



DRAFT AGENDA
ASHRAE TC 4.7 ENERGY CALCULATIONS – MAIN MEETING
ANNUAL 2022 HYBRID TORONTO CONFERENCE
TUE. JUNE 28, 2022, 4:00 PM – 6:00 PM PST

Motions:

Action Items:

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Connection Instructions

Enter name and email address and then click Join as Guest at the prompt you get from the link below

<https://ashrae.webex.com/ashrae/j.php?MTID=me1c2f882a5a7963087999b1ffe6b1ac6>

Call to Order and Introduction of Members (5 min, Muehleisen)

- Ralph Muehleisen, Chair
- Neal Kruis, Vice-Chair
- Hyojin Kim, Secretary
- Brian Ball, Simulation and Component Models Subcommittee Chair
- Jeff Haberl, Honors, Awards, and History Subcommittee Chair
- Ron Judkoff, Multi-scale Building Modeling Subcommittee Chair
- Brian Kastl, Program Subcommittee Chair
- Jeannie Kim, Webmaster
- Tim McDowell, Research Subcommittee Chair
- Joel Neymark, Standards Subcommittee Chair
- John Pruett, Handbook Subcommittee Chair
- Amanda Smith, Data-driven Modeling Subcommittee Chair

Attendance form

TBD put in zoom chat

Reciting of Code of Ethics Commitment (2 min, Muehleisen) 4:00

Commitment to the ASHRAE Code of Ethics: 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 interest.

Call of Voting Members (6 min, Kruis) 4:02

Present ?	Last	First	Term Ends	Company	Email
	Miller	Clayton	2025	Nat. U. of Singapore	clayton@nus.edu.sg
	Crawley	Dru	2024	Bentley	dru.crawley@bentley.com
X	Haberl	Jeff	2024	Texas A&M	jhaberl@tamu.edu
X - Arrived late	Judkoff	Ron	2024	NREL	ron.judkoff@nrel.gov
X	Kim	Hyojin	2022	NJIT	hyojin.kim@njit.edu
X	Kruis	Neal	2024	Big Ladder	neal.kruis@bigladdersoftware.com
X	Muehleisen	Ralph	2022	Argonne	rmuehleisen@anl.gov
X - Left early	Rao	Sagar	2023	AEI	sagar.rao@outlook.com
	Wang	Liping	2025	U. of Wyoming	

Accept agenda & approve minutes of 2022 Winter meeting minutes (2 min, Muehleisen) 4:08

Moved: Seconded: Vote: X-X-X

Review TC 4.7 Scope (5 min, Muehleisen) 4:10

- **Title:** TC 4.7 Energy Calculations
- **Scope:** TC 4.7 identifies, evaluates, develops, and recommends procedures for calculating energy performance of the built environment.

We updated this 2.5 years ago to be consistent with some of the changes of our sister committees. Does anyone see any needed changes?

Chair willing to entertain a motion to vote to maintain current Title and Scope and revisit again in Atlanta

Motion:

Moved: Seconded: Vote: X-X-X

Basecamp (2 min, Muehleisen) 4:15

This is a reminder that we have moved all our primary communications for TC 4.7 to Basecamp. We use the calendar for meetings, we send emails to the TC through basecamp and we post minutes and files there. The web page is kept up to date with minutes and meeting info for people not in the TC, but our main TC business is all on Basecamp.

I have tried to add people to basecamp when they are added to the roster but that sometimes falls through the cracks.

We also have a lot of long time and fairly inactive members of the TC not on Basecamp.

