



1791 Tullie Circle, N.E./Atlanta, GA 30329
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TC/TG/MTG/TRG MINUTES COVER SHEET

(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/MTG/TRG No. 3.4 DATE June 28, 2023

TC/TG/MTG/TRG TITLE Lubrication

DATE OF MEETING June 27, 2023 LOCATION Tampa and Virtual

MEMBERS PRESENT	YEAR APPTD ENDS	MEMBERS ABSENT	YEAR APPTD ENDS	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Casey Scruggs – Chair/Han	2024	Rob Yost	2023	Scott Wujek – Research
Joe Karnaz – Sec/MTG	2024	Steve Baker	2025	Chris Campo – Programs
Morgan Leehey	2026	Rashid Zakeri – Vice Chair	2024	Tina Brueckner – Section Head
Chris Seeton	2026			
Sheli Porter - Standards	2025			
Julie Majurin	2023			
Ed Hessel	2023			
Dave Vincent - Webmaster	2025			
Raymond Drost	2024			
Rosine Rohatgi	2026			

DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:

TAC Section Head: Tina Brueckner	SH3@ashrae.net
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.)	Chee Sheng Ow – Research Gerald Kettler – Standards Drake Erbe – Handbook
Mike Vaughn, Manager of Research & Technical Services	MORTS@ashrae.net

Note: These draft minutes have not been approved and not the official record until approved by the TC.

Call to Order – Casey Scruggs

Casey Scruggs called TC 3.4 meeting to order at 1:30 pm EDT on June 27, 2023. Meeting was held in-person at the JW Marriott Tampa Platt Room and via Virtual Zoom Conference. Participates were asked to sign the sign in sheet passed around the room and for those on-line using the Zoom Chat function.

Members and guests introduced themselves.

A quorum was established with 10 of 13 members present.

The Chair reviewed and read the ASHRAE Ethics Statement.

A quick review of the agenda was made.

Approval of 2023 Atlanta Meeting Minutes and 2023 Tampa Meeting Agenda

A motion was made by Julie Majurin to approve the 2023 Atlanta Meeting minutes as written, the motion was seconded by Chris Seeton, the motion carried 10-0-0(CV).

A motion was made by Joe Karnaz to approve the 2023 Tampa Meeting agenda as written, the motion was seconded by Morgan Leehey, motion carried 10-0-0(CV).

TC Chair Breakfast – Casey Scruggs

Overview of Government Affairs Department

- Director Alice Yates
 - GovAffairs@ashrae.org
- ASHRAE Government Affairs Mission Statement:
 - To establish ASHRAE as a leading source for expertise in the built environment and a resource for policy-makers in the development of legislation and regulations affecting the public, the HVAC&R community, and the engineering profession.
- Impacts and Outcomes
 - Standards adopted/ incorporated by reference
 - New York adopted 2019 edition of Standard 90.1 7 of the New York ASHRAE Chapters sent letters of support
 - Wisconsin considering adoption of 2019 version of Standard 90.1 (from 2010 version!) Significant outreach conducted
 - Bills introduced that would adopt Standard 188(NJ, PA, NY) Testimony submitted
 - 18 States reference Standard 62.1, and 19 States that reference Standard 62.2

- North Carolina legislation would require any HVAC upgrades for schools to comply with “all applicable standards and guidance for air quality from ASHRAE” Letters submitted
- Multiple Jurisdictions referenced ETF guidance in laws, regulations, policy and guidance
- Funding for Codes and Standards –Worked with other organizations to support the inclusion of support for adoption and implementation of the latest Building Energy Codes and Standards in the IIJA and IRA (\$1.225 billion)
- ASHRAE Standards and other resources referenced by White House Clean Air in Buildings Challenges, the CDC, and the U.S. EPA
- GSA –assisting with embodied carbon work (\$2.15 billion); developing pilot project with Standard 241 Control of Infectious Aerosols
- 179D Tax Credit –updated reference to Standard 90.1-2019
- Facilitating technology transfer to support the Department of Homeland Security (DHS)
- Technical support for legislation (e.g., Rep. Beyer’s Airborne Act)
- Secured funding to support DOE-LBNL Efficient and Healthy Schools pilot program.

