

ASHRAE TC 10.1

Custom Engineered Refrigeration Systems

ASHRAE 2024 Annual Conference – TC 10.1 meeting minutes

June 25, 2024 ~ 12:00 – 2:00 pm Eastern Time (UTC -5)

JW Marriott Indianapolis ~ Meeting Room: 301

Microsoft Teams Meeting ID: 229 516 215 089 ~ Passcode: M4UCXc

To: Members and guests of TC 10.1

From: Steve Sanders, TC 10.1 Chair

Date: June 25, 2024

I. Preliminaries.

A. Call to order.

B. ASHRAE Code of Ethics Commitment: 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 and behavior that is discriminatory and/or harassing.

1. <https://www.ashrae.org/about/governance/code-of-ethics>

C. Self-introductions & attendance sheet.

D. Verify quorum – voting members:

1. *Confirmed that TC 10.1 has reached quorum for this meeting.*

| Name | Position | End Date | Position |
|--------------------|----------|----------|-----------------------------|
| 1. Steve Sanders | | 6/2027 | Chair |
| 2. Wayne Borrowman | | 6/2026 | Handbook Subcommittee Chair |
| 3. Tom Wolgamot | | 6/2024 | Program Subcommittee Chair |
| 4. Alec Cusick | | 6/2026 | Research Subcommittee Chair |
| 5. Andy Schoen | | 6/2026 | Webmaster |
| 6. Kent Anderson | | 6/2027 | |
| 7. Kartik Patel | | 6/2026 | |
| 8. Heather Sharif | | 6/2027 | |
| 9. Gordon Struder | | 6/2024 | |
| 10. Martin Timm | | 6/2026 | |

II. Additions/changes to agenda.

III. Review and approval of 2024 Winter Conference draft minutes.

- A. 2024 Winter Conference committee meeting draft minutes have been previously distributed and are being mailed with this agenda.
- B. *Motion to approve TC 10.1 2024 Winter Conference minutes (motion passes with no objections or abstentions). Kartik Patel motioned, Heather Sharif seconded.*

IV. Chair's Report (Steve Sanders).

- A. Eight (8) officers, five (5) of whom are voting members.
- B. Ten (10) voting members (VM).
- C. Nineteen (19) corresponding members (CM).
- D. Sixteen (16) provisional corresponding members (PCM).
- E. Total of (48) members.
- F. *Tom Wolgamot rolling-off as VM and Program Subcommittee Chair after June 2024 meeting.*
- G. *Alec Cusick stepping down as Research Subcommittee Chair after June 2024 meeting.*
- H. *TC 10.1 currently has two (2) open positions: Research Subcommittee Chair and Program Subcommittee Chair. Please contact Steve Sanders if interested.*
- I. *Held initial planning meetings on developing PTAR application for an industrial heat pump design and application guide. Steve Sanders to push-forward with the working group to develop and submit this PTAR.*

V. Liaison Reports.

- A. ASHRAE Section 10 Head – G.D. Mathur (SH10@ashrae.net)
 - 1. *See distributed PDF of Chair's Breakfast presentation with summaries of all items discussed below:*
 - a. ASHRAE now only known by its acronym (no longer American Society of Heating, Refrigerating, and Air-Conditioning Engineers) to reflect it is now a global organization.
 - b. ASHRAE Code Interaction Subcommittee – involved in coordinating and harmonizing ASHRAE standards with model codes and codes from other organizations (e.g., ICC, IAPMO, NFPA, CSA, etc.)
 - c. ASHRAE Center of Excellence Building Decarbonization (CEBD) – interacting with ASHRAE's Technology Council and the Special Projects Team regarding decarbonization topics & issues. See the list of preliminary projects from CEBD.
 - d. ASHRAE Global Technical Interactions Committee (GTIC) – responsible for leveraging ASHRAE resources to influence international standards and maximize impact of ASHRAE's products on the practice of HVAC&R and the built environment. Has had several great successes, and working with organizations like ANSI and ISO.
 - e. ASHRAE Residential Building Committee (RBC) – responsible for responding to major residential trends impacting the practice of HVAC&R.
 - f. *Several potential changes coming to Work Statements for ASHRAE research*

projects (not yet finalized, eventually to be included in an updated version of the ASHRAE Research Manual).