If you are part of TC 4.7 and are not on Basecamp please let anyone in the TC 4.7 leadership group know and we'll get you added. Actually anyone who is currently part of TC 4.7 Basecamp has the ability to add new members so you just need to ask someone who on it now and who knows how to add

Membership (13 min, Muehleisen) 4:17

- Changes in TC 4.7 Leadership
 - Jeannie Kim has replaced Joshua New as Webmaster.
 - In July, Ralph is finishing his term as Chair. You will all be in more capable hands as Neal will take over as Chair, Hyojin Kim will take over as VC. But we have not identified anyone to take over as secretary and no one has approached us asking to be considered
- We are actively looking for a new person to take over as Secretary starting in July. By agreeing to become Secretary you are agreeing, in principle, for a 6 year job moving from Secretary Vice Chair to Chair. The idea of the succession is to improve continuity. But, the expectation is that you will be available and active in helping lead the TC over the next several years and are expected to attend both the Annual and Winter meetings if possible when they are being held in person.

The standard progression is Secretary 2 years -> VC 2 years -> Chair 2 years -> Happy retirement from anything 4.7 for 2 years -> Then come back and help out where needed

The role of the Secretary is to be the primary minute taker in various committee meetings (subcommittees, executive meetings, main TC meetings) and final minute assembler (which means making as many of the subcommittee meetings as possible), work with the vice-chair in reviewing the roster and work with chair and vice-chair in planning committee activities, recruiting new member and new leadership, and generally help provide input to the various subcommittees

Anyone who has been reasonably active in the committee and has interest in a longer term role in TC leadership should contact Ralph, Neal, or Hyojin to express their interest.

- Voting Members: (Currently at 9)
 - Ralph is rolling off as VM. We'd like to add one more to get to 9. Anyone interested who isn't associated with the same company as a current VM will be considered..

- Roster changes of PCM to CM were submitted on time to ASHRAE before the Annual Meeting in June but it seems that yet again, they didn't all take (i.e. change of Anthony Fontanini to Amanda Smith). Please contact Muehleisen if you had thought you should be converted and were not or were supposed.

Announcements/Liaisons (20 min, Muehleisen) 4:30

- Vance Payne (Section 4 Liaison)
- Natascha Milesi-Ferretti (Research Liaison)
- Jeff Boldt (Handbook Liaison)
- Since our TC is functioning well (we develop handbook content, we have seminars and papers, we generate RTAR and WS, we have active standards development, we have active subcommittees) I have opted NOT to start doing Management by Objective. The chair also feels that the TPS functions the same as a vision statement so I have opted not to create a committee to create a vision statement. I will leave this to my successors to decide if they want to take on this challenge

Subcommittee Reports 60 min, Various) 4:52

Rearrange to move standards to top of this part of agenda:

- Standards Neymark
140, 205P, 209, 229P, 232P are within TC 4.7
- Honors, Awards, and History Haberl
- Web Site (<https://tc0407.ashraetcs.org/>) Kim
- Handbook Pruett
- Program Kastl

Motion:

Moved: **Seconded: Vote: X-X-X**

- Research McDowell

Motion:

Moved: **Seconded: Vote: X-X-X**

- Multiscale Building Energy Modeling (MBEM) Judkoff
- Simulation and Component Models (SCM) Ball
- Data-Driven Modeling (DDM) Smith

Related Activities Reports 8 min, Various) 5:50

- 90.1
- TC 4.1
- TC 4.2
- TC 4.4
- TC 7.6
- MTGs
- IBPSA-USA
- IBPSA-World
- Others

New business (2 min, Muehleisen) 5:58

Thank you all for your support over the last 2 years while I was chair, especially Neal. I owe you a *lot* of beer my friend. In my TC 4.7 retirement I plan to sleep in Sunday mornings at ASHRAE now because I don't need to attend the way too early Chair's breakfast anymore.

With that I turn my virtual gavel over to Neal.

