous talks
New	Optimal Control Beyond HVAC	Joe, Donghun	<p>Tampa: General optimization for more than HVAC for DR and carbon emission? Resilience integration? Beyond HVAC (other DRs)</p> <ul style="list-style-type: none"> - DOE's vision - DOE sponsored demo projects <p>After Chicago Chicago: Targeting Orland (2025 winter) Potential speakers: Carol - Lighting + etc Mike - water heater, Li Song - Donghun - EV+ PV+ HVAC Zheng : PV +Battery +HP + Water IND</p> <ul style="list-style-type: none"> - Target: ?
New	Portfolios of grid responding technologies for clear environment: field evaluations	Donghun	<p>IND</p> <ul style="list-style-type: none"> - Reuse of previous - Target:?
New	Life cycle analysis related to CEA, Green house, indoor house	Linging	<p>IND:</p> <ul style="list-style-type: none"> - Target: Orlando - Carol suggesting COF (college of fellow) to participate and/or provide speaker

Research Proposals Discussions (10 min)

Research	Title	Lead	Previous talks (~ Feb/2020, Orlando)
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WS (Work Statement)	WS-1809: Updating reference guide for dynamic models of HVAC equipment	Heejin Cho	<p>Send out to RAC before the RTAR rules changed PTAR (Publication TAR). Co-Sponsored by 1.4 Has been reviewed by all voting members. 1/15/2019 – Approved by all. RAC provided comments back to the author Orlando: no updates from Heejin Cho. Zheng will follow up with Heejin Li and Zheng iterated with Heejin and Virtual Conf (Austin): Zheng will follow up with Heejin. Chicago: WS was revised and waiting for response Phoenix: revision was completed. Vote on the main meeting this Wed. Las Vegas: Submitted last year (Aug), received feedback from RAC. Toronto: RAC asked to move to PTAR. contacted the Heejin, no response yet Atlanta: no response yet from Heejin</p> <ol style="list-style-type: none"> 1. Does the old version (1998) still contain valid and useful information? 2. Are updates necessary? 3. Can TC 7.5 support? <p>Joe will contact Heejin Tampa: Joe will follow up Heejin for Converting to PTAR Chicago : no update Joe: no update —> potentially finding another person who can lead</p>
WS-1934 1934-TRP	A Survey Study on the Development and Application of Data-driven Model Predictive Control for Buildings	Jin, Zheng, Helia, Joe	<p>Vote (Aug 15, 2021): 6-0-0-5 (CNV) Submitted in Aug 2021. Working on the WS with a goal to submit the WS by March 15th. Atlanta: WS was submitted to RAC after Toronto meeting Tampa: RAC conditionally approved. Asked for revision. Revision was submitted, and will get updated. Chicago: bidded, and PES is finalizing a winner IND: It is an active research project now. Jose is the chair.</p>

RTAR ¹	Title	Lead	Previous talks (~ Feb/2020, Orlando)
1	Occupancy-Aware Control and Operation of HVAC Systems in Commercial Buildings	Zheng/Li	<p>Vote (06-25, 2019): 6-0-0-5 (CNV)</p> <p>MTGOBB (12 approve, 0 against, 5 absent, voted on June 22 2021)</p> <p>Submitted in June 2021</p> <p>Inquiring the status</p> <p>Waiting for RAC response</p> <p>Atlanta: No discussion</p> <p>Tampa: No discussion</p> <p>Chicago: TBD, needs discussion on research need</p> <p>IND: Joe will follow up, potentially drop this off</p>

Ideas on Hold

Program	Title	Lead	Previous talks
1	What to do with optimal control?	Peter Armstrong/ Joe	<p>Orlando: Peter is not in the meeting. No discussions.</p> <p>Virtual Conf (Austin): Peter is not in the meeting. Park this idea</p> <p>Chicago: Zheng will reach out to Peter for this item</p> <p>Phoenix: David will reach out to Peter for this item</p> <p>Las Vegas: Zheng will reach out to Peter</p> <p>Atlanta: no discussion</p> <p>Tampa: move to Parking</p> <ul style="list-style-type: none"> - Joe proposing a topic: optimal control focused on other applications not just HVAC - Li Song proposing a topic focus on field testing/real applications

RTAR	Title	Lead	Previous talks (~ Feb/2020, Orlando)
1	How IoT impacts operators	Joe Carol Liping Wang Scott Hackel	<p>Carol working on an outline.</p> <p>How to quantify impact – Li Song</p> <p>Dovetailing with enabling technologies.</p> <p>Update the title</p> <p>Orlando:</p>

¹ Research Topic Acceptance Request

			<p>Carol: No updates IND: No updates Li: should include Residential application. We will need to have another idea/RTAR and Zheng will help Li Carol: Does the new idea include homes or multi-family homes? Need to consider privacy, multi-stories,etc. Virtual Conf (Austin): Carol, Joe and Li will have the following meeting. Chicago: Park this idea Phoenix: No discussion Las Vegas: No discussion Toronto: No discussion Atlanta: park the idea</p>
2	<p>Link the productivity with occupancy-based control; Occupant in the loop controls</p>	Ivo Martinac	<p>Ivo Martinac – professor developing idea. The idea but needs to develop the team. Park this idea at this time Orlando: No updates. Park this idea, Zheng will follow up with Ivo. Virtual Conf (Austin): No updates. Park this idea. Chicago: Zheng will follow up with Ivo. Las Vegas: No discussion Toronto: No discussion Atlanta: park this idea IND: No updates</p>



Agenda

TC 7.5 Fault Detection and Diagnostics

Sunday, 02/09/2025 @ 3:00 PM– 3:45 PM EST
Hilton Orlando, Key Largo D (Lower Level)

Subcommittee Scope: explore and develop technologies to detect and diagnose common faults in both commercial and residential buildings. The scope of this subcommittee includes (a) identifying and sponsoring research projects to develop new FDD technologies, evaluate existing FDD technologies; provide recommendations to building operators and practical engineers, and develop supporting tools for researchers in FDD areas, and b) organizing programs to disseminate research findings and advancements in FDD areas among ASHRAE members.

Agenda:

3:00	Call to Order	
	Self-introduction, announce the subcommittee scope.	
3:05	Sessions at 2025 winter Orlando	
	Sunday, February 9, 8:00 AM – 9:00 AM EST Seminar 1: AI-Driven Alarms: Boosting BAS Controls with Instant ROI (TC1.4 & TC7.5(co-sponsor); Chair: Coral Lomonaco) Sunday, February 9, 11:00 AM – 12:30 AM EST Paper Session 5: Advancements in Retrofit Analysis: Air Leakage Detection and Moisture Detection in Buildings Wednesday, February 12, 9:45 AM – 10:45 AM EST Seminar 57: When IoT Devices Meet with Artificial Intelligence (Chair: Zheng O'Neill)	
3:20	Potential seminars ideas for 2025 annual Phoenix	
	Overview of 2025 annual conference tasks: <ol style="list-style-type: none">1. Fundamentals and Applications2. HVAC&R Systems and Equipment3. Research Summit4. Workforce Development5. Industrialized Construction: Opportunities and Challenges6. Heat pumps, Refrigerants and Decarbonization7. Onsite Energy Storage	
	Potential seminars discussed for 2025 winter in 2024 annual	
	Automated Alarm Management: DDC alarm management? Segment the alarm information into useful pieces. The building operator has to go through all the alarms. Make a	Carol Lomonaco (Chair), Kim Barker, Jason, Chirag

