

ASHRAE TC 6.03
Residential and Light Commercial Forced Air Heating and Cooling Systems
TC 6.03 Website: [Link](#)
Committee Meeting Agenda

2025 ASHRAE Annual Conference
Tuesday, June 24, 1:00 – 3:00 PM MST
Sheraton Phoenix Downtown, Alhambra (Level 2)
Hybrid Meeting
Meeting Link:
[MS Teams Meeting](#)

Meeting number:
297 067 616 236
Password:
Us362Mj9

1. Call to order

HJORTLAND

Meeting call to order by Andy at 1:01 pm

2. Review Scope

TC 6.03 is concerned with those central forced air systems used for residential and light commercial building comfort heating and cooling. Responsibility covers the design and performance of the entire system, including equipment, controls, ducts and the interactions of the system with building heating and cooling loads.

3. ASHRAE Code of Ethics Commitment

HJORTLAND

“In ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and shall avoid all real or perceived conflicts of interest. Our culture is one of inclusiveness, acknowledging the inherent value and dignity of each individual. We celebrate diverse and inclusive communities, understanding that doing so fuels better, more creative and more thoughtful ideas, solutions and strategies for the Society and the communities our Society serves. We respect and welcome all.”

See full ASHRAE Code of Ethics: <https://www.ashrae.org/about/governance/code-of-ethics>

[ASHRAE Policy for Use of Artificial Intelligence \(AI\)](#)

4. Introductions

All

a. Determination of a quorum

DHILLON

b. **ONLINE PARTICIPANTS: Please indicate your presence in the chat.**

VOTING MEMBERS FOR THIS MEETING (Need (5) for a Quorum)

| Name | Term End | Present |
|------------------|------------|-----------------|
| Nicolas AOUAD | 2025-06-30 | |
| Larry BRAND | 2025-06-30 | Yes (online) |
| Craig GRIDER | 2025-06-30 | No |
| Andrew HJORTLAND | 2025-06-30 | Yes |
| Jeff MUNK | 2026-06-30 | Yes (online) |
| Scott CREAMER | 2027-06-30 | Yes |

| Name | Term End | Present |
|------------------|------------|-----------------|
| Payam DELGOSHAEI | 2027-06-30 | Yes |
| Wayne KRAFT | 2027-06-30 | No |
| Patrick Riley | 2027-06-30 | Yes (online) |
| | | |
| | | |
| | | |

Quorum is established (5-4). Pat joined later (6-3)

5. **Agenda additions**
No agenda additions

All

6. **Chair’s Report**

HJORTLAND

7. **Liaison reports (as they arrive)**

a. TAC – Section 6

REINDL

ASHRAE published a new strategic plan. Guideline to align research and program with this.
Looking for people to serve on higher level committees – Aug 1st is the deadline for volunteer.
CEBD developed a strategic plan with 5 themes.

b. RAC

MULLEN

Want to have more RTAR and WS to be submitted as there are not many being submitted
WS 1910 – Didn’t receive any bid, can investigate further modifying it and submit it again or talk to possible bidders as no bid was accepted. Proposing to drop this WS.
Did we receive RAC feedback on RTAR - Adding Hydrogen Fuel Blends to ASHRAE Standard 103 and Improving Residential Furnace Resilience. This wasn’t reviewed for this meeting but might have done it. Larry will resend it to RAC as major revisions were done to submit before Aug 15 RAC meeting.

c. MTG – Low GWP Refrigerants

CRAWFORD

MTG is slowing down, no ongoing project and much business.
Robert Glass volunteered to be liaison in place of Roy for this MTG.

d. ~~Task Force on Building Decarbonization~~ CEBD

MERCER

Name changed to CEBD. It’s under special projects. There are no ongoing projects under purview of 6.3 as of now, but they are continuously looking if any project come along. Section head will be brought up if any related project come through. Eric will be section 6 TAC from next year.

8. **Approval of minutes from 2025 ASHRAE Winter Meeting (Orlando, Hybrid)**

HJORTLAND

Andy will share the updated meeting minutes from Orlando.

Motion to approve Orlando meeting minutes with one editorial change. CREAMER first, MUNK second.
Motion Carries 4-0-1-4.

