



**Draft Minutes - ASHRAE MEETING – Kansas City  
TC 2.3 - Gaseous Air Contaminants/Removal Equipment  
TC Meeting**

Tuesday (6/2519), 1:00 pm - 3:30 pm  
KCCC 2105

**Meeting membership attendee list is as follows:**

Last Name	Name	Member Status	Position	Present
Total Voting Members = 10 out of 16 in attendance at Voting				
Abate	Mr. Anthony Abate	VM	Member	-
Agopian	Mr. Nick Agopian	VM	Member	P
Bayer	Dr. Charlene W. Bayer, PhD	VM	Member	-
Freeman	Mr. Peter Freeman	VM-NQ	Member	-
Haas	Mr. Daniel Haas	VM	Member	P
Hingorani	Dr. Sanjeev Hingorani, PhD	VM	Vice Chair	P
Krafthefer	Mr. Brian Krafthefer	VM	Handbook Chair	P
Kerr	Dr. Gemma Kerr, PhD	VM	Member	P
Kwong	Mr. Kevin Kwong	VM	Member	P
Lee	Dr. Chang Seo Lee, PhD	VM-NQ	Member	-
Levasseur	Ms. Paula Levasseur	VM	Chair /Webmaster	P
Muller	Mr. Christopher Muller	VM	Member	-
Roseberry	Mr. Jeffrey Roseberry	VM	Member	P
Sun	Dr. Christine Sun, PhD	VM	Member	P
Tronville	Dr. Paolo M. Tronville, PhD	VM	Standards Chair	P
Zaatari	Dr. Marwa Zaatari, PhD	VM	Secretary	-

**Summary of Motions**

#	Motion	Vote (For-Against-Abstain-Absent-Chair Voting Status)
1	Motion to approve TC 2.3 minutes from Atlanta. 1 <sup>st</sup> – Sanjeev Hingorani, 2 <sup>nd</sup> - Christine Sun	9-0-0-6-CNV
2	Motion to co-sponsor two seminars: Misapplication of IAQP (62.1 sponsor) and Filters Don't Use Energy (2.4 sponsor) 1 <sup>st</sup> – Gemma Kerr, 2 <sup>nd</sup> – Jeff Roseberry	9-0-0-6-CNV
3	Motion to approve RTAR on Effect of Particles on Loading of Gas Filters 1 <sup>st</sup> – Brian Krafthefer, 2 <sup>nd</sup> – Gemma Kerr	9-0-0-6-CNV

**1. Meeting was called to order by Chair @ 1:02pm**

- a. The ASHRAE Code of Ethics was reviewed.
  - i. 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.
  - ii. <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>