	<p>presentation to collect information to make an RTAR is a goal. TC1.4: program will be the co-host.</p> <p>Carol already has two speakers. (submitted to Chicago 2024 and will resubmit for Maybe Orlando, FL 2025)</p> <p>2025 winter Orlando: Seminar 1: AI-Driven Alarms: Boosting BAS Controls with Instant ROI</p>	
	<p>Assessment of FDD in Guideline 36</p> <p>Target for 2025 (Joe will follow up and provide an update)</p> <p>2025 winter Orlando:</p>	Joe Zhou (Chair), Steve Taylor
	<p>Open-source FDD (software) platform</p> <p>Submitted 2024 Annual</p> <p>2025 winter Orlando:</p>	Anthony Demattos, Chirag Parikh (Chair), Natasha Milesi-Ferretti, Yan Chen
	<p>Data-driven based FDD (Annex 81)</p> <p>Plan to submit this program to Orlando, FL 2025</p> <p>2025 winter Orlando: Seminar 57: When IoT Devices Meet with Artificial Intelligence?</p>	Zheng O'Neill, Jin Wen (Chair)
	<p>Use smart thermostat data for FDD in residential buildings, Orlando FL 2025</p> <p>2025 winter Orlando: Seminar 57: When IoT Devices Meet with Artificial Intelligence?</p>	Li Song, Lian Zhang, Burak Gunay, Donghun Kim
	Potential seminars 2025 annual Phoenix	
3:30	Update/Discussion of Active project/RTARs/Work Statement	
	<p>Evaluation of the Usability of ASHRAE Standard 207</p> <p>Co-sponsor TC 7.9, Maybe TC 1.4</p> <p>2024 annual Indianapolis: Need a new champion to draft the WS. Or it will be dropped.</p> <p>2025 winter Orlando:</p>	Yifeng Hu will lead it. David Shipley help.
	<p>RTAR in the draft:</p> <p>Evaluating the impacts of interactive faults from microgrids and buildings on grid and building system performance at community scales.</p> <p>2025 winter Orlando:</p>	Liping Wang
	<p>New RTAR ideas and topics in 2024 annual Indianapolis:</p> <p>FDD for low global warming potential (GWP) heat pumps: evaluate existing FDD methods for heat pumps/variable speed compressors.</p> <p>2025 winter Orlando:</p>	Donghun Kim, David Yuill, Li Song
	<p>FDD for variable refrigerant flow (VRF) systems</p> <p>2025 winter Orlando:</p>	Donghun Kim, Yifeng Hu

	A2L Refrigerant Leak Detection, maybe Orlando FL 2025 2025 winter Orlando:	Li Song (Chair), Srinivas Katipamula
3:35	Program ideas in 2024 annual Indianapolis	
	Use ASHRAE 223P for FDD application in different buildings 2025 winter Orlando:	Parastoo Delgoshaei, Zheng O'Neill, Jin Wen, Xuechen Lei
	AI for smart buildings; General AI/Transfer Learning for FDD 2025 winter Orlando:	Carol, David Yuill, Jin Wen, Liping Wang, Himanshu Sharma
3:40	New ideas in 2025 winter Orlando	
3:45	Adjourn	



Meeting Agenda

TC 7.5 Smart Grid Subcommittee (Hybrid)

Sunday, February 09, 2025 | 3:45 pm - 4:30 pm EST

Meeting Room: Hilton Orlando, Key Largo D (Lower Level)

Virtual Meeting Info:

Join on your computer, mobile app or room device

[Click here to join the meeting](#)

Meeting ID: 249 142 776 437

Passcode: CHExzv

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Subcommittee Scope: This subcommittee will explore and develop ideas and research work statements to improve the building and utility interactions (and more specifically the electric grid). The research will focus on developing enabling technologies for seamless interaction of smart building components and utilities and other building services. An important aspect of this work is to identify the information that is necessary to support smart building technologies, and to identify the requirements of communication protocols to support the exchange of this information between different building services buildings and utilities, between multiple buildings, with outside service providers.

The importance of a stable and reliable electric power grid to life and the economy in the 21st century has been underscored by two major events over the last decade: a major black out on the east coast of North America and wildly varying electricity prices in California during an attempt at restructuring the electricity marketplace. In response to these events many organizations have started research activities to find ways to modernize the grid. However, there are significant gaps in the research activities, especially as they relate to buildings. Since buildings consume over 70% of the electric in the U.S., they have to part of the solution to modernize the grid. ASHRAE has traditionally developed technologies, standards, and guidelines for buildings. Therefore, this subcommittee can play a major role in continuing this effort.

Agenda:

0:00	Call to Order	
5 min	Introductions, announce the subcommittee scope	
20 min	RTAR Ideas and Updates	
5 min	Relevant sessions at current ASHRAE conference	
15 min	Annual ASHRAE conference seminar ideas	
Adjourn		

Detailed Agenda

Call to Order

- Read scope
- New members – name – affiliation, new member
- Sign In Sheet:

Update/Discussion of RTARs/Work Statement ideas

- 1) Grid-Interactive Building Control Sequences: Program, Session, PTAR, RTAR? Current guidance is so high-level that it is not implementable.
 - We don't have any sequences for the strategies that we are talking about (re: buildings/smart grid)
 - Practitioners will be looking for that kind of guidance.
 - Collaborate with 1.4?
 - Still need to solve communication and integration problems first
 - How do we actually do this?
 - Research project needed to gather sequences? Goal: gather pieces needed to go from guide to guideline.
 - o Could start with modeling or survey of existing projects?
 - o Diverse teams that include battery manufacturers, EV's, etc.
 - o Important to consider scope of grid services for desired sequences
 - o Load shapes are a big driver (narrow down to specific building types)
 - o Availability of data streams as inputs to sequences
 - o Sequences should be practically adaptive (e.g., trim and respond)
 - o TC 6.7 support PV system topics
 - Indianapolis Update:
 - o Greg will lead with help from Michael P, Joe Zhou, Zufen, Xing, Scott West
 - o Potentially connect with new TG/MTG on Grid-Interaction for Decarb.
- 2) Guidance on smart building equipment / IoT – **Carol Lomonaco, Scott Hackel**
 - what are you getting, functionality, products?
 - what program functions are necessary to work in different environments?
 - Carol – can reach out to one of the consultants that works in this area, has a good feel of this (has looked at some of this already) some people say won't allow the use of IoT because of lack of security/authentication, but maybe this isn't the case, seems to be a wide range; people don't understand these features/components – what are the deficiencies?
 - Scott - also interested and had ideas on this topic
 - Kristen & Carol can discuss
 - (No report in Toronto)
 - Focus on selection?
 - (Indianapolis or Orlando PTAR, Herve also contribute.)
 - Indianapolis Update:
 - o Huge scope, potentially start by narrowing and defining audience (MEP designers, integrators?)
 - o Joe Z. can follow up with Scott
 - o Requirements on data sheets?
- 3) Linking building modeling to grid modeling (Donghun K)
 - Some existing efforts
 - End user of this work would be policy recommendations for ISOs