B. Other Societies:

1. ASHRAE 15 (Chris Williams).
2. ASME (Jim Caylor).
 - a. *Finally agreed on language for accepting unlisted components.*
3. CSA (Wayne Borrowman).
 - a. *CSA standard B52 updated in Dec. 2023 and various jurisdictions in process of adopting it. Many updates made to reflect the changes in ASHRAE 15 regarding A2L refrigerants. Additional wording put-in regarding maintenance & refrigerant leaking into a secondary coolant.*
4. IIR & other organizations (Eric Smith).
 - a. *IIR changed its name to the International Institute of All-Natural Refrigerants.*
 - b. *Gap in research for CO2 safety relief devices and CO2 safety relief piping, especially in supercritical applications, in excess of pressure tables in ASHRAE 15. Developed calculation method for CO2 relief which is being reviewed and to be incorporated into the IIR CO2 standard and harmonize with ASHRAE 15.*
 - c. *Research project in process with UC-Berkeley looking into characterizing dry ice formation within CO2 relief piping – more likely to occur when relieving supercritically than subcritically from the top of a vessel (i.e., relieving at lower enthalpies and drop into vapor dome on a P-h diagram).*
 - d. *IIR developing an A3 refrigerant safety standard focused on larger-tonnage hydrocarbon systems (e.g., propane chiller at a propylene plant), and coming close to its public review of the document.*
 - e. *RETA and RSES have merged.*
 - f. *IIR/IAF conference on natural refrigerants at the University of Maryland in August.*
5. Insulation societies:
 - a. NIA (National Insulation Association).
 - i. *NIA working a chart for vapor retarders to pair with its chart for insulation materials.*
 - b. MICA (Midwest Insulation Contractors Association).
 - c. Refrigeration.
 - d. Cryogenic.
 - e. ASTM.
 - i. *ASTM met in April and going to meet again in October. Added an aerogel product for low-temperature applications.*

VI. Handbook Subcommittee Report (Wayne Borrowman).

A. Handbook chapters.

1. Insulation: Chapter 10 (Insulation Systems).
2. Refrigeration: Chapter 1 (Halocarbon), Chapter 2 (NH₃), Chapter 3 (CO₂), Chapter 4 (Overfeed), Chapter 5 (Component Balancing), Chapter 13 (Secondary Coolants), Chapter 45 (Concrete Dams & Subsurface Soils), Chapter 46 (Chemical Industry), Chapter 47 (Cryogenics), Chapter 48 (Ultralow Temperature) and Chapter 49 (Biomedical Applications) and Chapter 50 (Terminology) will be reviewed for the 2026 RHB.
 - a. *Chapter 1 (Halocarbon) – Updated chapter text to now cover both halocarbon and hydrocarbon systems. Older refrigerant charts have been weeded-out and charts for newer refrigerants and hydrocarbons added. Goal to have text of updated chapter out to TC 10.1 prior to the January 2025 meeting.*
 - b. *Wayne Borrowman to work internally within his company and with Steve Sanders to arrange reviewers for Chapter 45 (Concrete Dams) and Chapter 46 (Refrigeration in the Chemical Industry).*

VII. Research Subcommittee Report (Alec Cusick, **position to be open – volunteer needed!**).

A. RP-1703 (Testing the Performance of Vapor Retarder Systems Used with Mechanical Insulation Systems in Below-Ambient Applications).

1. Co-sponsor with TC 1.8 (lead committee).
2. Charley Petty (lead) and Gordon Hart (contributors).
3. *More than 2/3rd of specimens tested, optimism that the testing on the remainder of the specimens will be tested by end of 2024. 1 test sample that had unexpected test results is going to be re-tested.*

B. RP-1721 (Oil Return and Retention in Unitary Split System Gas Lines).

1. Co-sponsor with TC 8.11 (lead committee).
2. Gordon Struder is on PMS.

C. RTAR-1871 (Hygrothermal Modeling of Below Ambient Pipe Insulation Systems in Buildings and Refrigeration).

1. Co-sponsor with TC 1.8 (lead committee).
2. Manfred Kehrner and Gordon Hart are authors.
3. *This research project on hold until test results from RP-1703 are obtained.*

D. RTAR-1513 (old) Liquid/Vapor Separation in Vessels.

1. Originated in TC 10.1.
2. Doug Scott, Alec Cusick, and/or Bent Wiencke to update.
3. *Effort to revamp this research project with Doug Scott underway.*

VIII. Programs (Tom Wolgamot, **position to be open – volunteer needed!**).

IX. Old Business.

A. Action Items.

1. Roster updated and activity forms submitted.
2. New roster portal had operational issues, but updated TC 10.1 roster submitted. New portal should help roster updates and management in the future.

X. New Business.

- A. Clarification/updates to TC 10.1 Title and Scope
 1. *Steve Sanders to work with others to develop proposed update for TC 10.1 Title and Scope in advance of Winter 2025 meeting.*

XI. Next Meeting: Orlando, FL; February 8-12, 2025.

- A. <https://www.ashrae.org/conferences/2025-winter-conference-orlando>
- B. Hilton Orlando, 6001 Destination Parkway, Orlando, FL 32819
 1. Registration link opens in Fall 2024.
- C. Virtual and face-to-face!

XII. Adjourn.