- 
- b. Members and guests were introduced.
  - c. It was determined that there was a Quorum with 9 of 16 voting members present at roll call.
    - i. Voting Members for this meeting: Anthony Abate, Nick Agopian, Charlene Bayer, Pete Freeman VNQ, Daniel Haas, Sanjeev Hingorani, Gemma Kerr, Brian Krafthefer, Kevin Kwong, Chang-Seo Lee VNQ, Paula Levasseur, Christopher Muller, Jeff Roseberry, Christine Sun, Paolo Tronville, Marwa Zaatari
    - ii. 16 Voting Members and 2 NQM
    - iii. > ½ Voting Members Present (9) (Yes – 9/16)
      - a. Absent: Tony Abate, Nick Agopian, Charlene Bayer, Pete Freeman (VNQ), Chang-Seo Lee (VNQ), Christopher Muller, Marwa Zaatari
  - d. Chair's Report
    - i. Subcommittee Chairs will get new alias emails after the Kansas City conference.
    - ii. ASHRAE wants to use Basecamp for committee work.
    - iii. Sanjeev Hingorani, incoming TC 2.3 Chair, will send out invites for Basecamp.
    - iv. ASHRAE would like to go more virtual by putting training courses on-line.
    - v. Look for an email from ASHRAE after this meeting if you need a justification letter for attending this conference.
    - vi. **Nick Agopian joined the meeting (10 of 16 Voting Members present)**
  - e. Reporting from ASHRAE liaisons.
    - i. Bert Phillips (Outgoing RAC liaison)
      - 1. There was a lot of feedback towards ASHRAE's proposal to reorganize the TC's. ASHRAE has backed off on this adjustment for now. ASHRAE is asking all committees to review their scopes and see if combinations with other TC's might be possible. ASHRAE is also looking for any ideas on how to streamline meetings. ASHRAE is requesting more conference calls in-between meetings so in-person meetings are more efficient.
    - ii. John Cohen (Incoming TC 2 Section Head)
      - 1. Members that only attend Technical Committee meetings can get a nametag without being registered for the conference.
      - 2. ASHRAE finds difficulties with logistics planning due to unknown numbers of Technical Committee attendees. There are usually 2500 attendees for summer conferences and 4500 for winter conferences.
      - 3. There is a new ASHRAE Strategic Plan and one of the goals is to optimize ASHRAE's organizational structure.
      - 4. ASHRAE is requesting that TC's self-regulate to become more efficient.
      - 5. From an organizational standpoint, finding meeting spaces and increasing costs are difficult for ASHRAE. ASHRAE wants to promote more attendance to technical sessions.
    - iii. Paula's service as TC 2.3 Chair was acknowledged with a certificate.
- 2. Review and Approval of previous meeting minutes from Atlanta.**
- a. Motion to approve TC 2.3 minutes from Atlanta
    - i. 1<sup>st</sup> - Sanjeev Hingorani
    - ii. 2<sup>nd</sup> - Christine Sun
    - iii. 9-0-0-6-CNV (For-Against-Abstain-Absent-Chair Voting Status)

**3. Summary of votes between meetings:**

- a. WS-1838: Vote for Paula Levasseur to join the PES/PMS Approved 16-0-0

**4. Review of Action Items from Last Meeting**

#	Action Item	Owner	Meeting Initiated	Update at Last Meeting	Status
1	Workshop on performance rating system summary to be sent out.	Ashish Mathur	Atlanta	No updates. Ashish could not make the meeting. This will be left Open for the next meeting.	Open
2	Collection of TC member bibliography papers for website posting	Marilyn Listvan	Atlanta	Marilyn has received no items since the last meeting.	Ongoing
3	Development of a course on gas phase filtration to be part of ASHRAE supported classes and send to chapters	Brian Krafthefer	Atlanta	Paula sent a Powerpoint to Brian of a previous presentation at ASHRAE from 2012. Since it was presented at ASHRAE, this can be put up on website as is. Paula and Brian will update this presentation. Paula will send this out to committee members.	In-Process
4	Title/purpose /Scope for MTG or GPC on how to implement combined filtration systems	Matt Middlebrooks	Houston	No Updates	Open
5	Powerpoint Presentation to describe T.C. 2.3	Marilyn Listvan, Kevin Kwong, Nick Agopian	Houston	No Updates	Open
6	Setup BaseCamp site for TC2.3 Research	Charlene Bayer	Las Vegas	Discussed in Chair's Report. Sanjeev Hingorani, incoming TC 2.3 Chair, will send out invites for Basecamp.	Ongoing
7	Twitter account	Marwa Zaatari	Long Beach	Continue to publicize TC 2.3. Request for more followers of this account.	Ongoing

**5. Subcommittee Reports**

- a. Handbook - Subcommittee Chair -- Brian Krafthefer
  - i. The subcommittee has started on Chapter 11. Sections of Chapter 11 were split up amongst attendees. This full list of divisions will be sent to Kevin.
  - ii. Brian will work on acronyms and Gemma will work on terminology.
  - iii. Various updates to figures and tables were made.