9. **Membership/Roster**

DHILLON

OFFICERS (Ending 2025-06-30)

| Name | Role |
|------------------|-----------------|
| Andrew HJORTLAND | Chair |
| Parveen DHILLON | Secretary |
| Wayne KRAFT | Standards Chair |
| Scott CREAMER | Program Chair |

| Name | Role |
|---------------|----------------|
| Scott CREAMER | Vice Chair |
| Nicolas AOUAD | Research Chair |
| Randy PALM | Handbook Chair |
| George YAEGER | Webmaster |

VOTING MEMBERSHIP (Ending 2025-06-30)

| Name | Term |
|------------------|-------------------------|
| Nicolas AOUAD | 2022-07-01: 2025-06-30 |
| Larry BRAND | 2022-07-01: 2025-06-30 |
| Craig GRIDER | 2022-07-01: 2025-06-30 |
| Andrew HJORTLAND | 2022-07-01: 2025-06-30 |
| Jeff MUNK | 2023-07-01 : 2026-06-30 |
| Scott CREAMER | 2023-07-01 : 2027-06-30 |

| Name | Term |
|------------------|-------------------------|
| Payam DELGOSHAEI | 2024-07-01 : 2027-06-30 |
| Wayne KRAFT | 2024-07-01 : 2027-06-30 |
| Patrick Riley | 2024-07-01 : 2027-06-30 |
| | |
| | |

Changes After 7/1/2025:

NEW OFFICERS (Beginning 2025-07-01)

| Name | Role |
|-----------------------|-----------------|
| Scott CREAMER | Chair |
| Subhrajit CHAKRABORTY | Secretary |
| Wayne KRAFT | Standards Chair |
| Scott CREAMER | Program Chair |

| Name | Role |
|------------------|----------------|
| Parveen DHILLON | Vice Chair |
| Andrew HJORTLAND | Research Chair |
| Randy PALM | Handbook Chair |
| George YAEGER | Webmaster |

Subhrajit Chakraborty (sjchakra@ucdavis.edu) volunteered to be secretary.

Scott will stay as the program chair too.

NEW VOTING MEMBERSHIP (Beginning 2025-07-01)

| Name | Term |
|------------------|-------------------------|
| Jeff MUNK | 2023-07-01 : 2026-06-30 |
| Scott CREAMER | 2023-07-01 : 2027-06-30 |
| Payam DELGOSHAEI | 2024-07-01 : 2027-06-30 |
| Wayne KRAFT | 2024-07-01 : 2027-06-30 |
| Patrick Riley | 2024-07-01 : 2027-06-30 |

| Name | Term |
|------------------|-------------------------|
| Parveen DHILLON | 2025-07-01 : 2028-06-30 |
| George YAEGER | 2025-07-01 : 2028-06-30 |
| Steve KOWALSKI | 2025-07-01 : 2028-06-30 |
| Randy PALM | 2025-07-01 : 2028-06-30 |
| Noe CONTRERAS | 2025-07-01 : 2028-06-30 |
| Travis LANCASTER | 2025-07-01 : 2028-06-30 |

Voting membership term is incorrect online on roster. Andy reached out to Tara to correct online roster term dates.

10. Subcommittee reports

a. Programs

CREAMER

- Seminar 4: Leak Detection Technologies for Flammable Refrigerant Systems
Sunday, June 22, 8:00AM – 9:00AM (MST)
Location: Phoenix Convention Center North Building, 229B

Update from Craig GRIDER:

We filled about half of the room, which is pretty good for an 8AM Sunday morning and afterwards we had requests for more seminars on Leak Detection Systems. Brian Rodgers answered questions for 20 minutes and then he and I stayed 20 minutes after we wrapped up to continue answering questions.

Overall good attendance and audience showed interest for future seminar on this topic.

9 tracks for Vegas conference.

- Seminar Proposal for Phoenix:
Circulation of particles and gases in small (residential / light commercial) building distribution systems
Chair: Paul Haydock
Looking for potential speakers and volunteers.

One suggestion on whether to make the title more align with ASHRAE strategic plans.