- How to validate models?
 - Tampa Discussion:
 - o difficult to connect topic to ASHRAE users
 - o Was a seminar in Atlanta on the topic.
 - o Building response is important for the grid.
 - o Connected communities might be hook for getting ASHRAE to think about modeling buildings and grid.
 - Indianapolis:
 - o Grid modeling not really ASHRAE scope, work with IEEE?
 - o Connect with new DTG/MTG.Utility
 - o Forum or debate to understand tools? (Carol can lead submission but needs help with questions, Orlando)
- 4) Load Shapes from Heat Pumps and Hybrid Systems in Cold Climates (Dave Shipley, Kristen Cetin, someone from Slipstream)
- a. Clients wanting to know how various heat pump technologies (e.g., cold climate, hybrid, etc.) influence load shape.
 - b. Typical? 8760 load shapes
 - c. Organizations may co-fund
 - d. Residential only to limit scope
- 5) Smart Grid Application Guide – need to update? Is it still relevant?
- a. Likely too soon to update. Maybe in 4 years.
 - b. TC 7.5 Smart Grid may lead.

New Ideas:

Relevant Sessions at current ASHARE conference

ASHRAE Seminar Ideas

- 6) Recap Deadlines & Tracks
- 7) Previous/Current Ideas
 - a. Donghun K. – “California Flex Hub”: technologies for load flex.
 - i. Chicago: Submitted for Indianapolis.
 - ii. Indy: Resubmitting for Orlando.
 - b. Cybersecurity & Smart Grid - **Carol Lomonaco** (from Summer 2021)
 - i. Please email Carol if interested in contributing - carol.lomonaco@jci.com
 - ii. **Zheng O'Neill / Jin Wen** – can help, can discuss – have DOE project on this area
 1. Present literature review results. Focused on GEB.
 2. Present simulation framework/HIL testbed for cyber-attack evaluation.

- iii. **Eric Yang** – help connect with Ron Bernstein at TC 1.4 - has good amount of work on this and info in guide spec (primary author) – more at system level
 - iv. *(from previous meeting)* **Glenn Remington** – has contacts who could speak
 - v. potential collaboration with TC 1.5
 - vi. David Holmberg/Ron Bernstein/Doe GWAC as speakers
 - vii. New chapter in G13 on cybersecurity (timely for Atlanta)
 - viii. OpenADR 2.0
 - ix. (Tampa update) Carol still interested.
 - x. (Chicago update) Carol still interested.
 - xi. Zheng Oneill & Jin Wen (CYDRES)
 - 1. Lit review, HIL testing, FDD (physical and cyber fault, Orlando?)
- c. Hydro Quebec/Concordia Flexibility Index (Nouanegue Herve Frank)
 - i. Submitted for Orlando
- d. Panel discussion on grid interactive buildings (Joe Zhou organize for Annual 2024)
 - i. Needs panelists for discussion “Grid-Interactive Efficient Buildings: Are we there yet?”
 - ii. Not Orlando, maybe Phoenix
- e. Open ADR 3.0 (Joe can contact one)
 - 1. Proposed: Chicago. Deferred to Phoenix
- f. Advanced/optimal controls: What is available today? Seminar or forum (Donghun)
 - i. Proposed: Chicago.
- g. Smart products for residential and commercial buildings (Li Song)
 - i. talk with residential TC – net zero building committee
 - ii. Maybe Phoenix
- h. Advanced load management program including EV charging integrated with building load and others (Li S.)
 - i. Case study?
 - ii. Proposed: Chicago; Deferred to Phoenix
- i. Study impact of building and transportation electrification (EV chargers) – (Helia Z. lead)
 - i. Chicago: No report.
 - ii. Indy: No report.
- j. Smart grid and building envelope interaction (from 4.4) - as an energy storage feature – (Jami L. will lead)
 - i. How building envelope can impact or interplay with smart grid contributions from buildings
 - ii. Dynamic facades
 - iii. Suggestion to follow up with NBI
 - iv. TC 6.7 – Veronique Delisle
 - v. Indy: No discussion or champion.
- k. Utility Grid Battery Control Strategies and Impacts on O&M & LCA (From Atlanta 2019) – Future meeting
 - i. Webinar on NAESCO on battery storage in ESPC project. Could look for speakers.

- ii. Large scale batteries
- iii. Indy: No discussion or champion.

New Ideas:

- iv. Forum on cyber security?
- v. Forum on building-grid modeling?

PARKING LOT:

RTAR/PTARs

Development of models for better peak load predictions (some discussion at research subcommittee already) – James McNeill

- 8) City-scale model validation for predicting demand response - some models exist
- 9) Need an evaluation of the state of the art, perhaps useful for new city planning
- 10) Need some more research on demand response capacity prediction
- 11) Existing software – GridLabD – developed to designing rate cases
- 12) (No report in Toronto)
- 13) (No report in Atlanta)
- 14) Discussion in Tampa: Good idea, but maybe outside of ASHRAE research scope/abilities

Related: Energy demand prediction of multiple building scale

Instantaneous voltage and current load from buildings

- 15) Specifically related to embedding DR in control sequences
- 16) Inverter-based equipment / power quality / two-way power flow
- 17) Direct DC wiring with AC in comb.
- 18) May be more of an IEEE topic than ASHRAE

WS 1885 ASHRAE Design and Integration of PV in the Built Environment Guide - **Costa Kapsis, Jim Liedel**- leidel@oakland.edu; costa.kapsis@uwaterloo.ca (from winter 2021)

- 19) Draft is posted in Basecamp
- 20) Looking for people to review and provide comments
- 21) Comments:
 - a. careful with “guide vs guideline” , suggestion to talk to research liason for Section 7
 - b. Glenn – interested in reviewing
 - c. PTAR process created after
 - d. seeking co-sponsorship (TC 6.7 initial sponsor)
- 22) (No report in Toronto)
- 23) (No report in Atlanta)
- 24) Tampa discussion: No lead, put in parking lot

SEMINAR/PROGRAM IDEAS

- a. Follow up seminar/panel to *Grid-interactive buildings, what’s impact on efficiency?* (from Summer 2021 by Mike Brambley) – **Eric Yang** (Chicago: move to parking lot)
 - i. Suggestion to plan for a follow up seminar or panel on this topic.
 - ii. Eric will follow up with Mike
 - iii. Potential series related to GEB



Meeting Agenda 2025 Winter Orlando

7.5 Honors and Awards Subcommittee (Hybrid)

Sunday, February 09, 2025, 4:45 pm - 5:15 pm EST
Meeting Room: Hilton Orlando, Key Largo D (Lower Level)

Virtual Meeting Info:

Join on your computer, mobile app or room device

[Click here to join the meeting](#)

Meeting ID: 249 142 776 437

Passcode: CHExzv

[Download Teams](#) | [Join on the web](#)

Or call in (audio only)

[+1 312-667-7145](#).,38850105# United States, Chicago

Phone Conference ID: 388 501 05#

[Find a local number](#) | [Reset PIN](#)