- 
1. Nick mentioned that the authors of some figures and tables need to be re-contacted to get permissions to republish.
  - iv. A teleconference will be organized for the first week of September to get a progress report on Chapter 11 work.
  - v. Jon Rajala gave a report on TC 9.8 (Large Building Air-Conditioning Applications) work.
    1. Work on Chapter 46 is starting soon. Jon recommended that TC 2.3 connect with TC 9.8 since this chapter will include some gas-phase filtration.
    2. Corresponding members of TC 9.8 will get a working draft of Chapter 46.
    3. Jon will keep TC 2.3 updated with TC 9.8 progress on this Chapter.
- b. Membership - Subcommittee Chair -- Matt Middlebrooks
- i. There are currently 16 Voting Members. The committee will maintain 16 Voting Members after roll-offs.
  - ii. Voting Members rolling off on July 1<sup>st</sup> are Paula Levasseur, Pete Freeman, and Chris Muller.
  - iii. Voting Members rolling on are Sanjeev Hingorani (extended as the new Chair), KJ Choi, Dan Mason, and Matt Middlebrooks.
  - iv. There has been no problem with meeting quorum.
  - v. We currently have 99 corresponding members with an additional 8 or 9 new requests for membership.
  - vi. TC 2.3 membership sign-up links are on the ASHRAE website. New members are Provisional NVM's for 2-years before consideration for rolling on to the committee as a VM.
  - vii. Activity in subcommittees influences who becomes VM's.
- c. Planning - Subcommittee Chair – Sanjeev Hingorani
- i. There were 17 meeting attendees, 4 of which were YEA members.
  - ii. We need to hear back from Ashish before TC 2.3 can vote on Charlene as the back-up representative for the MTG on Health and Wellness in Built Environments.
  - iii. Work continues on a TC 2.3 Powerpoint for presentations to the Chapters.
  - iv. The spreadsheet of research activities was updated.
  - v. The subcommittee is working on Powerpoint slides for a TC 2.3 roadmap. Brian is the champion.
  - vi. Every subcommittee needs to have a Vice Chair to help with planning and succession.
    1. Standards needs to identify a Vice Chair.
    2. Michael Sherber volunteered at the last meeting.
- d. Professional Development Coordinator -- Barney Burroughs
1. Barney was not in attendance
- e. Program - Subcommittee Chair -- KJ Choi
- i. 2 seminars were submitted for Orlando
  - ii. 2 seminars were submitted for Austin
  - iii. 2 seminars were submitted for Chicago
  - iv. 2 co-sponsored seminars:
    1. Misapplication of IAQP (62.1 sponsor)
    2. Filters Don't Use Energy (2.4 sponsor)
    3. Motion to co-sponsor two seminars: Misapplication of IAQP (62.1 sponsor) and Filters Don't Use Energy (2.4 sponsor)
      - a. 1<sup>st</sup> – Gemma Kerr



