

**TC 2.3 - Gaseous Air Contaminants/Removal Equipment  
Main TC Meeting - Chicago**

Tues., 27-Jan-2015, 1:00 pm–3:30 pm, Price  
(5th Floor, Palmer House Hilton)

The meeting membership attendee list is as follows:

Last Name	Name	Member Status	Position	Present
<b>Total Voting Members = 13 out of 15 in attendance</b>				
Bayer	Dr. Charlene W. Bayer, PhD	CM	TC Vice Chair	P
Choi	Dr. Kyung-Ju Choi, PhD	VM	Program Chair	P
Flom	Mr. Michael C. Flom	VM-NQ	Member	P
Hafendorfer	Mr. Brian J. Hafendorfer	VM	Member	-
Kerr	Dr. Caroline M. Kerr, PhD	VM	Handbook Chair	P
Krafthefer	Mr. Brian C. Krafthefer	VM	Sec./Hbk Vice Chair	P
Lau	Dr. Josephine Lau, PhD	VM	Member	-
Lee	Dr. Chang-Seo Lee, PhD	VM-NQ	Member	P
LeVasseur	Ms. Paula LeVasseur	VM	Web Chair	P
Listvan	Dr. Marilyn Listvan	VM	Program co-chair	P
Mathur	Mr. Amish Mathur	VM	Member	P
Middlebrooks	Mr. Matt Middlebrooks	VM	Membership Chair	P
Owen	Ms. Kathleen Owen	VM	Research Chair	P
Schaaf	Mr. David A Schaaf, Jr	VM	Program Co-Chair	P
Stanley	Mr. W. Brad M. Stanley	VM	TC Chair	P
Tronville	Dr. Paolo M. Tronville, PhD	VM	Standards Chair	P

**Summary of Motions**

#	Motion	Vote
1	Motion to approve cosponsorship of seminar entitled "PM 2.5 and Gas Impact on Environment and Health", Gemma Kerr 1 <sup>st</sup> , Marilyn Listvan 2 <sup>nd</sup> .	12-0-0-2-CNV
2	Motion to approve workshop entitled "Will your filter be alive in 2035?", Marilyn Listvan 1 <sup>st</sup> , Mick Flom 2 <sup>nd</sup>	12-0-0-2-CNV
3	Letter to be sent to TAC to protest that TCs are not included as technical experts on the Air cleaners Position Paper. Marilyn Listvan 1 <sup>st</sup> , Gemma Kerr 2 <sup>nd</sup>	12-0-0-2-CNV
4	A motion was made for TC2.3 to ask SSPC145 to review the TPS (see full TPS in text of minutes) in order to include currently excluded technologies in the 145.2 test methods. Paolo Tronville 1 <sup>st</sup> and Charlene 2 <sup>nd</sup> .	11-0-1-2-CNV



**Summary of Action Items**

#	Action Item	Owner	Meeting Initiated	Status
1	Letter Ballot to approve Seattle minutes	Brad Stanley	Chicago	Open
2	Add relevant links to website	Paula Levasseur	Chicago	Open
3	Website Blog. Generate a short Blog (short 500 – 600 word article) on the TC website frequently (possibly monthly).	Charlene Bayer	Chicago	Open
4	TC Research Roadmap	Charlene Bayer	Chicago	Open
5	ASHRAE Training Modules - Solicit feedback from committee members related to needed training modules.	Brad Stanley	Chicago	Open
6	Kathleen Owen to invite representatives of excluded devices to participate in the SSPC 145 meeting in Atlanta.	Kathleen Owen	Chicago	Open
7	The TC should make a proposal to take action on input to the ISO advisory panel in ISO through a proposed session. Matt Middlebrooks to send a proposal slide to both the voting and corresponding members of TC2.3.	Matt Middlebrooks	Chicago	
8	Collection of TC member's bibliography papers.	Marilyn Listvan		Open
9	Review and comment on the website	Membership		Open
10	Make a slot for Publications and use it for a forum, 3-4 on Mondays as shared slot with TC 2.4. TC2.4 needs to be contacted.	Brad Stanley		Open
11	Send emails on what we have volunteered to do for programs and the due dates	KJ Choi		Open
12	Project 1557 PI to give TC2.3 a cost per cfm	Kathleen Owen		Open

1. Call to order at 1:02pm
2. Brad Stanley read the ASHRAE code of ethics. The Code of Ethics can be reviewed at the following link: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics> .
3. Members and guests were introduced. It was determined that a quorum was present of 13 out of 15 members. One additional voting member arrived later in the meeting. There were also 3 YEA members present along with 13 corresponding members and 16 guests.

