



ASHRAE Technical Committee 1.4

Full Committee Meeting Agenda

TC 1.4 Control Theory and Application

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

Tuesday, June 28 1:00 – 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	
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

4) Approval of minutes from 2022 Winter Meeting

- a) Larry Fisher moves to approve minutes, Paul Ehrlich seconds. 4-0-0.

5) 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>

ASHRAE Leadership Development Auto-Tutorial

Block A: Five E's – Envision, Equip, Empower, Edify, Evaluate <ul style="list-style-type: none">(A) Intro to Block A(B) A.1.a - Envision(C) A.1.b - Equip(D) A.1.c - Empower(E) A.2.d - Edify(F) A.2.e - EvaluateBlock A Introspections	Block C: Committee Dynamics; Consensus; Decision Making <ul style="list-style-type: none">(L) Bridge to Block C(M) C.1.a.1 - Typical or Atypical Meetings(N) C.1.a.ii - Flow(O) C.1.b - Consensus(P) C.1.c - Decision MakingBlock C Introspections
Block B: Three C's – Change, Communication, Character <ul style="list-style-type: none">(G) Intro Block B(H) B.1.a - Leadership and Change(I) B.1.b.i - Communication(J) B.1.b.ii - Communication Applied(K) B.1.c - Leadership and CharacterBlock B Introspections	Block D: Creativity; Ideation; Problem Solving; Planning <ul style="list-style-type: none">(Q) Bridge to Block D(R) D.1.a.i - Creativity(S) D.1.b - Ideation(T) D.1.c.i - Problem Solving Intro(U) D.1.c.ii - Problem Solving Blocks(V) D.1.c.iii Part 1 – Thinking Like an Engineer(W) D.1.c.iii Part 2 – Failure to Think(X) D.1.d - Strategic Planning(Y) E.1.a - Think Like a LeaderBlock D Introspections

6) Announcements

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

- i) Unofficial Update to the ASHRAE Code of Ethics – “Empathy and Patience” added to the code of ethics.
- ii) Online Training Available
- iii) Improve a link to TEC (Training and Education Committee), CTCC, ALI; There may be a new way to coordinate with TC's.
- iv) Upcoming conferences
 - 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

b) RAC – Research Activities Committee – Section Head Ahmed Kashef

- i) RAC representative not in attendance, in communication with TC Research subcommittee.

7) Liaison Reports – TC 1.4 Sponsored Functional Groups

a) SGPC 13 Specifying Building Automation Systems

i) Chair Todd Gottshall, reported by Ron Bernstein.

(1) Guideline 13 met Saturday morning for this conference, reviewed status of spec, where they're going in the future. Currently getting ready for PPR (preliminary public review) for 2022 version of guide spec. Substantial changes with new sections, new information (cybersecurity, FDD, performance monitoring, etc). Working on a YEA Review prior to August/September PPR review. If you are interested (or know someone who would be) please contact Ron via email. Next year, looking at extending Guideline 13 to include additional sections.

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

i) Chair Jeff Boldt, Vice-Chair Joe Zhou

(1) Met Monday morning for this conference, discussed addendums and staggered start. Many committee members feel a need for more research. Army Core of Engineers gave an update on not being able to adopt guideline 36 for DoD communities. 1 addendum passed, multiple up for review, one requiring coordination with GPC 44. Vote to occur between conferences. Appointed a research subcommittee chair.

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

i) Chair Paul Ehrlich

(1) Committee has been meeting every other week virtually with active participation. Last night was first hybrid meeting. Draft document is in process, 3 pieces, description of each of the elementary functions, 2 different versions of the language. Approaching the point they'll potentially be out for review prior to the winter meeting.

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

i) Chair Coleman Brumley, Jr

(1) No representation at meeting available for report.