Andrew Shore (andrew.shore@nist.gov) could have possible colleagues who work on conventional duct system and can be speaker. Scott can submit it once speakers and presentation titles are finalized. At least need 10 questions for the session. August 1st is the deadline for submission.

- Another possible seminar on dual fuel systems
 - NEEA completed a modeling study on light commercial dual fuel RTU. Insulation value, leakage of box could affect 15% of losses. They could have possible seminar.

- One other possible seminar with dual fuel RTU from NREL.
- Possibly including one on residential too. Maybe GTI if they did any research on this.
- Building America Solution Center
- Larry will follow up on study.
- Kyle might be working on this too.
- Overall seminar on dual fuel system development
- Jamie Lynos (follow up with Roy) for New Corp

Motion to propose a Vegas program for this idea: Scott first, Jeff second. Motion carries 5-0-1-3

b. Research

AOUAD

- ~~WS-1910 – Evaluation of Standard 103 Transient Components and Thermostat Cycle Times on the Resulting AFUE~~

We are still working to get clarification about what happened to this project through RAC.

Drop this for now.

- RP-1909 - In-Tube Condensing Flue Gas Heat Transfer and Pressure Drop with Enhancements for Residential Furnaces (Co-sponsor with TC 1.3)

Will Kowald: Contractor has been selected, and business has been awarded.

Just adding to the chat an update you can include in the minutes: Brief update on status of ASHRAE 1909-RP:

Contractor has been selected, it is Creative Thermal Solutions.

Kickoff meeting was held w/ the CTS in April to review project objectives, tasks, and proposed schedule. Updates planned at each of 6 project milestones, project run thru end of 2027

1st Progress Report rec'd 6/10/25. Task 1 (Literature Review and Test Planning) underway to be completed end of July 2025. Task 2 (Test Facility Design & Construction) to be completed Sept 2025, with Task 3 (Testing w/ plain tubes) to start thereafter. Testing continues w/ enhanced tubes and various turbulator configuration thru end of 2026.

- RTAR – Adding Hydrogen Fuel Blends to ASHRAE Standard 103 and Improving Residential Furnace Resilience (BRAND, HAYDOCK)

It has been submitted to ASHRAE.

- New RTAR Idea: Field Measurement of Dynamic Residential Load Dynamics

First, do a pilot project on how you measure the sensible and latent dynamics of residential buildings. First define the methodology and then apply to a wider study. Andy will work on a preliminary RTAR draft to gather ideas.

Kevin and Larry volunteered to review the RTAR.

c. Handbook

PALM

- Chapter 10 – Small Forced-Air Heating and Cooling Systems
- Chapter 33 – Furnaces

Up for next publication in 2028. Any revision should be done by March 2027.

Kevin Mercer and Eric Berg volunteer for Chapter 10.

George Yaeger volunteered for both chapters.

d. Standards

KRAFT

- Standard 103: Methods of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers, Methods of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers

VOTE NEEDED – REFORM COMMITTEE TO REVISE STANDARD

Motion to reopen standard 103 to update references and tables as per last meeting discussion with Wayne as chair: CREAMER first and RILEY second. Motion carries 5-0-1-3.

Volunteers: Paul Haydock, Kevin Mercer, Robert Glass, Scott Creamer, Joshua Godwin, Travis Lancaster, Will Kowald, Goerger Yaeger

- Standard 193: Method of Test for Determining the Airtightness of HVAC Equipment (TC 4.3 Co-cognizant)

Plan is to update 193 before Vegas. Major changes: Resolved two comments, working on revising the standard to add mandatory language. Will go for public review soon.

e. Website

YAEGER

The website is updated and will update with approved meetings minutes later.