4. No ASHRAE liaisons present.
5. The report from the Chairs' breakfast was given by Brad Stanley
  - Atlanta meeting – deadline, February 9, 2015 for seminars, workshops, and forums.
  - Orlando meeting – March 23, 2015 deadline for conference papers, technical paper abstracts due April 20, 2015
  - For Chicago, 49/105 conference papers accepted, 64/117 seminars accepted, 8/18 workshops accepted, and 5/11 forums accepted.
  - Speakers are now being rated at meeting, focusing on how well they speak to an audience and how well they meet the submission deadlines. If criteria are not met the speakers may not be allowed to speak for two years, and they may have to take speaker training
  - CEC has a request for reviewers, those interested should send their names to ASHRAE or go to speakers' lounge and register.
  - Websites need to be up-to-date. TC2.3 website is currently up-to-date. To find minutes or other TC2.3 information, please check the website. **Action:** check TC2.3 website for relevant links.
  - ASHRAE would like for members to update their bios for their technical discipline and where they are working. Currently only 37% of the ASHRAE membership have updated their bio.
6. **Review and Approval of previous meeting minutes from Seattle.**

The following corrections were noted for the Seattle minutes:

  - i. Attendee List: "Dr. Kathleen Owen" should read "Ms. Kathleen Owen".
  - ii. Later in the minutes: "Owens" should read "Owen"
  - iii. Gemma Kerr should be marked as in attendance
  - iv. Check number of voting members present
  - v. **Action:** approve minutes by letter ballot
7. **Review of Action Items from Last Meeting (no actions on these items, they will be carried over)**
  - a. *Website Blog*
    - i. Owner: Charlene Bayer
    - ii. The TC planned to post a short blog (short 500 – 600 word article) on the TC website frequently (possibly monthly).
  - b. *TC Research Roadmap Committee Meeting*
    - i. Owner: Charlene Bayer
    - ii. Members: TC Officers, Brian Hafendorfer, and Kathleen Owen
  - c. *ASHRAE Training Modules*
    - i. Owner: Brad Stanley
    - ii. Solicit feedback from committee members related to needed training modules.
8. **Status of Votes Between Meetings**
  - a. *Topic: Cosponsorship Approval Vote for WS-TC99-Corrosion*
    - i. E-mail ballot vote to approve cosponsorship of the Work Statement submitted by TC 9.9 on the topic of "Impact of Gaseous Contamination and High Humidity on the Reliable Operation of Information Technology Equipment in Data Centers". The approval of this WS requires a 2/3 approval vote to move forward.
    - ii. Result: Passed, 14-0-0-1-CNV, For-Against-Abstain-Absent-CNV/CV

- iii. This research project has been given the number WS 1775
- iv. Chris Muller will be the TC2.3 representative on the PMS.
- v. There will also be stage-gates under which the research will be paid. Bill Iull reiterated that we should not cosponsor a work statement unless a TC2.3 member is on the PMS.

## **9. Subcommittee Reports**

### **a. Handbook - Subcommittee Chair Gemma Kerr reporting**

- For more detail please see Handbook Subcommittee minutes
- TC2.3 has the responsibility for two chapters: Chapter 46 in the HVAC Applications Handbook and Chapter 11 in the Fundamentals Handbook.
- CH 46 has already been submitted to ASHRAE
- Currently work is on-going for Chapter 11. A large rewrite was done for the 2013 version and the amount of work for the 2017 version is expected to be less. The 2017 version is expected at ASHRAE in the fall of 2016.
- Gemma will be stepping down as handbook Chair after the Atlanta meeting and Brian Krafthefer, the current Vice Chair, will be taking over.
- The Handbook Subcommittee is always looking for new members.