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

i) Liaison –Ron Bernstein

(1) Seminar accepted for this program that went well. Looking at a variety of publications in the ASHRAE Journal, discussion on manage bacnet and ... (document in progress, approved as ASHRAE document to be available this fall, Special Technical Publication).

f) MTG.EBO - Effective Building Operations

i) Liaison –Joe Kilcoyne (interim)

(1) If interested in being the liaison, please reach out to Joe or Elise and we'll get in contact with the correct team.

- (2) Chariti suggested to reach out to MTG for member interested in controls who may be liaison the other way.

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.

MTG will be meeting in Toronto on Tuesday 6/28/2022 from 1:00-3:00 PM

8) Sub-Committee Reports

a) **Executive** – Joe Kilcoyne | vice chair Elise Backstrom

i) Updated Roster (as of June 30, 2022)

(1) Larry Fisher and Brandon Gill rolling off as voting members.

(2) Charlotte Dean will be rolling on as voting member. Second voting member will be finalized in the next few days.

ii) Kimberly Barker turning over 1.4 Research Subcommittee Chair to Amanda Pertzborn

(1) Thank you Kim for all your work as Research Subcommittee Chair.

iii) Proposed Future Conference Tracks for Controls – Frank to reach out to CEC staff liaison Tony Giomatti for June 2023 – Tampa, FL

iv) ASHRAE has requested for TC 1.4 members to review ASHRAE eLearning Coursebooks on HVAC Systems and HVAC Control Systems

(1) If interested in assisting with this, please reach out to Joe Kilcoyne or respond on the Basecamp thread.

v) 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.

(1) Existing ASHRAE eLearning Course Package: DDC Controls

(a) DDC Networks and Protocols

(b) DDC Specification, Installation, and Commissioning

(c) DDC Introduction to Hardware and Software

vi) Certification in Building Automation Systems Design – meetings occurred on revising and resubmitting on a BAS Certification Course through ASHRAE. TC 1.4 will look at the *Proposal to Certification Committee for Development of a New ASHRAE Certification Program* document provided by the ASHRAE Certification Manager, Tim Kline.

(1) If interested in being involved with this, please let Joe Kilcoyne know.

vii) Discussion occurred on CCA and Disruptive Technology potentially changing the schedule for Sunday, so be on the lookout at the next conference for a potential schedule change.

b) **Education/YEA** – Michelle Shadpour, reported by Joe Kilcoyne

i) A few new YEA members attended the YEA subcommittee meeting.

ii) Tim Kline attended and certification program was discussed.

c) **Control Components and Applications** – Chad Moore, reported by Chariti Young

- i) Thank you Chariti for leading a great discussion on the spot.
 - ii) Conversations about decarbonization and impact on the controls industry, supply chain impacts to our industry and what can we learn from the challenges, and impacts of COVID on our industry.
 - iii) CCA is the time for members to discuss what's current, relevant, challenging, etc that our members want to discuss.
- d) **Program** – Frank Shadpour, reported by Joe Kilcoyne
 - i) 8 sessions this conference accepted.
 - ii) 13 sessions to be proposed for Atlanta.
- e) **Research** – Kim Barker | vice chair Amanda Pertzborn (sp)
 - i) Current research budget is \$1.8 million, less than pre-pandemic.
 - ii) RAC awarded 8 research projects out for bid at this conference.
 - iii) 6 initiatives identified for current research plan.
 - iv) RP-1865 (new, just started) – optimizing ...
 - (1) First PMS meeting held yesterday. Jason reported they clarified the modeling exercise during this meeting.
 - v) RTAR 1927 was approved with comments, moving to the work statement phase.
 - vi) Co-sponsoring WS-1809, lead by TC 7.5. Were advised to change from RTAR to PTAR.
 - vii) Vice-Chair position for research is now open, please reach out to Amanda Pertzborn if you are interested.
- f) **Handbook** – Tara Shoorideh | vice chair Terry Schroeder
 - i) Changes to sections on Sequences of Operation (page 2), Third Party Performance Certification (page 4), Air Systems (page 5), Air Handling Unit Controls (page 10), Dedicated Outdoor Air Systems (page 23), and Integration with Packaged Control Systems (page 36).
 - ii) Subcommittee recommends/motions committee approve Chapter 48 of Applications Handbook.
 - (1) Vote to occur via email prior to the end of this week.
- g) **Standards** – Steve Taylor
 - i) Paul - New proposed standard 232P, unsure what it is, need clarification.
 - ii) Chariti – Request for TC to watch for 90.1 review on deadband for setpoint control.
- h) **Webmaster** – Charlotte Dean
 - i) Website access has been revised to the TC officers' personal ASHRAE accounts, no longer a single TC account.

