



ASHRAE MEETING – Winter 2023
TC 2.3 - Gaseous Air Contaminants/Removal Equipment
TC Meeting **DRAFT Minutes**

Time: 1:00 PM – 3:30 PM EST

Date: February 7, 2023

Location: Omni CNN Center Atlanta, Grand Ballroom C (M4-North)

Link: <https://events.rdmobile.com/Sessions/Details/1612436>

Basecamp: <https://www.ashrae.org/technical-resources/technical-committees/tc-training-and-presentations>

TC 2.3 website link: <https://tc0203.ashraetcs.org/>

1. Call to order

Meeting called to order a 1:00 PM EDT.

Voting Members:

Name	Present
Marwa Zaatari	Yes
Matt Middlebrooks	Yes
KJ Choi	Yes
Victoria Binz	Yes
Bob Burkhead	Absent
Michael Corbat	Yes
Vivek Guar	Yes
Michael Flom	Yes
Henry Greist	Yes
Chrystal Jolliffe	Yes
Ashish Mathur	Yes
Jianshun Zhang	Absent
Kathleen Owen	Yes
James Parris	Absent
Dave Schaaf	Yes

12 of 15 voting members present; quorum established.

2. ASHRAE Code of Ethics

The ASHRAE Code of Ethics is to be adhered to by those doing ASHRAE business whether or not they are an ASHRAE member. The Code of Ethics can be reviewed at the below link.

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

• **Code of Ethics Commitment**

In this and all other 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 we shall avoid all real or perceived conflicts of interests.

- **Diversity Commitment**

ASHRAE is committed to providing a welcoming environment. Our culture is one of inclusiveness, acknowledging the inherent value and dignity of each individual. We proactively pursue and celebrate diverse and inclusive communities understanding that doing so fuels better, more creative, and more thoughtful ideas, solutions, and strategies for the Society and for the communities our Society serves. We respect and welcome all people regardless of age, gender, ethnicity, physical appearance, thought styles, religion, nationality, socio-economic status, belief systems, sexual orientation, or education.

3. Ask virtual members and guests to use the chat feature to enter their Name, Affiliation, Email Address, and YEA designation (if applicable) and international status (outside of US and Canada?) for meeting attendance records. Establish Quorum.

ASHRAE has an international Standards Interaction Task Force to increase ASHRAE outreach to international standards organization. International members of FGs could help support this outreach.

4. Chair's Report

Update from TC breakfast training:

- **MOP July 2022 update** Functional Group (FG) MANUAL OF PROCEDURES (MOP) for ASHRAE Technical Committees (TCs), Task Groups (TGs), and Technical Resource Groups (TRGs). Available at www.ashrae.org/TAC
 - FG MOP Separate from MTG MOP
 - Requires balance for voting membership and known financial interests
 - Requires that the Chair, Vice-Chair, and all voting members are also members of ASHRAE
 - Recommendation to conduct virtual meetings between the Annual and Winter meetings
 - Discuss and confirm that TCs, TGs, TRGs, and MTGs in section will continue in 23-24 Society Year
- Building Decarbonization Task Force
 - There is no liaison for TC 2.3. Focused on energy, refrigerants, climate change, commissioning, operation and maintenance.
- Did you know?
 - ASHRAE has 42 active research projects with an average cost of \$150k for total of \$6.2M.
 - Since 1959, ASHRAE has sponsored 943 projects = \$80M
 - ASHRAE members have free access to all research projects + digital downloads for all handbooks.
 - 2023 Winter Program Statistics

Session Type	Proposals Submitted	Proposals Scheduled	Notes
Debate	1	1	
Forum	9	2	
Panel	7	4	
Seminar	132	72	4 AHR Expo Sessions included
Workshop	2	2	
Total	151	81	
Total with Paper Sessions		109	26 in-person Paper Sessions; 2 Virtual Sessions

- **AWARDS (Due date – September 1)**



- ASHRAE GEORGE B. HIGHTOWER TECHNICAL ACHIEVEMENT AWARD
- SERVICE TO ASHRAE RESEARCH AWARD

- **Updated TAC Presentation Template Available for TC members to use with local Chapter**

TAC recently updated the standard presentation and presentation notes that TC members can use, without a lot of effort, to explain what TCs do for the Society and how that work benefits members in your local ASHRAE Chapter.