### **b. Membership - Subcommittee Chair Matt Middlebrooks reporting**

- The TC currently has 15 voting members. The general target is to have about 16 members with four rotating on and off each cycle.
- After the June meeting, Brad Stanley, Mick Flom, Matt Middlebrooks, Paolo Tronville and Brian Hafendorfer will be rotating off.
- Charlene Bayer, Peter Freeman, Sanjeev Hingorani and Chris Muller will be rotating onto the TC after the June meeting.
- After the June meeting officers will also change: Charlene will rotate to TC Chair, Brian Krafthefer will rotate up to Vice Chair and Paula Levasseur has agreed to be secretary.
- The TC is always looking for new members, especially those that are active on the subcommittees. Membership in the TC and the subcommittees is tracked to help determine who is playing an active role.
- If you want to become a corresponding member of the TC you should go to the ASHRAE web site under Technical Committees there is a button entitled "Join a TC". This directs you how to sign up. If you are not a member, you may still become a corresponding member of a TC. ASHRAE then adds you as a provisional corresponding member for a two-year term.

### **c. Planning - Subcommittee Chair Charlene Bayer**

- Because of a conflicting TC2.3 seminar, no planning meeting was held. The planning meeting is usually 6:30am on Tuesday. The planning committee is working on a TC roadmap and Charlene Bayer is looking into other committees to see what they have as roadmap examples. The TC is requesting that more members and corresponding members become involved in the roadmap planning and also in the subcommittees.
- Kathleen Owen raised the question if it is more efficient to send out the subcommittee minutes along with Main TC minutes or for the members to get them from the web site. Request for subcommittee chair to send agendas and minutes to be posted on web.

### **d. Professional Development Coordinator - Barney Burroughs reporting**

- Barney will be putting together a formal request for an ALI course regarding air cleaning (particulate and gas). This will be a four-hour seminar that will be presented during ALI at the ASHRAE meetings.
- Chris Muller mentioned that ALI also offers courses during other shows (International and trade) and that the cost of the courses usually averages about \$500.

**e. Program - Subcommittee Chair KJ Choi reporting**

- For more detail please see Program Subcommittee minutes
- The TC had two seminars in Chicago (#34 AND #40)
- The program committee is proposing two workshops for Atlanta, and to cosponsor one session with TC2.4
- There was an amended motion to approve co-sponsorship of the seminar entitled "PM 2.5 and Gas Impact on Environment and Health". Gemma Kerr 1<sup>st</sup>, Marilyn Listvan 2<sup>nd</sup>. Vote 12-0-0-2-CNV
- A motion was made to approve co sponsorship of the workshop entitled "Will your filter be alive in 2035" Marilyn Listvan 1<sup>st</sup>, Mick Flom 2<sup>nd</sup>. The vote was 12-0-0-2-CNV

**f. Publications - Subcommittee Chair Marilyn Listvan reporting**

- The purpose of publications is to encourage paper writing. Members are requested to send a list of papers they have written. No formal subcommittee meeting was held in Chicago. The time slot 3-4pm on Monday will be used to host workshops from TC2.3 and TC2.4
- There was a discussion on the issues of having a program session during the publications time slot. It was mentioned that the submission of such a program to ASHRAE will be published in the Conference Program but no fee will be charged to participants..

**g. Research - Subcommittee Chair Kathleen Owen Reporting**

- For more details see the subcommittee minutes
- There were 29 of 51 applications approved for grants in aid.
- Four RTARS had been evaluated at the last meeting and three have been conditionally accepted.
- Currently there are 59 research projects for \$11 million.
- ASHRAE is encouraging go/no-go milestones in work statements
- Work statements for less than \$100K are reviewed only at RAC. Those for higher amounts are reviewed higher in ASHRAE
- 1457-RP "By-product Production from Photocatalytic Oxidation Associated with Indoor Air cleaning Devices" PI - Ramsey Kropp – An email was received in October saying PI was working on it, no other contact since. Brad Stanley questioned ending the project but Kathleen Owen needs to talk to the PMS regarding this. It was suggested that AHSRAE make contact with the University to see if we can finalize this project.
- WS-1579 "Testing and Evaluation of Ozone Filters for Improving IAQ". Bill Lull reported that the information from 1491 was not sufficient for 1579. He said a good survey is needed as to what is available on the market for ozone filters and has requested that everyone send him filter data that has claims on ozone removal by March 15<sup>2015</sup>. The work statement will be rewritten.
- WS-1720 is ready to go and liaison will review in one to two weeks.
- WS-1464 has been approved by RAC with minor comments. Brad Stanley noted that on the last draft he read, TC2.3 is not listed as a cosponsor on the document.
- WS1755 – "Impact of gaseous contamination and high humidity on the reliable operation of information technology equipment in data centers". TC2.3 is cosponsoring with TC 9.9 and Chris Muller is the TC 2.3 member on the PMS. Milestones for payments have been included – however

Gemma Kerr commented that she does not believe that can that be done by AHSRAE as they stated they would only pay quarterly. Need to determine if payments can in fact be attached to milestones.