9) Committee Liaison Reports

- a) Decarbonization Task Force – Larry Fisher
 - i) Currently do not have a formal liaison, Larry Fisher to coordinate collaboration. Ken Peterson incoming chair.
- b) Epidemic Task Force –
 - i) Currently do not have a formal liaison, Mike Pouchak to provide contact information to coordinate.
- c) TC 1.5 (Emerging Computing Applications) – Mike Pouchak
 - i) New TC name.
- d) TC 2.10 HVAC Security – Kim Barker
- e) TC 5.6 (Control of Fire & Smoke)
- f) TC 6.1 (Hydronic Systems)

- g) TC 6.7 (Solar Energy Utilization) – Gaylen Atkinson
- h) TC 7.3 (Operations & Maintenance Management)
- i) TC 7.5 (Smart Building Systems) – Joe Zhou
 - i) Mike Pouchak reported they have a new chair - Li Song.
- j) TC 7.6 (Systems Energy Utilization)
- k) TC 9.10 (Laboratory Systems) – Jim Coogan
- l) TC 9.11 (Clean Rooms) – Phil Naughton
- m) SSPC 62.1 (Ventilation and Acceptable IAQ) – Steve Taylor
- n) SSPC 90.1 (Energy Efficient Design of New Buildings) – Steve Taylor
- o) SSPC 202 (Commissioning Process for Buildings and Systems) – TBD
- p) TC 1.6 (Terminology) – Phil Naughton
- q) SPC 189.1 Design of High-Performance Building – Bogi Setty
- r) MTG Occupant Behavior in Buildings – Kim Barker

10) Old Business

- a) New TC 1.4 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) Other potential issues:
 - (1) Grid interactive buildings
 - (2) Cybersecurity
 - (3) Model predictive control
- b) Jim Coogan – Collaboration with TC 5.11 Humidification Equipment

11) New Business

- a) TC 1.4 Past Chair Verle Williams, Frank to put together care package and deliver on behalf of TC 1.4. Requests any messages be sent to Frank Shadpour (frank@scengineers.net)
- b) Jin Wen received the ASHRAE Distinguished Service Award.

12) Upcoming Deadlines

- Atlanta Winter Conference – February 04-08, 2023
- Seminar, Forums, Workshops, Panels and Debates proposals for Atlanta are due by **Tuesday August 9, 2022.**
- **The portal to submit programs for 2023 Winter will open on July 15.**
- Program Focus at Atlanta Winter Conference
 - i. Track 1: Fundamentals and Applications
 - ii. Track 2: HVAC&R Systems and Equipment
 - iii. Track 3: Refrigerants and Refrigeration
 - iv. Track 4: Grid Resilience and Thermal Storage
 - v. Track 5: Pathways to Zero Energy Emissions and Decarbonization
 - vi. Track 6: Multifamily and Residential Buildings
 - vii. Track 7: Operations and Maintenance
 - viii. Track 8: Mini Track – Innovative responses to supply chain challenges

13) Next Meeting – 2023 ASHRAE Winter Conference | February 4-8, 2023 | Atlanta

14) Adjourn

Elise Backstrom moved to adjourn. Larry Fisher seconded. 5-0-0.