Liaisons

Tina Brueckner (TAC Section 3 Head) – Discussed the Carbon Footprint initiative by ASHRAE and how this will eventually be pushed out to Functional Groups, Standards and Research activities. Tina thanked the group for their efforts.

Chee Sheng Ow (Research Liaison) – Commented that RAC has a 5-million-dollar budget and will have more comments during the research section of our meeting. Chee will be rolling off and we will have a new Research Liaison.

Drake Erbe (Handbook Liaison) – Drake has a conflict to be able to join our meetings but supplied a checklist to the Handbook Chair to begin work on the 2026 Handbook.

No other Liaisons presented.

Subcommittee Reports

Program – Chris Campo

Section 3 Programs Subcommittee meeting took place on June 13th via a Zoom virtual meeting. Ideas generated at that meeting will be discussed in individual TC meetings.

For Tampa:

Sponsored Seminar 9 “Properties of Refrigerants and Lubricants to Comply with the AIM Act” took place on Sunday morning with 3 speakers (Joe Karnaz, Henna Tangri, Chris Seeton) and Morgan Leehey as the chair, the program was well attended.

Chicago Program Ideas:

A seminar that was submitted for Atlanta was rejected and during the Atlanta meeting it was discussed to consider for Chicago. After some discussion and making sure the presenters and chair were still willing to participate, based on commitments it was decided to proceed with submission, there will be 3 speakers (Shrieve, Trane, Patech) with Chris Campo as chair.

After further discussion it was decided that since the Chicago meeting has the Refrigeration and Refrigerants Track that TC 3.4 should try to submit a second seminar. A title was proposed with potential speakers (Trane, Koura, Patech) and chair (Ramesh Navaratnam).

A motion was made by Chris Seeton to approve a seminar for Chicago titled “Role of Lubricants in the Stability of Low GWP Refrigerants” chaired by Ramesh Navaratnam, the motion was seconded by Raymond Drost, the motion carried 10-0-0(CV).

Addendum (6/28/2023) – after the meeting Chris Campo, Ramesh Navaratnam and Ray Drost met and it was decided that Ray would chair the session since Ramesh will be presenting.

Chicago program submissions due August 2nd

No other ideas for future conferences beyond Chicago (Indianapolis Annual 2024 and Orlando Winter 2025).

Handbook – Casey Scruggs

The handbook committee has met and are reviewing the chapter, several PVT charts based on refrigerants that have been phased out or phased down that might be better to move to an informative section. This was discussed in the committee and some points that were made is that people still have access to old handbooks that would contain this data in the chapter so moving to an informative section is probably a good idea. There was some discussion on reducing the mineral oil section which will be looked at by the handbook committee. Casey will plan to place what changes have been made to the TC 3.4 Basecamp site for review.

Standards – Sheli Porter

GPC 40 “Refrigeration Oil Description” – Scott Wujek is the chair, committee has completed some updates and revisions and are at the point where a meeting will be scheduled to vote and finalize to send to TC.

Standard 86 “Methods of Testing the Floc Points of Refrigeration Grade Oils” – This standard is being revised by the committee being chaired by Brad Boggess. The standard went out for

public review and comments received are to be reviewed by the committee to respond back. The committee will try to have information back to the TC by or before Chicago finish off by vote.

Standard 172 “Method of Test for Insoluble Materials in Synthetic Lubricants and HFC Refrigerant Systems”. A committee has been established; Ed Hessel (Chair). Ed sent out a final draft prior to this meeting and asked the standard subcommittee to review and be prepared to have a meeting in 2-3 weeks to meet and finalize for the TC to have a letter ballot vote.

SPC 218 “Method of Test for Lubricant and Refrigerant Miscibility Determination” – this is being chaired by Casey Scruggs and was decided to revise the standard. The committee met on Tuesday of the conference to review and had discussion, there is need for reference updates and review of mandatory language. The group plans to meet again soon to continue work.

