



ASHRAE Technical Committee 1.4

Full Committee Meeting Agenda

TC 1.4 Control Theory and Application

<http://tc0104.ashraetcs.org/>

Tuesday, February 1st 1:00 – 3:30 pm PST Hybrid Conference

“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 interests. (See full Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>.)”

1) Call to Order

2) Conference Panel 2: Building Automation, Cybersecurity, Artificial Intelligence, BACnet/SC and Optimizing Controls Sequences: A Panel Discussion for YEA

3) TC 1.4 Scope

- a) ASHRAE Technical Committee 1.4 is concerned with control theory, systems, and components (excluding refrigerant flow controls) for heating, ventilating, air conditioning, and refrigeration uses.

4) Introduce Members, Guests, and Liaisons

- a) General Introductions – In person and virtual
- b) Determination of a quorum

VOTING MEMBERS FOR THIS MEETING (Need (4) or $\frac{1}{2}+1$ for a Quorum) – 5 in attendance, quorum reached

NAME	Roll-Off-Date	
Larry Fisher	6/30/22	X
Brandon Gill	6/30/22	
Nemat Lotfi	6/30/23	
Amanda Pertzborn	6/30/23	X

NAME	Roll-Off-Date	
Christopher Benson	6/30/23	
Elise Backstrom	6/30/25	X
Joe Kilcoyne	6/30/25	X
Paul Ehrlich	6/30/25	X

5) Approval of minutes from Virtual Summer Meeting

- a) Amanda Pertzborn makes motion to approve. Larry Fisher seconds. Minutes approved 5-0.

6) Chair's Report

a) Announcements and Highlights from TC Chairs Breakfast Meeting

- i) New 10 hour free online training – “ASHRAE Leadership Development Auto-Tutorial” which TAC has noted may be a future requirement for FG leadership.
<https://www.ashrae.org/communities/committees/standing-committees/technical-activities-committee>
- ii) Updated TC/TG/MTG/TRG Manual of Procedures (MOP) (updated 8/2021)

or have the expressed desire to gain proficiency in that field.

- b) who represent segments of the industry such as users, contractors, product manufacturers, academicians, consulting engineers, and research organizations. The committee chair should work to develop and maintain a balance of these interests, but in some situations a balance may not be possible, therefore, this is not a formal requirement.

1.4 Committee Organization

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- 1.4.1 Each committee shall have a Chair and Vice Chair
- 1.4.2 Committee Voting Membership shall be comprised of individuals (See sections 2 and 3 for further Member requirements):
- 1.4.2.1 Who, in the opinion of the Committee Chair, have recognized proficiency in the field of interest or have the expressed desire to gain proficiency in that field.
 - 1.4.2.2 Who represent a stakeholder interest category of the industry such as users, contractors, product manufacturers, academics, consulting engineers, government agencies, independent sales representatives, trade organizations and research organizations. The Committee Chair shall develop a list of relevant stakeholder interest categories for approval in accordance with section 2.4.4, 3.2.4 and Appendix B and shall maintain a balance of Members in these stakeholder interest categories. No single stakeholder interest category shall constitute a majority of the Voting Members of a Committee. TAC Chair approval is required when achieving balance is not possible.

- b) ASHRAE's Task Force for Building Decarbonization (TFBD) was formed in Spring 2021 as an initiative of President Chuck Gulleddge and President-Elect Mick Schwedler.
<https://www.ashrae.org/about/ashrae-task-force-for-building-decarbonization>
- c) Provisional Corresponding Members – Please alert Joe, Elise or Charlotte to remain/become corresponding members.