Agenda:

0:00	Call to Order by Carol Lomonaco Read scope New members – name – affiliation, new member Sign In Sheet:	
5 min	Review the subcommittee scope and other awards by ASHRAE briefly	
20 min	1. Honors and Awards Plan, Updates, and Submission Deadlines 2. Review of Distinguished Service Award (DSA), Exceptional Service Award (ESA), and ASHRAE Fellow 3. Deadlines for submissions	
5 min	Questions or comments	
Adjourn		

TC 7.5 Handbook Subcommittee Meeting Agenda

February 9 (Sunday) 5:15 PM to 6:00 PM EDT

Hybrid Meeting

Meeting Room: Hilton Orlando, Key Largo D (Lower Level)

Web meeting info:

Join on your computer, mobile app or room device

[Join the meeting now](#)

Meeting ID: 249 142 776 437

Passcode: CHExzv

Dial in by phone

[+1 312-667-7145,,38850105#](#) United States, Chicago

[Find a local number](#)

Phone conference ID: 388 501 05#

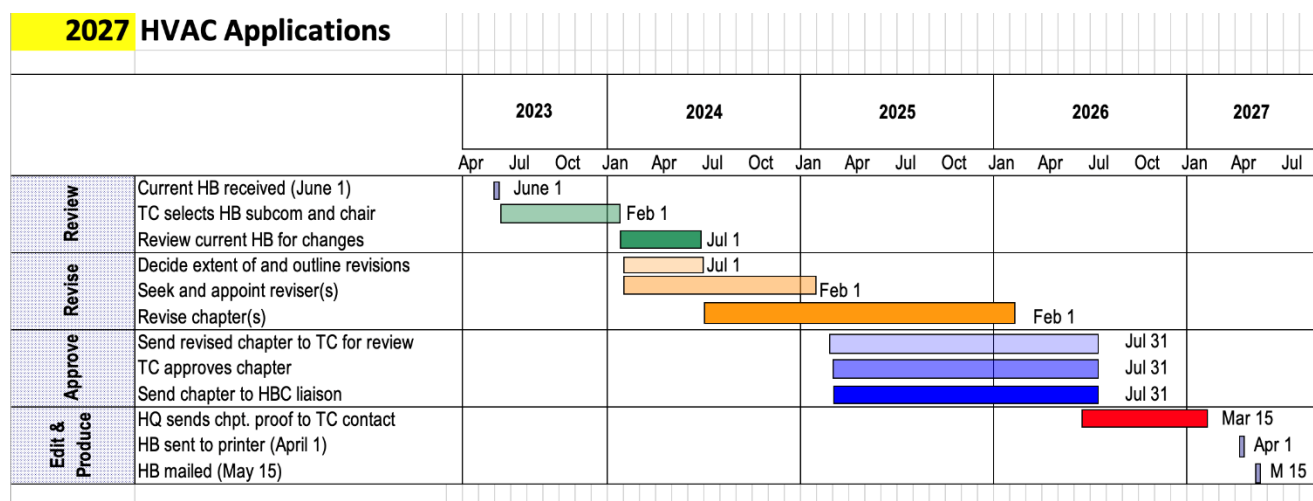
1. Call to order / Introductions

2. Report from TC 7.5 handbook Chair (Li Song)

2.1. Progress since last ASHRAE meeting

- Li Song will take over as handbook subcommittee chair.
- Reviewer/Reviser Status: [Link to Google Sheet](#)

2.2. Schedule for the next version:



- Ch 43 – revisions and approvals due to Society staff no later than **3/1/2026**.
- Ch 63 – revisions and approvals due to Society staff no later than **7/31/2026**.

2.3. Handbook Online

- Keep in mind that online version can also contain additional materials (spreadsheets, calculators, graphics, etc.) that supplement and enhance the handbook content
- Updates to handbook online can be brought forward at any time. Follows similar process to normal cycle. TC must approve changes via vote.
- ASHRAE publication timeline may vary depending on work load from normal cycle.

3. Review Previous List of Edits and Discuss Revision Scope/Timeline (~15 min)

- [Chapter 63 Review Notes](#)
- [Chapter 63 Meeting Activity](#)
- Chapter 43 Sharepoint / Slack Channel? (Zheng O'Neill)
- Update 43 with comments for Peter A.

4. Continue Discussion: Potential New Chapters (time permitting)

4.1. Control-oriented modeling (Andreas A.)

- New chapter or guide on thermal RC networks?
- Potentially put case studies in Chapter 63 or Chapter 43?
- New MPC chapter?
- Fundamentals on link between design and operations (co-design)
- Outline key objectives and decided how to package
- MTG on designing with controls in mind
- Presentation slides and draft document for preliminary discussion and feedback attached:
- Indy Discussion:
 - Include new case studies or new section in Chap 43?
 - Check with 4.7
 - Annex 81 Task B

4.2. Chapter (or subsection) smart building control platform (Joe Z.)

Move/integrate with Multi-TC chapter on Optimization.
Still needed to address multi-energy/component system

4.3. Multi-TC chapter on Optimization and Controls (Peter A.)

- TC 1.13 is more on the algorithms, but already working on chapter (outline approved)
- Would it be focused on theory or HVAC controls?
- Material beyond HVAC controls is needed?
- Are the algorithms suitable for controls/operations/smart-buildings?

- Indy:
TC 1.13 will organize subcommittee meeting for Orlando? (Zhenning Li, Vikrant C. Aute)

5. **Open Comments and Discussion** (time permitting)

- 5.1. Should be subsection in Chapter 63 provide highlight of smart building control methods. Co-write optimization strategy with TC 1.13. Topic “Monitoring and Control for Smart Buildings”
- 5.2. Handbook chapters should be more practitioner/industry-focused?

6. **Next handbook subcommittee meeting** (2 min)

2025 ASHRAE Winter Meeting (Orlando)

7. **Adjourn**

**ASHRAE TC 7.5: Smart Building Systems
Research Subcommittee, Agenda
Monday, February 10, 2025
5:15 PM - 6:00 PM Research, (EDT)
Hilton Orlando, Key Largo C (Lower Level)**