Ideas for new standards:

During Atlanta an idea for a standard around volume resistivity testing beyond ASTM test methods was discussed, in this meeting there were some comments if this was something relating to some TC 3.1 work but no one could remember. Tabled for further discussion once better understanding of what initiated and the need.

Other discussion – Chris Seeton who is chairing the revision of Standard 97, which is part of TC 3.2, gave an update because he would not be in TC 3.2 meeting. This information was noted by the TC 3.2 Standards Subcommittee chair for comment in that meeting.

Research – Scott Wujek

The combined Section 3 research subcommittee meeting took place on June 13th via a Zoom conference call. Ideas generated at that meeting will be discussed in the individual TC meetings.

Projects –

RP 1879 “Foaming Properties of Low GWP Refrigerant and Oil Mixtures” – Ivan Rydkin Chair; the project is underway with Oklahoma State University as the PI. Craig Bradshaw was present in the room with Kyle Shepard on-line and provided an update. The PMS has met with the PI a few times since Atlanta, a PowerPoint presentation was made to the TC showing the progress made with the apparatus set-up. Some discussion on what lubricants to use and procured; outline of the test matrix was viewed. It was discussed that a new chair may be needed since Ivan has been removing himself from various Section 3 tasks due to his change of position at his company.

RP 1721 “Oil Return and Retention in Unitary Split Gas Lines with HFC and HFO Refrigerants”. This is sponsored by TC 8.11 Unitary and Room Air Conditioners and Heat Pumps; TC 3.4 is a co-sponsor with Chris Seeton as our representative and Purdue

University is the PI. The final report has been submitted and waiting on PMS review, comment and vote. Comment on the project, data was acceptable but not significantly educational. The final report should be available on Tech Street site.

RTAR 1891 “Tribological Interaction Data with Lubricants and Refrigerants”. Scott Wujek Chair; No update was given. The TC Chair will reach out to Scott for updates, Deadline for submission to RAC is February 2024.

Some ideas from subcommittee meeting

- Preferential solubility of high glide refrigerants – some discussion in the meeting on this topic and was decided still should remain as an idea for potential future research.
- Electrical properties extension of TC 3.1 work, this would be with lubricants. TC 3.1 RTAR is 1851 and the work statement is in progress so will still hold this as an idea.
- Research on how lubricants effect some of the current refrigerant leak sensors based on oil spray; not sure if TC 3.4 is correct venue for this; will table (based on Std 15 work). Will leave on new ideas for now.
- End of Life discussion on lubricants and environmental effect; after some discussion in the room this sounds more like a standard or guideline and not research, though the idea of a PTAR was suggested. Will table for further discussion in Chicago.

No other research ideas were communicated, and further discussion was tabled until the next subcommittee and TC meeting in Chicago.

Webmaster – Dave Vincent

The website is up to date and has been timely in posting information for the TC committee to download.

MTG Update –Low GWP Lower Alternative Refrigerants – TC 3.4 Represented by Joe Karnaz

- Two main meetings are on Sunday evening and Wednesday morning.
- RP-1806 “Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update”. This is an active project and a plan for completion has been developed.
- RP-1855 “Determination of the Impact of Combustion Byproducts on the Safe Use of Flammable Fluorinated Refrigerants” This is an active project and the final report has been reviewed by the PMS and PI and the MTG LGWP committee will vote Wednesday on the PMS recommendation.
- TRP-1879 “Foamability Properties of LGWP Refrigerant and Oil Mixtures”, Responsible Committee: TC 3.4, Co-Sponsors: TC 8.1 (Positive Displacement Compressors), an update was provided to the MTG committee.
- TRP-1884 “The incorporation of odorants in flammable refrigerants to improve leak detection” this is an AHRI project cosponsored by ASHRAE, an update was provided.

Old Business – Casey Scruggs

No old business.

New business – Casey Scruggs

The new membership voting committee and management team will change after this meeting.

Next meeting

2024 ASHRAE Winter Meeting in Chicago

Adjourn – Casey Scruggs

The chair closed the meeting at 3:15 pm through a motion to adjourn.