The new presentation and presentation notes files are posted now at the following link www.ashrae.org/tcs under the heading General TC Information at the top of the page in case you prefer to direct others to these files posted online. The presentation material is now also available in both English and Spanish.

<https://www.ashrae.org/technical-resources/technical-committees/tc-training-and-presentations>

5. Reporting from ASHRAE liaisons.

John Cohen report:

Clarification on tracking of international members; count members who reside outside of the US and Canada.

6. Review and Approval of previous meeting minutes

TC 2.3 website link: <https://tc0203.ashraetcs.org/>

Matt M. makes the motion to approve TC2.3 Meeting Minutes from Annual Meeting-Toronto, Hank G. seconds the motion. Vote (For-Against-Abstain-Absent-Chair) (11-0-0-3-1); motion passes Toronto meeting minutes approved.

7. Items to be Voted on.

- i. Motion to accept the recommendation of the PMS to approve the 1838-RP final report.
 - a. Marwa makes the motion; Chrystal seconds the motion. Vote (11-0-0-3-1); motion passes

8. Get an update on:

- i. Matt Middlebrooks (WS-Lead Author) commented that WS 1928 was accepted with comments August 2021. WS was revised and sent to TC 2.3 Voting Members January 2022.
 - a. WS was revised to use particulates as the challenge contaminant. Approved by RAC Winter 2023 Meeting
- ii. RP-1579 review as part of 62.1 to see recommendations to change the Standard.
 - a. Chris M. is submitting a change proposal to 62.2 to require air cleaning in any outdoor area that does not meet national standards for ozone. Will sync up with Standard 189.
- iii. Summary of Existing and Proposed Test Methods

Title	Surface or Air	Target Pollutant	Test setup	Single pass versus multiple pass	Technology	Status

145.2	Air	Gases	Duct	Single pass	Sorbent-Being updated to apply to EACs.	Established Standard
AHAM AC-5	Air	bioaerosols	Chamber	draw down	electric room air cleaners	Published
185.3	Air	Microorganisms	Chamber	draw down	Commercial In-room devices	Standard being written
145.4	Air	Gases + byproducts	Chamber+ Duct	recirculation	All air cleaners- in duct and in room	TPS written
185.5	Air	particles and bioaerosols/ microorganisms	Chamber+ Duct	recirculation	All air cleaners- in duct and in room	TPS being written
Proposed Research Project						
WS-1928	Air	bioaerosols/ microorganisms	Chamber+ Duct	recirculation	All air cleaners- in room only	New votes in progress, (cleared TC2.9 ?)

9. Subcommittee Reports

- i. Research - Subcommittee Chair – Paula Levasseur (attended training)
 - a. RAC is caught up on all projects. New budget of 5.5M highest in 5 years, trouble getting bidders. Concern that the cost is currently too low (<\$250k). New baseline will be increased to approx. \$350k)
 - b. No cost extensions are being looked at negatively due to influx of requests during COVID.
 - c. 1838 is complete.
 - d. 1720 will be completed this year, should be on the agenda for voting in June.
 - Gemma – PMS has received final report but still in early draft, some data is still missing.
 - e. 1869 should have gone out for bid, TC chair must approve before a research project can go out for bid.
 - Marwa did approve but Paula does not know the status. *Chair will follow up with Donna to get an update.*
 - f. Revised RTAR 1931 TC2.3 to co-sponsor
 - Tori makes the motion for TC2.3 to co-sponsor the revised 1931 RTAR, Matt seconds the motion; Vote (11-0-0-3-1) motion passes.
- ii. Handbook - Subcommittee Chair -- Brian Krafthefer; (went to training)