Agenda

1. Roll Call and Introduction
2. Sign in sheet: (to be added)
3. Announcements/recap of the research subcommittee chair meeting
4. Current TC 7.5 research project updates
 - a. Ongoing research projects updates
 - i. 1934-TRP: A Survey Study on the Development and Application of Data-driven Model Predictive Control for Buildings. PMS Chair: José Candanedo. New research project just started. PI: Xu Han (The Univ. of Kansas). Initial PMS meeting on July 11, 2024.
 - ii. 1964-TRP, Optimizing Heating System Performance in Warmup and Setback Modes – out to bid in fall 2024
 - iii. ASHRAE is forming a new utility-related Multi-Task Group MTG (now called DTG.)
 - b. Active work statements updates
 - i. WS-1809: Updating Reference Guide for Dynamic Models of HVAC Equipment. Primary Author: Heejin Cho. Move to WS for PTAR. New lead: Jie Cai (Univ. of Oklahoma), Zheng O'Neill support.
 - ii. WS-1875: Develop cost and performance indices to evaluate effectiveness of virtual sensors in HVAC applications. Primary author: Li Song. A version has been sent to RL 7 in 2023. Kristen to check with the new RL 7.
 - iii. WS-1927: HVAC Equipment Health KPIs. Primary author: Ian Bonadeo. TC 7.5 Voted 4/2024: 5 yes, 1 no, two absent, chair no vote. Provided some comments to TC 1.4. TC 1.4 research chair Amada update: TC 1.4 submitted it to RAC. Returned with comments. Srinivas: Make sure 'No' vote needs justification. Should not mention 'health' in RTAR.
 - c. Active RTARs updates
 - i. RTAR - Occupancy-Aware Control and Operation of HVAC Systems in Commercial Buildings. A version exists but is lost in the process of RL 7 review. Kristen follows up with the new RL 7.
 - ii. RTAR - How does remote work environment impact on residential building load profiles and HVAC operations? Residential building committee published an article on ASHRAE journal. Li Song and Dave Shipley still like to work on this.
 - iii. RTAR-1942 Evaluation of the Usability of ASHRAE Standard 207. New champion Yifeng Hu (ORNL) will lead it. Dave Shipley could help.

- iv. RTAR - AFDD for Smart and Connected Communities. Li: re-shaping the scope? Ask for others comments / feedback. Joe suggests it may be too early for its real applications. Recommends working with the new utility-related MTG. Maybe change to a survey type of project. Liping Wang still like to put this RTAR on the list.
- v. RTAR - Development of models for better peak load predictions for building clusters/neighborhood/city. New lead: James McNeill (Edo)
- vi. RTAR - Occupant-Centric Demand-Side Management for Residential Buildings. M Primary author: Mohamed Ouf; TC 7.10 lead this. RAC has not seen it. Kristen checks with the new RL7.
- vii. RTAR- Resilience in smart buildings. TC 2.10 lead this. Carol will reach out to Jason DeGraw at ORNL.
- viii. Assessment of energy savings of “smart” web-based connected thermostats in new and existing single and multi-family dwellings for inclusion in SSPC90.2. Primary author: Li Song. This is led by the residential building committee. Li Song has the draft. Will reach out to see if TC 7.5 can lead (if no progress from residential building committee).
- ix. New ideas from last conference
 - 1. FDD of GWP Heat Pumps - Donghun Kim
 - 2. FDD for Variable Speed Compressors- Donghun Kim
 - 3. FDD for VRF Systems - Donghun Kim
 - 4. GEB Control sequences - Greg P., Joe Z.,
 - 5. Guidance on smart building equipment/system integration -Carol L., Joe Z.
 - 6. Linking building modeling to grid modeling - Donghun Kim
 - 7. Load (shape) impacts from heat pumps and hybrid systems – cold climate only? Residential only - David Shipley leads, Joe to find help
- d. New RTAR ideas and topics
- 5. Old Business
 - a. ASHRAE's Smart Grid Application Guide and ASHRAE Grid-Interactive Buildings for Decarbonization Guide. TC 7.5 will be the cognizant TC to oversee future publication updates for the Smart Grid Application Guide. 4-year cycle. Maybe in 3 years we need to prepare a PTAR.
 - b. Cybersecurity survey. Mike Galler sent link to basecamp for TC 7.5 members to fill out the survey.
- 6. New Business
- 7. Adjourn

**Attachments: ASHRAE TC 7.5: Smart Building Systems Research RTAR/Work
Statement Status | Monday, February 10, 2025**

Active TC 7.5-sponsored Project: 1
 Active TC 7.5-co-sponsored Projects: 1 (3 just completed/removed from list)
 Active WS: 5 (including 2 co-sponsorship)
 Active RTAR with Draft: 8 (including 3 co-sponsorship)

Sponsored Projects: 1

#	TC	Project	Contributors/PI	Status
1	TC 7.5	1934-TRP A Survey Study on the Development and Application of Data-driven Model Predictive Control for Buildings	PMS: Jose, Joe, Zheng, Michael, Donghun.	2024 Indianapolis: Research project started. PI: Xu Han (The Univ. of Kansas). PMS Chair: Jose. Update: initial meeting on July 11, 2024. 2025 Orlando:

Co-sponsored Projects: 1

		Project	Contributors/PI	Status
4	BOD (Co-sponsor TC 1.4)	1964-TRP Optimizing Heating System Performance in Warmup and Setback Modes	Hwakong Cheng	July, 2023 – new WS (bypass RTAR) from TC 1.4. Post the WS on basecamp for review and later vote to approve co-sponsorship before August 1. Seeking interested bidders, PES, and PMS member: 2024 Chicago: TC 7.5 voted in August 2023 to co-sponsor this work statement (8-0-0 CNV). Revised WS sent to RAC by TC 1.4 in Dec. 2023. WS has been approved. TRP bid out soon (Spring, 2024). Call for new PES members for this TRP from TC 7.5. 2024 Indianapolis: Push to September for bidding. 2025 Orlando:

Active Work Statements: 4 (2 co-sponsorship)

#		Project	Contributors/PI	Status
1	BOD	WS-1809 Updating Reference Guide for Dynamic Models of HVAC Equipment	Heejin Cho;	2024 Chicago: No update. Need to covert to PTAR. Call for a new champion. Make it a research project? Valuable for graduate students. 2024 Indianapolis: Jie Cai lead, Zheng O'Neill support. Need to convert to PTAR. 2025 Orlando:

2	ET	<p>WS-1875</p> <p>Develop cost and performance indices to evaluate effectiveness of virtual sensors in HVAC applications</p>	<p>Li Song, Zufeng Wang, Jianli Chen</p>	<p>Voted in Atlanta; Submitted for RAC to review. RAC accepted with comments. ORL – WS in preparation STL – WS in preparation Las Vegas – no update Long Beach – no update Chicago: there is still an interest in submitting a WS. Houston: Li will submit WS to RAC by August 15. Update in Kansas City: 1783 Orlando: Li is Still working on it. Summer 2020: Li will get it done by December 2020. 2021 virtual: Li is still working on it. 2022 Las Vegas: Zheng to follow up with Li 2022 Toronto: no progress. Try to have a draft by 12/15/2022. 2023 Atlanta: No progress. 2023 Tampa: Draft 1 available. Li Song provided background and needs for this research. Brief discussion. Voted at the main meeting: 8-1-0 CNV. Sent the clean version to research liaison on July 15. 2024 Chicago: Joe follows up with RL 7. 2024 Indianapolis: Joe follows up with NEW RL 7. 2025 Orlando:</p>
3	BOD (Co-sponsor TC 1.4)	<p>WS-1927</p> <p>HVAC Equipment Health KPIs</p>	<p>Ian Bonadeo</p>	<p>2022 Toronto: RAC approved the RTAR, now moved to WS. 2023 Atlanta: Ian: “still working on the work statement. We expect to have something around Q2 of this year for review.” 2023 Tampa: No update. Joe will contact the author. Amanda followed up - Ian’s goal is to submit the WS in December. Backup is May of 2024. 2024 Chicago: Draft version is available on basecamp. We need to vote for co-sponsorship at this meeting. 3 PES member from TC 1.4. Call for a PES member from TC 7.5. 2024 Indianapolis: Voted 4/2024: 5 yes, 1 no, two absent, chair no vote. Provided some comments. Shared results with TC 1.4. Amada update: TC 1.4 submitted it to RAC. Returned with comments. Srinivas: Make sure ‘No’ vote needs justification. Should not mention ‘health’. 2025 Orlando:</p>