Adjourn (Kruis) 6:00

Motion:

Moved: Seconded: Vote: X-X-X

See you in ATLANTA

Upcoming Meetings

- Feb. 4-8, 2023 – Atlanta, GA
- June 24-28, 2023 – Tampa, FL
- Jan. 20-24, 2024 – Chicago, IL
- June 22-26, 2024 – Indianapolis, IN
- Feb. 8-12, 2025 – Orlando, FL
- June 21-25, 2025 – Phoenix, AZ

Appendix A: Resources

- ASHRAE's Research Proposal Process:
 - <https://www.ashrae.org/file%20library/technical%20resources/research/ashrae-research-flowchart-r6.pdf>
- 4.7 Committee Home Page:
 - <http://tc0407.ashraetcs.org/>
- 4.7 BaseCamp Page:
 - <https://3.basecamp.com/3106353/projects/8174587>

Appendix B: 2022 Annual (Toronto) Program Tracks

The 2022 ASHRAE Annual Conference technical program is comprised of eight tracks, selected to represent areas of focus common among ASHRAE membership.

Track	Description
1	<p>Fundamentals and Applications: Fundamentals and Applications: 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&R design are included. Track Chair: Erik D Sanchez esanchez@prmech.com</p>
2	<p>HVAC&R Systems and Equipment: 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, improvements to existing systems and equipment and the proper application and operation of systems and equipment. Track Chair: Marites Calad mcalad@norman-wright.com</p>
3	<p>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 9th 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, <i>Science and Technology for the Built Environment</i>. Track Chair: Brian Fronk brian.fronk@oregonstate.eduEnvironment</p>
4	<p>Connected Buildings, Connected Communities: As buildings become smarter, and as sensor systems, internet connectivity and data collection become more ubiquitous, there are substantial opportunities to improve the performance and efficiency of buildings. Similarly, as renewable energy resources, including wind and solar energy and energy storage, becoming increasingly common, buildings can be used as electric grid assets, to strategically support energy efficiency and demand flexibility. To accomplish this requires many stakeholders, coordinated efforts and a diversity of buildings and buildings systems components and controls. Track Chair: Ahmed Abdel Salam ahmed.abdel-salam@usask.ca</p>
5	<p>Cold Climate Building System Design, Operation and Resilience: The design, construction and operation of buildings in cold climate regions which experience extreme winter conditions require specific considerations for the building envelope and HVAC&R systems and resulting thermal and hygrothermal performance. Resilience in the face of extreme temperature shifts, and in some cases remoteness and permafrost, should be considered to ensure building maintain interior design conditions. This track covers efforts and topics specifically focused on buildings, building systems and equipment in cold, arctic and subarctic climates. Track Chair: Davide Ziviani dziviani@purdue.edu</p>
6	<p>IAQ, Energy Use, Comfort and Health of Sustainable Buildings: Indoor environmental quality, energy use and efficiency and occupant comfort and health are all priorities buildings must balance. Sustainability priorities in buildings continue to</p>

	<p>increase, requiring careful consideration of how to achieve sustainability goals without sacrificing other building functions and owner/operator priorities. This track covers each of these topics, and how they interact and impact one another.</p> <p>Track Chair: Rafi Karim rkarim@aeieng.com</p>
7	<p>Professional Development and Education: 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 and educators an opportunity to develop and share knowledge in the areas of presentation skills, leadership, team-building, understanding various business operations, lean collaboration strategies, interpersonal skills, etc., and an opportunity for educators to share knowledge in the teaching and education of current and future generations of professionals. Submissions to this track may lend themselves to interactive session types such as workshops, panels and forums.</p> <p>Track Chair: Maggie Moninski maggie.moninski@gmail.com</p>
8	<p>Buildings in the Aftermath of COVID-19: The pandemic has had significant impacts on how buildings are used, and the priorities associated with building operations to ensure a healthy environment for occupants. More people are working remotely; commercial building interior design and functionality and occupant use of these buildings, ventilation and system needs and building owner, operator and occupant priorities have been impacted. This track covers these topics as our buildings transition to design and operation in the aftermath of the pandemic.</p> <p>Track Chair: Andy Cochrane acochrane@industrialairinc.com</p>

Appendix C: 2023 Wintel (Atlanta) Program Tracks

The 2022 ASHRAE Winter Conference technical program is comprised of nine tracks, selected to represent areas of focus common among ASHRAE membership.