- 
- b. 2<sup>nd</sup> – Jeff Roseberry
  - c. 9-0-0-6-CNV (For-Against-Abstain-Absent-Chair Voting Status)
- f. Publications - Subcommittee Chair -- Marilyn Listvan
- i. Send Marilyn any references to articles relevant to TC 2.3
- g. Research - Subcommittee Chair -- Kathleen Owen
- i. See the Research Subcommittee Minutes for all project updates
  - ii. The RTAR on SVOCs was sent to Pawel and his comments were received. Look for a letter ballot on this RTAR before the August 15<sup>th</sup> deadline.
  - iii. Motion to approve RTAR on Effect of Particles on Loading of Gas Filters
    - 1. 1<sup>st</sup> – Brian Krafthefer
    - 2. 2<sup>nd</sup> – Gemma Kerr
    - 3. The committee discussed this RTAR before voting
      - a. Paolo Tronville: Can the project objectives be more specific? Will the project develop a model or focus on testing of combination filters? The expected approach should be revisited.
      - b. Brian Krafthefer: The project will both develop a model and do testing. We are limited by the scope of an RTAR. The expected approach will be more defined in a Work Statement.
      - c. Mike Corbat: Three other committees are voting on this RTAR. An amended RTAR would need to be re-voted in those other committees.
    - 4. Results of voting: 9-0-0-6-CNV (For-Against-Abstain-Absent-Chair Voting Status)
  - iv. Updates from the Research Chair breakfast:
    - 1. A variety of training materials are available on the research website for those serving on PES or PMS.
    - 2. There are currently 2 active projects. Some quarterly project updates are shown as missing, however, this is an ASHRAE administration issue and will be fixed.
    - 3. ASHRAE is working on giving guidance for determining research project costs. There is a lack of knowledge during the writing process. ASHRAE provided the following research project information:
      - a. \$11.2 million total value of active research projects
      - b. Average research project cost is \$131,000
      - c. Average research project duration is 18 months
    - 4. 7 RTARS – 1 accepted, 2 accepted with comments, 3 rejected, 1 unknown or not captured in these numbers.
    - 5. 13 Work Statements – 1 accepted, 5 conditionally accepted, 7 returned
    - 6. 6 projects where contractors were chosen. 27 total bids across projects.
    - 7. There is a lot of interested in the Innovative Research Grant program. This will be announced in Orlando.
    - 8. Service to ASHRAE Research Award – Points are awarded for being WS authors (not RTAR authors), serving on PES/PMS, Research Subcommittee Chairs, RAC members, work performed across TC's. Individual's total ASHRAE career is evaluated with more of a focus on recent work. Send eligible member recommendations to Kathleen.
    - 9. ASHRAE doesn't keep a database of who worked on each Work Statement.
    - 10. ASHRAE has a tight budget. However, keep up the work with research proposal writing because money will become available for projects.
- h. Standards - Subcommittee Chair – Peter Freeman

- 
- i. Reports were provided on most TC 2.3 related standards. Some standards updates were short because of no-shows.
  - ii. Pete Freeman is retiring.
  - iii. Pete suggested that Standards go offline completely.
    - 1. A Doodle poll would be conducted before each ASHRAE meeting to determine best meeting times.
    - 2. The Chair of TC 2.3 should send out meeting invites to all members.
    - 3. Offline meetings should allow for capturing more Standards updates due to less in-person meeting time conflicts.
  
  - i. Website - Subcommittee Chair -- Paula Levasseur
    - i. Minutes need to be provided in PDF format.
    - ii. Paula requested that all Minutes be sent to the TC 2.3 Secretary to be provided as one batch instead of being sent piecemeal.
    - iii. Sanjeev, the incoming TC 2.3 Chair, will get a notice to submit Agendas prior to each ASHRAE conference. Bruce does all proofreading.
    - iv. Agendas usually come in slow. Please try to send in Agendas as early as possible.
    - v. There is a link to e-meetings on the ASHRAE homepage. This link contains information on Doodle polls and webinars and who to contact at ASHRAE for coordination. Mike Vaughn usually takes care of everything.
    - vi. Previous ASHRAE presentations are easier to upload to the website because of pre-screening for commercialism. Presentations must contain the date and conference city.
    - vii. E-mails in presentations are not allowed. This is especially an issue for PDF presentations since they cannot be edited easily. Name and company are allowed on the front page.
    - viii. A research chart is on the website under Publications-->Research
  
  - j. SPC145 – Committee Chair – Matt Middlebrooks
    - i. Matt is rolling off as Chair on July 1st.
    - ii. Tony Abate is rolling on as Chair.
    - iii. There were 29 meeting attendees.
    - iv. 145.2 was the main item discussed and good progress is being made on revisions.
      - 1. The 145.2 Title/Purpose/Scope change has been submitted to ASHRAE. However, it has not gone out for public review and the TPS changes shows up in some places of ASHRAE and not others.
      - 2. There was a public review request for removing the psychometric table reference to 52.2.
      - 3. ISO definitions were shown and reviewed. Gemma will send to the 145 committee for review.

