



ASHRAE Technical Committee 1.4

Full Committee Meeting Agenda

TC 1.4 Control Theory and Application

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

Tuesday, February 7 1:30 – 3:30 pm EDT 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) 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.

3) 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)

NAME	Roll-Off-Date	
Charlotte Dean	6/30/26	X
Chariti Young	6/30/26	X
Nemat Lotfi	6/30/23	-
Amanda Pertzborn	6/30/23	X

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

4) Approval of minutes from 2022 Winter Meeting

- a) Joe asks to approve. Chariti moved to approve. Elise seconded. Voted: 6-0

5) Chair's Report

- a) Announcements and Highlights from TC Chairs Breakfast Meeting
- i) New(ish) 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) CEC Request for Future Conference Tracks

Announcements & Reminders for FG (TC/TG/TRG & MTG) Chairs Winter Meeting 2023
continually works to improve the conference experience for all attendees. To help keep a “pulse” on the technical issues facing professionals in the HVAC&R marketplace, and to create meetings that reach all of ASHRAE’s constituencies, the CEC seeks ideas for tracks for the 2023 meeting conferences as well as topics for specialty conferences from TC members.

Please submit your suggestions to ASHRAE Staff member Tony Giometti (Giometti@ashrae.org). You can also add your track suggestion in the “Comment” section of the TC Activity form for the Atlanta meeting.

6) Announcements

- a) **TAC – Technical Activities Committee – Section Head Corey Metzger** (not in attendance)
- i) Upcoming conferences
- 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
- b) **RAC – Research Activities Committee – Section Head Ahmed Kashef** (not in attendance)
- i) – \$5.5M in funding is available. Back to “normal” after pandemic. Strongly encouraging submission of RTARs. Most bidding projects did not receive any bids. It is thought that the estimates were too low for the projects that did not receive bids. They were not inflated or escalated for post pandemic pricing changes.

7) Liaison Reports – TC 1.4 Sponsored Functional Groups

a) **SGPC 13 Specifying Building Automation Systems**

- i) Chair Todd Gottshall, Vice Chair Philip Naughton
- ii) Ron recap- G13 entering into its final publication stage, goal to be published before Tampa. New section on specifying cybersecurity, updates to valves and dampers, networking among others. Next the committee will start developing educational materials, seminar materials. New addendum chapters: IoT, cloud connectivity, others. Looking for new participants.

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

- i) Chair Jeff Boldt, Vice-Chair Joe Zhou
- ii) Recap- Jeff Boldt will be stepping down after June meeting. Joe Zhou to replace him as Chair. Addendums were discussed. New controls sequence editing software called “control flow”, will automatically generate Word document based on G36 sequences. Funded by DOE, still in process. Will be free for the public. CA T24 Codes and Standards staff member stated that they plan to require the Four Measures (dual max control, supply and return air setpoint pressure reset and economizer) within G36 measures to be certified by the manufacturers programming language for T25 2025 cycle. Self certification process for the vendors.

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

- i) Chair Paul Ehrlich, **reported by Voting Member Yan Chen (2pm)** – refer to Elise’s notes

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

- i) Chair Coleman Brumley, Jr; No one in attendance, no report.

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

- i) Liaison –Ron Bernstein – Crosscutting committee, manufacturers guide to cybersecurity is in publication. Guide on how to implement BACNET/SC. Affects many TCs across ASHRAE. Data gathering and central repository. Discussed topic of converting MTG to a TC, still in discussion. Writing an article for a future Journal issue this year, excerpting from Guideline 13.

f) **MTG.EBO - Effective Building Operations**

- i) Liaison –Joe Kilcoyne

MTG.EBO coordinates the activities of multiple TC/TG/TRG and other stakeholders concerned with training, resources and tools to support the operation of buildings. Key factors and metrics that impact effective building operations are total cost of ownership, natural resource and environmental impact and overall indoor environmental quality. Responsibility will include suggestions for research and development of technical programs and special publications on effective building operation.

- ii) There is a planned publication for a portal of available references. The four topics will include (1) Staffing (2) Routine Maintenance (3) Metering and Metrics (4) Training