11. Old Business

No old business

12. New Business

No new business

13. Adjourn

Motion to adjourn meeting: CREAMER first, BRAND Second. Motion Carries 2:44 pm

















In-Person Attendance:

| Name | Affiliation | E-mail | Member (Voting, Corresponding, or Guest?) | YEA Member? (Yes/No) |
|-----------------|-----------------------------|--------------------------------|--|----------------------------|
| PARVEEN DHILLON | NEEL | Parveen.dhillon@mel.gov | Sec. | Yes |
| Jim Ver Steen | TRANE | Jim.VerSteen@trane.com | Guest | N |
| Roy Crawford | JCI | roy.crawford@jci.com | ? | N |
| GEORGE YAEGER | G YAEGER SERVICES LLC | GEORGE.YAEGER@GMAIL.COM | WEBMASTERS | ✓ |
| SCOTT CREMEL | RHEEM | Scott.Cremel@rheem.com | PROGRAM CHAIR | ✓ |
| Chris Wolgamott | NEEA | cwolgamott@veea.org | Guest | ✓ |
| Robert Glass | Daikin Comfort Technologies | Robert.Glass@daikincomfort.com | Corresponding | N |
| Colin McDermitt | AHRI | cmcdermitt@ahrinet.org | Guest | N |
| Thomas Stiles | Intertek | thomas.stiles@intertek.com | Guest | N |
| Joshua Godwin | Midea | Joshua.Godwin@midea.com | CM? | Y |

| Name | Affiliation | E-mail | Member (Voting, Corresponding, or Guest?) | YEA Member? (Yes/No) |
|------------------|-------------|-----------------------------|--|----------------------------|
| Eric Berg | Lennox | eric.berg@lennox.com | CM | No |
| Pajam Delgoshaei | DOE | Pajam.Delgoshaei@ee.doe.gov | Voting | No |
| Ed Janowiak | ACCA | edj@accc.org | Guest | No |

| Name | Affiliation | E-mail | Member (Voting, Corresponding, or Guest?) | YEA Member? (Yes/No) |
|------------------|-------------|--------------------------|--|----------------------------|
| Andrew HJORTLAND | JCI | Andrew.Hjortland@jci.com | Chair | NO |
| Shawn Andrews | AHRI | sandrews@ahrinet.org | Guest | No |
| Kevin Mercer | Rheem | | | Yes |

Online Attendance:

| Name | First join | Last leave | In-meeting duration | Role |
|---|------------|------------|---------------------|-----------|
|  Andrew Hjortland andrew.hjortland@jci.com | 2:48 PM | 4:44 PM | 1h 56m 16s | Organizer |
|  Larry Brand (Unverified) | 2:53 PM | 4:44 PM | 1h 50m 40s | Presenter |
|  Parveen Dhillon pdhillon@purdue.edu | 2:54 PM | 4:45 PM | 1h 50m 24s | Presenter |
|  Devendra Kulkarni devendra.kulkarni@jci.com | 2:57 PM | 4:44 PM | 1h 46m 46s | Presenter |
|  Loskill, Ford Ford.Loskill@nrel.gov | 2:58 PM | 4:44 PM | 1h 46m 18s | Presenter |
|  Munk, Jeff Jeff.Munk@nrel.gov | 2:58 PM | 4:44 PM | 1h 46m 22s | Presenter |
|  Steve Ehrman stevee@acereps.com | 2:58 PM | 4:29 PM | 1h 25m 4s | Presenter |
|  Austin Kim AKim@ahrinet.org | 2:58 PM | 4:45 PM | 1h 43m 17s | Presenter |
|  Shore, Andrew M. (Fed) andrew.shore@nist.gov | 2:59 PM | 4:44 PM | 1h 44m 34s | Presenter |
|  Kowald, Will will.kowald@lennox.com | 3:00 PM | 4:44 PM | 1h 44m 6s | Presenter |
|  Winkler, Jon Jon.Winkler@nrel.gov | 3:01 PM | 4:44 PM | 1h 42m 47s | Presenter |
|  Haydock, Paul paul.haydock@carrier.com | 3:01 PM | 4:42 PM | 1h 40m 12s | Presenter |
|  Subhrajit Chakraborty sjchakra@ucdavis.edu | 3:02 PM | 4:04 PM | 1h 2m 15s | Presenter |
|  Kowalski, Steve kowalskisp@ornl.gov | 3:03 PM | 4:44 PM | 1h 41m 25s | Presenter |
|  Chris Wolgamott CWolgamott@neea.org | 3:35 PM | 4:20 PM | 44m 36s | Presenter |
|  Riley, Patrick Patrick.Riley@Carrier.com | 3:37 PM | 4:44 PM | 1h 3m 4s | Presenter |