## 6. Report from TC liaisons

- a. No reports

## 7. New Business

- a. Rahul distributed flyers for the World Filtration Congress in San Diego from April 20-24, 2020.
  - i. Many ASHRAE members are presenting at this event.
  - ii. Student registration is free if they present a poster. Scholarships are also available.
  - iii. Christine Sun is the Chair.
  - iv. There are 300 technical papers with a huge focus on air filtration.
  - v. This event is held every 4 years.



- 
- b. The Twitter account handle is @ASHRAE\_TC203
  - c. The LinkedIn Group is "ASHRAE 2.3 Outreach"
  - d. The topic of condensing meetings was discussed
    - i. ASHRAE wants TC's to cut back on meeting times.
    - ii. It may be possible to cut back on the TC 2.3 Main meeting time since we usually finish early.
    - iii. A poll (spreadsheet) will be sent out to TC 2.3 members so we can see which meetings people usually attend outside of TC 2.3. We will try to consolidate and shorten timeslots.
    - iv. Hank Greist provided an example of how TC 2.9 held 3 back-to-back meetings that were each 2 hours.
    - v. SSPC 52.2 conflicts with the schedules of many TC 2.3 members.
    - vi. Mike Corbat: The incoming TC 2.4 Chair, Zied Driss, will reach out to Paula and Sanjeev to coordinate meetings.
    - vii. Kathleen is not opposed to moving the Research subcommittee meetings to Mondays.
      - 1. Nick Agopian: Mondays are difficult for manufacturers during Winter meetings because of required attendance at show floors.
    - viii. Paolo Tronville: Brainstorming in-person is necessary. Can all meetings be consolidated into the Main meeting? This would cut down on repeat of information during subcommittee updates.
      - 1. Paula Levasseur: This could happen if all subcommittees held an e-meeting prior to each ASHRAE conference in order to make the in-person meetings more efficient.
    - ix. Mike Corbat: An example is Section 8 has one Research subcommittee meeting for the entire section.
    - x. Gemma Kerr: We now have a dedicated 1-hour timeslot for individual PMS updates in the Research subcommittee meeting.
  - e. Caitlin Naske is interested in gradually becoming the Research subcommittee Chair.
  - f. Updates from Pawel Wargocki:
    - i. Charlene Bayer asked us to announce the International Energy Agency – Energy in Buildings and Communities Program (IEA EBC Annex 78). The Annex is focused on supplementing ventilation with gas-phase air cleaning, establishing procedures, and investigating energy implications.
    - ii. Annex 78 is composed of the following 4 tasks for gas-phase air cleaning:
      - 1. Subtask A: Energy Benefits Using Gas Phase Air Cleaning
        - a. Energy expense and benefits
      - 2. Subtask B: How to Partly Substitute Ventilation by Air Cleaning
      - 3. Subtask C: Selection and Testing Standards for Air Cleaners
        - a. Propose language for standards using perceived air quality
        - b. Methodology for rating gas-phase air cleaners using perception
      - 4. Subtask D: Performance Modeling and Long-Term Field Validation of Gas Phase Air Cleaning Technologies
        - a. Install systems in buildings and see how they perform over time.
    - iii. Send Pawel an e-mail if you want to participate.
  - g. Sanjeev presented Paula with a gift as the outgoing TC 2.3 Chair.

## 8. Agenda suggestions for the Winter Meeting in Orlando

- 1. No suggestions.
- 2. **Charlene Bayer and Marwa Zaatari joined the meeting (12 of 16 Voting Members present)**

## 9. The meeting was adjourned @ 2:40pm

- a. Motion to adjourn



- 
- i. 1<sup>st</sup> – Charlene Bayer
  - ii. 2<sup>nd</sup> – Nick Agopian
  - iii. 12-0-0-4-CV (For-Against-Abstain-Absent-Chair Voting Status)