Active RTARs: 8 (including 3 co-sponsorship)

#	Project	Contributors /PI	Status

1	BOD	<p>RTAR</p> <p>Occupancy-Aware Control and Operation of HVAC Systems in Commercial Buildings</p>	<p>Rich Hackner</p> <p>Li Song</p>	<p>STL: An RTAR is prepared by Li and will be discussed in the committee meeting for comments. Rich will lead on WS if the RTAR is accepted. Need inputs to improve the RTAR. Two volunteers: James Sweeney and Gary Shamshoian. Las Vegas: In development Long Beach: In development Chicago: No update. Houston: Li plans to submit to RAC by August 15. The chair of MTG.OBB has agreed to cosponsor. We hope to vote at the main meeting to submit the RTAR. Atlanta update by Song: Li will upload the RTAR on basecamp and circulate among the TC. Kansas City update: Li will add the co-sponsorship to the RTAR and send it Jin for voting on Tuesday. Orlando: The RTAR was submitted to Bill Murphy Update after Orlando: Bill advised that we did to get vote from co-sponsor committee (MTGOBB) and he would provide feedback to this RTAR regardless but haven't heard back yet. Summer 2020: Research chair in STCOBB will be reached for voting. 2021 virtual: waiting for MTG. OBB vote 2022 Las Vegas. Vote (06-25, 2019): 6-0-0-5 (CNV) MTGOBB (12 approve, 0 against, 5 absent, voted on June 22, 2021). RTAR submitted in June 2021. 2022 Toronto: waiting for the RAC comments. Zheng followed up will Bill and Jim 8/20/22. 2023 Atlanta: No discussion. 2023 Tampa: There is no record at RAC for this RTAR and no RTAR# assigned. This might be missed during the transition from previous Research Liaison to the current Research Liaison. Li - not sure about the need for this research. We might need to re-vote and re-submit. 2024 Chicago: No Update 2024 Indianapolis: Joe follows up with the new RL 7. 2025 Orlando:</p>
2	BOD	<p>RTAR</p> <p>How does remote work environment impact on residential building load profiles and HVAC operations?</p>	<p>Li Song</p>	<p>2022 Las Vegas: New in LAS 2022 Toronto: Kristen, Li is working with Residential Building Committee (RBC) on an ASHRAE news/journal (residential news brief), then will work on this RTAR. Keep this idea. 2023 Atlanta; Li is working with Residential Building Committee to develop a brief issue for "impact of working from you" and prepared a seminar in the winter conference in Atlanta. Will decide how to prepare the RTAR after the feedback. 2023 Tampa: No discussion. 2024 Chicago: 2024 Indianapolis: residential committee publish an article on ASHRAE journal. Not sure about a research project. Li, Dave S. to work on this. 2025 Orlando:</p>

3	FDD	<p>RTAR-1942</p> <p>Evaluation of the Usability of ASHRAE Standard 207</p>	John House SP 207P	<p>Kansas City update: David Shipley initiated the topic and will send the draft of the RTAT to Li for improvement in the TC.</p> <p>Orlando: Liping will coordinate with everyone since she is the subcommittee chair. Kim will lead this RTAR and Mike Brambley and Ahmed (ahmed.abdel-salam@rycom.com) will assist. Chirag Parikh is interested in seeing the document and see how he can help.</p> <p>2021 virtual: Liping: John House will take over to lead this effort. RTAR is not submitted yet.</p> <p>2022 Las Vegas, TC 7.9 co-sponsorship Budget increased from 100K to 150K 24 m instead of 12 m. Editorial changes. Will be voted in this meeting Submitted to the RAC on March 15th.</p> <p>2022 Toronto: Received RAC comments. John is revising the RTAR.</p> <p>2023 Atlanta: A revised version is complete and sent to Region VII liaison in Jan. 2023. No discussion at this RAC meeting.</p> <p>2023 Tampa: Research liaison provided feedback. Need another version. Need a new lead. Dave Shipley can help. Joe will provide RAC liaison comments to Srinivas, Mike Brambley, David Yuill and Dave Shipley to see if they can provide information/reference/suggested changes. If RTAR is approved, WS needs to be developed and submitted to RAC before May 15, 2024.</p> <p>2024 Chicago: RTAR was accept with comments for further development into a work statement (WS) provided that the approval comment(s) are addressed to the satisfaction of RL. Need to submit the work statement to the RL for approval. The work statement requires a current TC vote and co-sponsoring committee votes. "The first draft of the work statement should be submitted to RAC no later than May 15, 2024, or it will be dropped from display on the Society's Research Implementation Plan." Srinivas cannot lead since he is on RAC.</p> <p>2024 Indianapolis: Need a new champion to draft the WS. Or it will be dropped. Yifeng will lead it. Dave. S. help.</p> <p>2025 Orlando:</p>
4	FDD	<p>RTAR</p> <p>AFDD for Smart and Connected Communities based on holistic considerations of microgrids and buildings (Phase 1: modeling)</p>	Liping Wang	<p>2023 Tampa: New Idea. Lead author (Liping Wang) provided the background and needs for the research. Brief discussion. Did not vote at this meeting as some members question the need for the research.</p> <p>2024 Chicago: Revised RTAR was email voted in August 2023 (1 yes, 1 abstain, 1 no response, 5 against). There were some major concerns with this RTAR.</p> <p>2024 Indianapolis: Li: re-shaping the scope? Ask for others comments / feedback. Working with utility-related MTG? Change to a survey type of project?</p> <p>2025 Orlando:</p>
5	SG	<p>RTAR</p> <p>Development of models for better peak load predictions for building clusters/neighborhood/city</p>	Michael Bobker Kristen Cetin Li Song (localized weather impact)	<p>Long Beach – initiated the idea</p> <p>Houston: No update</p> <p>The Atlanta update by Kristen: still interested in working on. Helps are welcome. Helia Zandi with Oak Ridge will help Kristen work on it. TC4.1 is interested in co-sponsorship.</p> <p>Kansas City update: Kristen is still interested in working on it. Positive to develop a RTAR. Bing Dong and Zhe Wang volunteered to help.</p> <p>Orlando: still interested. Chicago.</p> <p>Summer 2020: Xiaohui recommended to connect with DOE new connected community solicitation. The funding from ASHRAE might not be sufficient for the study unless we</p>