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- a. No meeting in Atlanta
 - b. Finished chapter was submitted. Galleys should be received in February and there will be approximately a 1 week turn around time for completion.
 - c. New chair is needed for the Handbook Subcommittee because Brian will be rotating off after completion of galleys, Michael Sherber volunteers. Brian recommends that vice-chair should also be appointed.
 - *Marwa will discuss with Michael and select a Vice Chair.*
- iii. Membership - Subcommittee Chair -- Matt Middlebrooks (no training)
- a. Strong committee membership
 - (2) Voting members rolling off after June 30th: Matt and KJ
 - Rotating on (3) members after June 30th: Kevin (chair), Paula, and Mengjia
 - b. 34 YEA members
- iv. Planning - Subcommittee Chair – Kevin Kwong
- a. Continuing effort on publicity of TC 2.3
 - b. Some recommendations: Articles in IEQ column in the ASHRAE journal or ¼ page ad
 - c. ASHRAE is now selling “Lucy’s Engineering Adventure”. Discussion on a children’s book for TC 2.3.
 - d. Coordination between different functional groups at ASHRAE
 - SPGC 10 planning an informal talk between chairs to coordinate on these issues
- v. Program - Subcommittee Chair -- KJ Choi
- a. (2) program submissions for Tampa
 - Resubmit Seminar on Emerging Gas-phase Technologies – What You Need to Know
 - New Submission – John R. Champion, forum on Gas Stove’s Impact on Air Quality
- vi. Standards - Subcommittee Chair – Michael Sherber
- a. Met yesterday, revisions of guideline 27 chaired by Gemma
 - b. Attendance of standards meeting yesterday was lite due to scheduling conflict with 145 meeting.
 - Would like to hold virtual meetings in the future to avoid conflicts.
 - Marwa requests that Michael S. send meeting information at least 2 weeks prior to the meeting so it can be publicized by ASHRAE.

10. Other Updates

- i. ASHRAE Learning Institute – Marilyn Listvan
 - a. No update. Uncertain who the right contact is at ALI. *Marwa will send contact information of the course organizer to Marilyn.*
- ii. Publications - Subcommittee Chair -- Marilyn Listvan
 - a. Send publications/articles to Marilyn to get posted to the website
 - Barney - 100-year history article in the ASHRAE archives that can be posted.
 - b. Gemma - Is there an interest in transaction papers from past research project?
 - Yes, they can be sent to Marilyn to be posted.
- iii. Website - Subcommittee Chair -- Caitlin Naske

- a. Website up to date
 - b. All the archived documents from past meeting were lost when ASHRAE updated their website, ASHRAE update has made the website more user friendly.
 - Were the presentations that were posted to the website lost? Caitlin will look to see if they are still there.
- iv. SSPC145 – Committee Chair – Tony Abate
- a. 145.1 had an addendum that was passed and signed off to be published.
 - b. 145.2 was revised to include electronic air cleaners and was put out to PPR.
 - Received 53 comments, comments were split up amongst working groups to respond.
 - c. 145.4 chamber/duct test method
 - Still in early stages of development.

11. Review of Action Items from Last Meeting

#	Action Item	Owner	Meeting Initiated	Update	Status
1	Workshop on performance rating system summary to be sent out.	Ashish Mathur	Atlanta	Held during Atlanta. 20 attendees. Ashish will review ISO 10121-3. Will bring it up at the next SSPC 145 meeting. ISO 10121-3 rating, associated with 10121-2. Chris M. will send a copy to TC leadership.	Complete
2	Collection of TC member bibliography papers for website posting	Marilyn Listvan	Atlanta		In progress
3	Development of a course on gas phase filtration to be part of ASHRAE supported classes and send to chapters	Paula Levasseur	Atlanta	Matt sent slide deck to Marilyn. Paula requests that Kathleen send her the intro for the TC 2.3 chapter presentation. Paula will send to Marilyn and Matt, targeting the end of March.	In progress
4	Title/purpose /Scope for MTG or GPC on how to implement combined filtration systems	Brian Krafthefer	Houston	Brian would like to have the TPS document distributed to the group to see if the wording is sufficient and to accept comments. <i>Marwa will share this document with TC 2.3 membership for comments before Tampa.</i> Ashish recommends writing a guideline.	In progress