7) Announcements

a) **TAC – Technical Activities Committee – Section Head David Meredith**

- i) Upcoming conferences
- 2022 Annual – Toronto, ON, June 25-29
 - Feb. 4-8, 2023 – Atlanta, GA
 - Jan. 20-24, 2024 – Chicago, IL
 - Feb. 8-12, 2025 – Orlando, FL

b) **RAC – Research Activities Committee**

- i) David Meredith – COVID has decreased funding down to \$1.8M (because AHR last year cancelled). Priority has been to maintain already active grants. ASHRAE.org has published Research Strategic Plan. Recurring training modules will be available. PTARs

are being added for publications. Web based submittal is being developed. There is a new research subcommittee website. Kim can share additional information.

8) Liaison Reports – TC 1.4 Sponsored Functional Groups

a) SGPC 13 Specifying Building Automation Systems

- i) Chair Todd Gottshall- Ron Bernstein update: G13 has been reorganized and updated. Public review prior to next meeting. Finalize at Annual and publish by end of 2022. Looking for additional reviewers in March-April. Charity to send liaison report.

b) SGPC 36 High Performance Sequences of Operation for HVAC Systems

- i) Chair Jeff Boldt – Joe Zhou update: discussed existing addendums and new proposed addendums. Committee has submitted their latest deliverables to ASHRAE already and is awaiting feedback. Need for more research on unoccupied control and optimal start

c) SPC 231P CDL – A Control Description Language for Building Environmental Control Sequences

- i) Chair Paul Ehrlich – committee meeting biweekly. Ending up with a graphical programming language for functions that can be used for design, modeling, and deployment in control system. Function blocks gathered and reviewed that are being used in national labs and commercial products for inclusion. Hoping to have something to review later this year.

d) SSPC 135– BACnet - A Data Communication Protocol for Building Automation and Control Networks

- i) Chair Coleman Brumley, Jr – Member (Carol) update – There are working groups – lighting applications, cybersecurity, IT related networking groups, etc. People can join a working group for their area of interest rather than sitting in on all 135 meetings. Group is working on semantic interoperability and looking for additional members to work on modeling. An addendum CC was recently passed, extending some of the function of bacnet in order to better manage the digital certificates related to BACNET SC.

e) MTG.CYB - Cybersecurity for HVAC Systems And Related Infrastructure

- i) Liaison – Newly formed group. Carol Monaco update- Took down some RTAR ideas and program ideas. Please reach out to Mike Gallagher or Carol Monaco. They can cosponsor programs or RTARs with us. Moving forward Ron Bernstein will be liaison for TC1.4. There is a new MTG.RES on resilience coming out of TC2.10, looking for any help or support from 1.4, anything having to do with extreme events regarding building materials, controls (wild fires proposed previously), equipment, etc. Suggestion to invite Scott Campbell(chair) to give a 5 minute update at the Toronto meeting. Several blog posts and articles have been published in the ASHRAE Journal recently by members of this MTG.

9) Sub-Committee Reports

a) **Executive** – Joe Kilcoyne

- i) Certification Course in Building Automation Systems – discussions on revising and resubmitting on a BAS Certification Course through ASHRAE. Looking for expanded TC discussion and follow-up through Basecamp.

(1) Existing ASHRAE eLearning Course Package: DDC Controls (I-P)

(a) DDC Networks and Protocols

(b) DDC Specification, Installation, and Commissioning

(c) DDC Introduction to Hardware and Software

- ii) Discussions regarding rescheduling TC 1.4 Sunday conference meetings in order to address the Programs/ YEA Happy Hour schedule conflict. The proposal is to reduce the YEA/Education meeting from 1 hr to 1/2 hr and shift the programs

b) **Education/YEA** – Michelle Shadpour – Elise update: Good turnout of YEA and students.

c) **Control Components and Applications** – Chad Moore – Have minutes.

d) **Program** – Frank Shadpour – The 2 seminars previously approved for Vegas will be resubmitted for Toronto. Review of Programs minutes.

e) **Research** – Kim Barker – Amanda P. update: RP1661 just received no cost extension until May 2022. RP 1865 – has received funding, work to start April 1. One RTAR in process, been reviewed and incorporated from RAC. Key idea is create a KPI for equipment health (health of Sequence Maintenance from 0-100). Is temp maintained? Airflow or pressure? Schedule? Among others. High level health algorithm. WS 1809 should be going back in soon. Optimal warmup draft for review on Basecamp soon. Have minutes.