				<p>focus on model development. We may wait to see if there is value to do something complimentary. Kristen and Michael will monitor and update the committee.</p> <p>2021 virtual: Kristen” No updates”, call for new lead author. Joe; is submitting a similar idea for DOE BENEFIT program.</p> <p>2022 Las Vegas: No discussions</p> <p>2022 Toronto: Li Song is still interested and would like to include weather impact.</p> <p>2023 Atlanta: No update.</p> <p>2023 Tampa: No discussion.</p> <p>2024 Chicago:</p> <p>2024 Indianapolis: James M. leads.</p> <p>2025 Orlando:</p>
6	Co-spons or (TC 7.10)	<p>RTAR</p> <p>Occupant-Centric Demand-Side Management for Residential Buildings</p>	Mohamed Ouf; Liam O’Brian	<p>2023 Tampa: Seeking RTAR co-sponsorship. New TC 7.10 occupant-centric controls is leading the RTAR sponsoring TC. Lead authors (Mohamed Ouf. and Liam O’Brian) provided the background and needs for the research. Brief discussion. Voted to approve co-sponsorship but not the RTAR. Need to revise/update then vote (Joe, Li).</p> <p>2024 Chicago: In August 2023, TC 7.5 voted via email to co-sponsor an updated/revised RTAR (7 Yes, 0 No, 0 abstention, and 2 no response.) The author will work with TC 7.10 for the next step.</p> <p>2024 Indianapolis: RAC has not seen it. Kristen follow up with new RL 7.</p> <p>2025 Orlando:</p>
7	Co-Spons or (TC 2.10)	<p>RTAR</p> <p>Resilience in smart buildings</p>	Carol Lomonaco	<p>New idea in 2022 Toronto meeting.</p> <p>2023 Atlanta: No progress, but Carol is seeking co-sponsorship from TC 2.10 and the RES.MTG.</p> <p>2023 Tampa: No discussion.</p> <p>2024 Chicago:</p> <p>2024 Indianapolis: Carol will reach out to Jason DeGraw ORNL.</p> <p>2025 Orlando:</p>
8	Co-Spons or	<p>RTAR</p> <p>Assessment of energy savings of “smart” web-based connected thermostats in new and existing single and multi-family dwellings for inclusion in SSPC90.2</p>	Li Song	<p>2021 virtual: Li Song is following up</p> <p>2022 Las Vegas: No discussions</p> <p>2022 Toronto: Li to follow up.</p> <p>2023 Atlanta: An RTAR draft is almost finished but the lead RTAR writer has not been responding to Li.</p> <p>2023 Tampa: No discussion</p> <p>2024 Chicago:</p> <p>2024 Indianapolis: led by residential building committee. Li has the draft. Will reach out to see if TC 7.5 can lead.</p> <p>2025 Orlando:</p>
9	FDD	FDD for GWP Heat Pumps	Donghun Kim	2025 Orlando:
10	FDD	FDD for Variable Speed Compressors	Donghun Kim	2025 Orlando:
11	FDD	FDD for VRF Systems	Donghun Kim	2025 Orlando:
12	Smart Grid	GEB control sequences	Greg P., Joe Z.,	2025 Orlando:
13	Smart Grid	Guidance on smart building equipment / system integration	Carol L., Joe Z.	2025 Orlando:
14	Smart Grid	Linking building modeling to grid modeling	Donghun Kim	2025 Orlando:

15	Smart Grid	Load (shape) impacts from heat pumps and hybrid systems – cold climate only? Residential only?	David Shipley leads, Joe finds help	2025 Orlando:
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TC 7.5 Smart Building Systems Program Subcommittee Meeting

2025 Winter Conference, Orlando, Florida

Monday, February 10 | 6:00 pm – 6:45 pm | Hilton Orlando, Key Largo C (Lower Level)

Microsoft Teams: Join the meeting now Meeting ID: 255 952 470 945 Passcode: g7e5Kh Download Teams Join on the web	Dial in by phone +1 312-667-7145,,978938266# United States, Chicago Find a local number Phone conference ID: 978 938 266# Find a local number Reset PIN
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Agenda

1. Call to order
2. Self-introductions and sign in (5 minutes)
3. Sessions scheduled for Orlando sponsored or co-sponsored by TC 7.5 or with TC 7.5 listed as an other sponsoring committee (10 minutes)
4. Orlando conference session statistics (5 minutes)
5. Program tracks for Phoenix Annual Conference (5 minutes)
6. TC 7.5 proposed Phoenix program sessions including session chair/organizer (10 minutes)
7. Program ideas for Phoenix and beyond (10 minutes)

Supporting Materials

Sponsoring Committee	Program Time	Session Chair	Session Title	Co-Sponsoring Committees
TC 7.5 Smart Building Systems	Tues, Feb 11, 9:45 AM - 10:45 AM EST	Zheng O'Neill	Seminar 39: LIVE STREAM: International Energy Agency Energy in Buildings and Communities Programme (IEA EBC) ANNEX 81 - Data-Driven Smart Buildings	MTG.OBB Occupant Behavior in Buildings

Orlando TC 7.5-sponsored sessions

One out of six proposed seminars submitted by TC 7.5 was scheduled for Orlando. The five not scheduled should receive preferential consideration in scheduling for the next conference (Phoenix).

Sponsoring Committee	Program Time	Session Chair	Session Title	Co- and Other Sponsoring Committees
TC 1.4 Control Theory and Application	Sun, Feb 9, 8:00 AM - 9:00 AM	Carol Lomonaco	Seminar 1: AI-Driven Alarms: Boosting BAS Controls with Instant ROI	TC 7.5 Smart Building Systems College of Fellows
TC 1.4 Control Theory and Application	Mon, Feb 10, 11:00 AM - 12:00 PM EST	Carol Lomonaco	Seminar 32: What are the changes required for climate change-resistant infrastructure for the industrialized construction sector?	TC 7.5 Smart Building Systems College of Fellows

Orlando TC 7.5 co-sponsoring or other-sponsoring committee sessions

TC 7.3 Operation, Maintenance and Cost Management	Wed, Feb 12, 8:00 AM - 9:30 AM	Filza Walters	Seminar 48: Casting a Wider Net: Future-Proofing to Meet AEC Industry's Talent Demands	TC 7.5 Smart Building Systems College of Fellows
TC 6.7 Solar and Other Renewable Energies	Mon, Feb 10, 11:00 AM - 12:00 PM EST	Konstantinos Kapsis	Seminar 31: Powering a Resilient Future with Microgrids	TC 7.5 Smart Building Systems
TC 1.4 Control Theory and Application	Tues, Feb 11, 11:00 AM - 12:30 PM EST	Taraneh Shoorideh	Workshop 4: Practical Application of Guideline 13-2024-Specifying Building Automation Systems; Control Systems Network Architecture Design and Integration	TC 7.5 Smart Building Systems MTG.CYB

Five proposed sessions out of eight total submitted were scheduled for Orlando.