#	Action Item	Owner	Meeting Initiated	Update	Status
6	ASHRAE Certification Program	Marilyn Listvan		No action; ASHRAE may drop this program. Mike Corbat – ASHRAE is lacking on number of members with certification.	In progress

12. Report from TC liaisons

Henry Greist– TC 2.9

- Great participation during the meeting
- WS 1873: Upper-Air Ultraviolet Germicidal Irradiation (UVGI) for Tall Spaces, was accepted with changes in March 2022. Next step, build RFP (as of 8/2022).
- 1854-RP, “Database of Ultraviolet Inactivation Rate Constants (k-values) for Microorganisms Critical to System Design.”, project awarded, kick-off meeting 2/28/23.
- WS 1928: Air Cleaner Efficiency in Combination Chamber Duct System (update from Crystal on resubmission to RAC).
- SPC 185.3P draft submitted for 60-day public review, date TBD, meetings on hold until review feedback is available.
- SPC 185.4P “Method of Testing In-Room Ultraviolet Devices and Systems for Microbial Inactivation on Surfaces in a Test Room”, Katja Auer, Chair, actively meeting.
- New Business- Recent articles on UV (222nm and 254nm) reactions with air contaminants were discussed. IUVA will be working on a response to provide additional color to the existing body of knowledge and opportunities for additional work.

Nick Agopian – 62.2

- Nick was not present during the meeting to report out.
- Advisory public review on a version of IAQP for 62.2
- Addendum on unvented combustion was approved but appealed.

Kathleen Owen - TG2.RAST (Michael Sherber)

- Kathleen was not present to report.
- Seminar 47 – Reactive Air Cleaners, was well attended.
- 185.5 update. Several working groups were formed. Goal is to have the work completed within a year.
- More outreach to labs is needed.

Nick Agopian – TC 5.5

- Nick not present, no report

Nick Agopian – TRG-IAQP

- Nick not present, Tony A. gives update.

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- Main discussion topics during meeting included contaminants, IAQP versus VRP (VRP may be easier and more widely adopted but IAQP should become the more default method), what the TRG wants to focus on and if they should become a TC.

Marwa Zaatari - 62.1

Jensen Zhang – EHC

- Emerging issue brief on reactive air species

Brian Krafthefer – TC 4.10

- CFD modeling of chemical reactions in buildings with experimental data

Tony Abate – TC 4.3

- TC met yesterday.
- Annual review of scope. TC voted to keep it as is.
- (2) Seminars are being presented today: Ventilation control for IAQ efficiency and Mechanical filtration on existing filters
- Other topics: Garage ventilation rate updates considering EVs, NYC decarbonization guideline.

John Rajala – TC 2.4

- Has not met yet and will be meeting directly after this meeting.

Kevin Kwong – U.S. TAG to ISO/TC 142, AHAM (AC-4, gaseous CADR chamber test) and IEC (CADR-like chamber test for gaseous pollutants)

- Work from working group 8 was published in October 2022
- 10121-2 is investigating inclusion of byproducts.
- AC4 was published early last year.

Paula Levasseur – TC 9.1

- Low attendance at meetings, not very engaged

Brian Krafthefer – TC 2.1

Marilyn- 9.7

- No update from Marilyn, will continue to review their meeting minutes to see if there is any TC 2.3 relevance.

13. New Business

14. Hightower Award

Happening at the start of the TC 2.4 meeting, Tuesday February 7 at 3:30 pm in Room Maple B, Floor A-South, in the OMNI CNN Center.

15. Adjourn

Meeting adjourned at 2:48 PM EDT