Track	Description
1	<p>Fundamentals and Applications: 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&R design are included.</p> <p>Track Chair: Anoop Peediyakkan peediyakkan@gmail.com</p>
2	<p>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, improvements to existing systems and equipment and the proper application and operation of systems and equipment.</p> <p>Track Chair: Billy Austin baustin@shultzeg.com</p>
3	<p>Refrigerants and Refrigeration: Refrigeration systems generate and use cold for a range of processes, from food preparation and conservation to vaccine preservation, to long-term protection of fragile ancient inks of historic documents and others. Differences in technologies and equipment, performances, refrigerants, etc., may hide synergies from which both industrial and commercial systems might benefit, also, but</p>

	<p>not only, from the points of view of reducing direct and indirect GHG emissions</p> <p>Track Chair: Brian Fonk brian.fronk@oregonstate.edu</p>
4	<p>Grid Resilience and Thermal Storage: Resilience is a highlighted aspect of the current ASHRAE strategic plan. Methods of designing buildings and HVAC&R systems with resilience in mind is paramount to our long-term success. Coupled with energy efficiency, this track is designed to highlight the advancements in grid resilience and thermal storage systems and how they are tied to resilience and energy conservation efforts.</p> <p>Track Chair: Nohad Boudani nohadb@inco.com.lb</p>
5	<p>Pathways to Zero Energy Emissions and Decarbonization: Climate change and the impact of carbon emissions on our environment has been recognized globally as a high priority. ASHRAE is taking a leading position in the advancement of carbon neutral, net zero energy, and decarbonization strategies in building and HVAC&R design. This track highlights methods being developed to reduce carbon impact on the global environment and the efforts ASHRAE and its members are taking to advance these efforts</p> <p>Track Chair: Som Shrestha shresthass@ornl.gov</p>
6	<p>Multifamily and Residential Buildings: Multifamily is one of the fast growth building sectors but has been underserved. Multifamily buildings present challenges and opportunities on energy codes requirements, energy efficiency opportunities, ventilation and air tightness balance, and equality to address low-income multifamily buildings. This track covers programs and papers on best practices, utility and above-code incentive programs, field studies, and codes and standards requirements. This track also welcomes programs and papers for single family housing and other residential buildings.</p> <p>Track Chair: Lina Maged Hashem lina_lmf@hotmail.com</p>
7	<p>Operations and Maintenance: Making sure that the design intent of these more complicated HVAC systems is understood by all team members and building operators is key to the building's success. This track will address an array of topics including lessons learned, improvement of process and team communications and effort to improve the installation, startup, O&M and commissioning of HVAC systems</p> <p>Track Chair: Suzanne LeViseur sleviseur@haddadeng.com</p>
8	<p>Building Simulation and Virtual Design in Construction: The practices of energy modeling and building performance simulation using existing simulation tools, software development, and future simulation research and applications is ever evolving. The papers and programs in this track inform designers, engineers, building energy simulation modelers, and energy consultants and practitioners in the use of various strategies methods for building simulation & virtual design in construction</p> <p>Track Chair: Alekhya Kaianathbhatta alekhya_k@rogers.com</p>
9	<p>Mini Track – Innovative responses to supply chain challenges: 2021 brought man challenges. One that was highlighted was the fragile status of the global supply chain. This mini track is intended to help members plan for the future disruptions and develop resiliency plans around supply chain by highlighting effective and innovative strategies to mitigate supply chain challenges</p>

- Paper and conference paper abstracts dates are already past
- Monday July 25, 2022 – Conference Papers Due – Submitted for Review
- Tuesday August 9, 2022 – Debate, Panel, Seminar Form, Workshop Proposals Due

- **Monday August 15, 2022** – Conference Paper Abstract Accept / Revise / Reject Notifications
- **Monday August 29, 2022** – Revised Conference Papers, Technical Papers Due
- **Friday September 23, 2022** – Conference Paper Accept / Reject Notifications
- **Monday October 10, 2022** – Debate, Panel, Seminar, Forum Workshop Accept / Reject Notifications