f) **Handbook** – Tara Shoorideh – Teri Schroeder update: Working on Ch48 of Applications handbook. Chapter has been reorganized. Adding a section on Heat Recovery, DOAS system. Aiming to have edits for Summer meeting.

g) **Standards** – Steve Taylor

h) **Webmaster** – Elise Backstrom/Charlotte Dean – TC 1.4 website (up to date), TC1.4 Basecamp – request access to Joe, Elise, Charlotte if you are not on the Basecamp and want to be (roster is not reconciled automatically with ASHRAE's roster).

10) Committee Liasion Reports

- a) TC 1.5 (Computer Applications) – Mike Pouchak
- b) TC 2.10 HVAC Security – Kim Barker
- c) TC 5.6 (Control of Fire & Smoke)
- d) TC 6.1 (Hydronic Systems)
- e) TC 6.7 (Solar Energy Utilization) – Gaylen Atkinson
- f) TC 7.3 (Operations & Maintenance Management)
- g) TC 7.5 (Smart Building Systems) – Jin Wen
- h) TC 7.6 (Systems Energy Utilization)
- i) TC 9.10 (Laboratory Systems) – Jim Coogan – Fume Hood test standard 110 will be updated, intended for release in 2026.
- j) TC 9.11 (Clean Rooms) – Phil Naughton
- k) SSPC 62.1 (Ventilation and Acceptable IAQ) – Steve Taylor
- l) SSPC 90.1 (Energy Efficient Design of New Buildings) – Steve Taylor
- m) SSPC 202 (Commissioning Process for Buildings and Systems) – TBD
- n) TC 1.6 (Terminology) – Phil Naughton
- o) SPC 189.1 Design of High-Performance Building – Bogi Setty
- p) MTG Occupant Behavior in Buildings – Kim Barker
- q) MTG Cybersecurity – Kim Barker/Ron Bernstein
- r) MTG Res

11) Old Business

- a) New Subcommittee for Consideration
 - i) Focus will be on Disruptive Technologies to bring more visibility and dedicating time to this topic to inform potential research opportunities and programs
 - ii) Chris Benson to lead efforts and provide update at Las Vegas meeting
 - iii) Proposal will be being posted to Basecamp for additional input.
 - iv) Potential for Las Vegas for time to be dedicated to this topic, keep an eye out for the schedule.
 - v) Other potential issues:
 - (1) Grid interactive buildings
 - (2) Cybersecurity
 - (3) Model predictive control

12) New Business

- a) TC 5.11 – humidification equipment. Jim Coogan will work with them on humidification topics. May put together a seminar on room level humidity control for Atlanta. Maybe this can be folded into the proposed Operating Room control program that 1.4 already has?
- b) TAC liaison gave update that hybrid format will likely continue through Annual meeting in Toronto.

13) Upcoming Deadlines

- Toronto Annual Conference – June 25-29, 2022
- Seminar, Forums, Workshops, Panels and Debates proposals for Toronto are due by February 17, 2022.
- Program Focus at Toronto Conference
 - i. Track 1: Fundamentals and Applications
 - ii. Track 2: HVAC&R Systems and Equipment
 - iii. Track 3: Research Summit
 - iv. Track 4: Connected Buildings, Connected Communities:
 - v. Track 5: Cold Climate Building System Design, Operation and Resilience
 - vi. Track 6: IAQ, Energy Use, Comfort and Health of Sustainable Buildings
 - vii. Track 7: Professional Development and Education
 - viii. Track 8: Buildings in the Aftermath of COVID-19

14) Next Meeting – 2022 ASHRAE Annual Conference | June 25-29, 2022 | Toronto, ON, Canada

15) Adjourn – Amanda motions to adjourn. Elise seconds. 5-0.