8) Sub-Committee Reports

- a) **Executive** – Joe Kilcoyne | vice chair Elise Backstrom
 - i) CCA was expanded to 1.5 hours for the Atlanta Winter Conference. We will repeat this at the Chicago Annual Meeting and attempt to rename the subcommittee **“Brainstorming - Innovative and Disruptive Technologies”**
 - ii) Proposed Future Conference Tracks for Controls – We will reach out to CEC staff liaison Tony Giomatti: potential topics include (1) *Decarbonization Controls and Automation*, (2) *Integrating Building Systems* (3) *Artificial Intelligence in the Built Environment*
- b) **Education/YEA** – Michelle Shadpour | - High turnout numbers 40-50, got two YEA members to apply to speak at a seminar in Orlando
- c) **Control Components and Applications** – Chad Moore, reported by Chris Benson – Many ideas, what are the issues? Workforce development? Control by phones, security concerns, decarb update on task force, distinguishing TC1.4 from 7.5, modular plug and play components.
- d) **Program** – Frank Shadpour – Encourages additional proposals for seminars from members if people are interested with topics. Recap of this meetings’ seminars and 16 proposals for next meeting. Deadline for proposal is 2/27/23.
- e) **Research** – Kim Barker | vice chair Amanda Pertzborn – Review of active projects. RP 1661 – completed, no final report yet. RP 1865- Work began, first payment received. Model has been built. Workflow presented. Simulation/optimization will take another 3-4 months. Roughly 1 year left (to finish next Spring). RTAR 1927- active work statement being written- Building Operation and Equipment KPIs. Updating ref guide for dynamic models of HVAC is another active work statement (updating work from 1998 project). Convert WS to PTAR. Draft WS on warm up operation. SOOs for HRCs came up at this meeting.
- f) **Handbook** – Tara Shoorideh | vice chair Terry Shroeder – Finishing CH 48 for Applications, changes have been approved, will be in 2023 Applications Handbook. CH 7 is currently being edited, deadline to submit in July 2024. Hoping to approve during 2024 winter conference.
- g) **Standards** – Steve Taylor – 90.1 is working on a WS to change standards from being cost based to carbon based. Cost per ton of carbon will be added in to realign cost effectiveness. Will be carbon neutral over 3 cycles (9 years). Thermostat requirement added. Deadband between heating cooling, some interpret this as 2 different setpoints. Or one temp with large range (not the intention) ie hotels. Mostly affects hotel industry. 62.1 trying to fix the 60% RH setpoint maintenance requirement, amendment to make it more practical. Climate where dewpoint is 68 and below don’t have to do this (Climate zone B and C, west coast). Zone A will have to do this. 30 day average needs to be under 60%. G36 will need to integrate dewpoint over time to report. Mold mitigation. Will still require humidity sensors at the zone level. DCV amendment issued, it will affect the G36 DCV approach.
- h) **Webmaster** – Charlotte Dean

9) Committee Liasion Reports

- a) Decarbonization Task Force – Larry Fisher, Chris Benson reported- Task Force is moving impressively quickly. 30 programs related to decarb at this conference. Separated decarb conference upcoming this Fall in DC. 7 guides being published/bid. Actively looking for TC

liasons to participate in subcommittees. Revising 211 energy audit standards to address carbon. JDM- part of retrofit working group, in the process of bidding and selecting a contractor. Balance between modeling and practicality. Timeline for deliverable is ~12 months.

- b) Epidemic Task Force (ETF) – Mike Pouchak – task force to created to address COVID 19. Core Recommendations document is very useful, maintain minimum ventilation rates, filter requirements. Dilute infectious aerosols with outside air. Develop an IAQ pathogen mitigation standard, expedited within 6 months (issued Dec 2022). Links will be emailed to the 3 relevant documents.
- c) TC 1.5 (Emerging Computing Applications) – Mike Pouchak – Presented a seminar, well attended. 3D printing seminar also well attended. Drones in construction, adv manufacturing and 3D printing, big data model mining, AI, among others.
- d) TC 2.10 HVAC Security – Kim Barker – no report
- e) TC 7.5 (Smart Building Systems) – Joe Zhou – main meeting didn't happen yet. Chat GPT is a hot topic. Seminars upcoming. AI discussion. Looking for Handbook subcommittee chair.
- f) TC 9.10 (Laboratory Systems) – Jim Coogan – Fume Hood testing, controls systems performance tests, still being worked on, more than a year away. T24 2025 update has to do with lab ventilation, may be of interest to this group.
- g) TC 9.11 (Clean Rooms) – Phil Naughton – no report
- h) SSPC 62.1 (Ventilation and Acceptable IAQ) – Steve Taylor – report above in Standards subcommittee
- i) SSPC 90.1 (Energy Efficient Design of New Buildings) – Steve Taylor - report above in Standards subcommittee

10) Old Business

- a) Jim Coogan – Collaboration with TC 5.11 Humidification Equipment
- b) The editor of Special Publications with ASHRAE has asked whether TC 1.4 members will agree to review the ASHRAE's eLearning coursebooks FUNDAMENTALS OF HVAC CONTROL SYSTEMS and FUNDAMENTALS OF HVAC SYSTEMS in preparation for an update to their eLearning courses.
 - i) Existing ASHRAE eLearning Course Package: DDC Controls
 - (1) DDC Networks and Protocols
 - (2) DDC Specification, Installation, and Commissioning
 - (3) DDC Introduction to Hardware and Software

Terri- on Training and Education committee- a lot of the course packages have been around for a long time without update. If they don't get updated and reviewed they will be pulled from the website so please do some volunteer review if you have time.

11) New Business

- a) -Review of joining TC on the website, get appointed as a Provisional Corresponding Member. Then you can become a Corresponding Member. Then voting member. We have 8 (min is 6). 4 year voting term. 3 members are rolling off this term.

12) Upcoming Deadlines

- Tampa Annual Conference
- Seminar, Forums, Workshops, Panels and Debates proposals are due by **Monday February 27, 2023.**
- **The portal to submit programs opened on Friday, January 3rd.**

13) Next Meeting – 2023 ASHRAE ANNUAL CONFERENCE| June 24-28, 2023| Tampa

14) Adjourn

- a) **Elise moves to adjourn, Chris Benson second. Unanimous vote. 6-0**