Orlando Conference Session Statistics

Total Sessions by Type

Session Type	Number	Percentage
Seminar (including one unnumbered seminar)	59	56.2%
Paper Session	37	35.2%
Workshop	4	3.8%
Forum	3	2.9%
Special Session	2	1.9%
TOTAL SESSIONS	105	100%

Proposals Submitted and Scheduled by Session Type

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

Program tracks for Phoenix Annual Conference 2025

1. Fundamentals and Applications - Track Chair: **Atilla Biyikoglu** | abiyik@gazi.edu.tr

2. HVAC&R Systems and Equipment - Track Chair: **Ng Yong Kong** | nyk@nyk.com.my
3. Research Summit – Track Chair: **Haotian Liu** | sjtulht@hotmail.com
4. Workforce Development - Track Chair: **Anuj Gupta** | anuj@design2occupancy.com
5. Industrial Ventilation, Refrigeration, Air-Conditioning and Energy Utilization - Track Chair: **Vinod Venugopal** | vinodpygopal@gmail.com **Robin Bryant** | RBryant@bandiflorida.com
6. Heat Pumps, Refrigerants and Decarbonization - Track Chair: **Money Khanna** | khannamoney@gmail.com
7. Onsite Energy Storage - Track Chair: **Kevin Brown** | kevin@kbsquared.net

Due Dates for Submission of Debate, Panel, Seminar, Forum, Workshop, and Debate Proposals

- **Friday, January 3, 2025** | Website Opens for Extended Abstracts and Seminar, Workshop, Forum, Debate and Panel Proposals
- **Wednesday, February 26, 2025** | Debate, Panel, Seminar, Forum, Workshop, and Debate Proposals Due
- **Friday, April 11, 2025** | Debate, Panel, Seminar, Forum, Workshop Scheduling Notifications

Sessions Proposed by TC 7.5 for Orlando but not scheduled

Type	Session Chair / Speakers	Proposed Title	Sponsor	Co-sponsors/ Other Sponsors	Status/Updates
Seminar	June Young Park	Gamification Of Human Building Interaction for Smart Building Systems	TC 7.5	TC 7.10 Occupant Behavior...	
Seminar	Scott West	Demand Control Ventilation: Recent Developments Across ASHRAE Standards and How to Implement Them	TC 7.5	7.6 Building Energy Performance	
Seminar	Xiaohui Zhou	What AI, MPC, and LLM Can Do for You in Monitoring and Control of Buildings?	TC 7.5		
Seminar	Andreas Athienitis	Model Predictive Control for Demand Side Management	TC 7.5		
Seminar	Liping Wang	Open-Source Platforms for Automated Fault Detection and Diagnosis in Building Systems	TC 7.5		

Sessions like these, which were submitted but not scheduled, generally get preferential consideration for scheduling by the CEC for the next conference if resubmitted and matching a track for the conference. Only one of the six proposed seminars was scheduled for the Orlando Winter Conference.

Sessions Proposed by another TC with TC 7.5 co-sponsorship or other sponsorship but not scheduled for Orlando

Type	Session Chair / Speakers	Proposed Title	Sponsor	Co-sponsors/ Other Sponsors	Status/Updates
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Seminar	Carol Lomonaco	Air Cleaning for the Current Climate	TC 1.4	College of Fellows TC 7.5	
Seminar	Carol Lomonaco	What are the changes required for climate change-resistant infrastructure for industrialized construction?	TC 1,4	College of Fellows TC 7.5	
Seminar	Carol Lomonaco	Managed BACnet Guidance – Cybersecurity and IT Alignment in Building Automation Products	TC 1.4	SSPC 135 (BACnet)	

Sessions like these, which were submitted but not scheduled, generally get preferential consideration for scheduling by the CEC for the next conference if resubmitted and matching a track for the conference.

Other Program Notes by Subcommittee from the TC 7.5 Subcommittee Meetings in Indianapolis

Review, Update, Add New Sessions

Type	Session Chair / Speakers	Proposed Title	Status	Updates
Seminar	Xin Jin	Affordable Residential Electrification for Supporting Decarbonization Under Electrical Panel Constraints	Resubmit?	Orlando Winter 2025?

Enabling Technologies – Mike Galler, Chair

Type	Session Chair / Speakers	Proposed Title	Status	Updates
		David Yuill – Sensor for refrigerant charge level. Novel uses for sensors.		
	Li Song	Ground source heat pumps with district heating and cooling.		
	Joe Zhou	MPC for AI track in Orlando. Broader than MPC.	3 speakers	

FDD - Liping Wang

Sponsoring Committee	Program Time	Session Chair	Session Title	Co-Sponsoring Committees
	Orlando		Pathway to Building decarbonization	
	Orlando	Carol	"Automated alarm management" and process for eliminating repetitive alarms. Not much FDD.	Carol to content potential (2) speakers
		Joe Zhou	FDD	Joe will let Liping know later
		Liping	Open source FDD Platform	Not selected for the Indianapolis conference. Have 3 or 4 speakers.
		Jin Wen	Data driven based FDD -	Targeting for Orlando. Have speakers. Annex 81. Several speakers. Appears to have been scheduled as Seminar 39 in Orlando.
		Li Song	Using Smart T-stat data for FDD in res. buildings	For Orlando – Li to see if still have speakers
		Li Song	A2L refrigerant Leak detection	Email for potential speakers. Try for Orlando but delay if needed.
New Ideas		See chat	Using ASHRAE 223P for FDD application in different buildings.	3 or 4 speakers. Parastoo Delgoshaei, Zheng O'Neill, Jin Wen, Xuechen Lei

		Carol Lomonaco	AI and transfer learning for FDD	David Yuill (may be protecting IP), Jin Wen student, Liping
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Building Operation Dynamics – Donghun Kim, Chair

Type	Session Chair / Speakers	Proposed Title	Status	Updates
Seminar	Dong Hun	Optimal Control Beyond HVAC	New	Targeting Orlando (2025 winter) Potential speakers: Joe or Carol - Lighting + etc. (Carol to find speaker on BACnet) Mike - water heater (PNNL colleagues) Li Song – LBNL now Donghun - EV+ PV+ HVAC Zheng: PV +Battery +HP + Water Heating Target: Orlando
Seminar	Dong Hun	Portfolios of grid responding technologies for clear environment: field evaluations	New	INDY <ul style="list-style-type: none"> Reuse of previous seminar proposal (CalFLEX) Target: Orlando
	Liping	Life cycle analysis related to indoor agriculture	New	<ul style="list-style-type: none"> Target: Orlando Carol suggesting COF (college of fellow) to participate and/or provide speaker and co-sponsor

Smart Grid – Greg Pavlik

Sponsoring Committee	Program Time	Session Chair	Session Title	Co-Sponsoring Committees
		Mike Galler Carol L – wants questions from others	Forum on building -grid integration modeling	
		Joe Zhou	Guidance on integrating building energy system controls	Phoenix
		Herve Frank Nouanegue	Model predictive control for demand side management	Four speakers. Three firm. Mike needs to follow up with Frank about the submission process. Orlando. Followed up but no apparent submission.
		Zheng and Jin	Securing Grid-interactive Efficient Buildings (GEB) through Cyber Defense and Resilient System (CYDRES)	Two or three speakers
		Li Song	Smart appliances	Phoenix
		Joe Zhou	Open ADR	Phoenix
		Li Song	Load management with EV Charging.	Phoenix

Handbook – Greg Pavlik

Type	Session Chair / Speakers	Proposed Title	Status	Updates

Parking Lot Ideas Please review for future session ideas or for obsolescence and deletion from this table.

Type	Session Chair / Speakers	Proposed Title	Status	Updates
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 Atheneites	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 207 really work?	For future
Seminar	Chris Kinney/Michael Munroe/Glenn Remington	FDD and Clouds?	For future