- There are the proposed RTARS that are currently being written.
- Brad Stanley mentioned that a summary of active projects will be put on the web site.

*h. Standards - Subcommittee Chair Paolo Tronville reporting*

- Paolo circulated a draft copy of the minutes.
- Standard 145.1 will be published this year
- Jeremy Poling reported that the USGBC IAQP working group cannot recommend electronic air cleaners for users since these were not allowed in ASHRAE 145.2. The market is requesting to use EACs. Kathleen Owen wanted a contact person. Brendon Owen is the primary contact. Barney Boroughs asked if we have an understanding of why these products are not in standard, and it was stated that they were invited but would not bring data.
- Chris Muller recommended the exception be taken out and when the manufactures request testing of their devices the committee have them prove their test data. Another comment was that if the exception words were taken out the document might not be effective. There followed a discussion to change the TPS of 145.2. It was thought that a TPS change will need a recommendation from the standards subcommittee. It was thought that a change could be made on the ASHRAE website for continuing maintenance. A motion was made for TC2.3 to ask SSPC145 to review the TPS in order to include currently excluded technologies in the 145.2 test methods. The TPS is as follows:

**Laboratory Test Method for Assessing the Performance of Gas-Phase Air Cleaning Systems: Air Cleaning Devices**

**1. PURPOSE:** To provide a standard laboratory test method for assessing the performance of sorptive media gas-phase air cleaning devices. The results of these tests can provide information to the engineer useful for the design and selection of air cleaning equipment and the design of air cleaning systems for controlling indoor concentrations of gaseous air contaminants.

**2. SCOPE:**

**2.1** This standard prescribes a full-scale laboratory test method for measuring the performance of in-duct sorptive media gas-phase air cleaning devices. In this context, sorptive media are defined as the active agent of the air cleaner, whether granular or sheet or pleated, that operate by absorbing and/or chemically reacting with contaminant gases. This test is conducted under steady state conditions at elevated gas challenge concentrations (relative to ventilation applications) and therefore should be used to compare devices rather than directly predict performance in any particular application.

**2.2** The method of testing measures the performance of air cleaning devices for removing one or more specified gaseous contaminants or gas mixtures intended to simulate operation during service life. The standard defines procedures for the dispersion of the gases required for conducting the test. The standard also provides a method for determining gas concentrations upstream of the air cleaning device to calculate removal efficiency.

**2.3** This standard establishes performance specifications for the equipment required to conduct the tests, defines methods of calculating and reporting results obtained from the test data and establishes a results reporting system that can be applied to gas-phase air cleaning devices covered by this standard.

**2.4** The test method defined by this standard is applied to a sample device that is supposed to be representative of other devices marketed with the same brand and model number.

**2.5** This standard does not apply to stand-alone room air cleaners.

- Paolo Tronville 1<sup>st</sup> and Charlene 2<sup>nd</sup>. The vote was 11-0-1-2-CNV

- **Action:** Kathleen is to invite representatives of excluded devices to participate in the SSPC 145 meeting in Atlanta.
- Matt Middlebrooks mentioned that the ISO test method (Working Group 8) has four designated experts for use in drafting the document. WHO has three gases for indoor air, but these have not been agreed upon with the working group 8. If any TC2.3 members want to be part of an advisory panel for this discussion, they should contact Matt Middlebrooks. **Action:** The TC should be ready to make a proposal to start taking action on this through a proposed session. Matt Middlebrooks to send a proposal slide to both the voting and corresponding members of TC2.3.

**i. Website - Subcommittee Chair: Paula Levasseur reporting**

- Not all of the links are set up in the website.
- The website still has a tab (news) that is under construction. A proposal was made to change the tab to "Formal Activities".
- The new subcommittee tab under meetings has the agenda for the main TC meetings, but will add the subcommittee agendas.

**10. Report from TC liaisons.**

Barney Burroughs mentioned that a position paper from EHC on air cleaning and filtration is going through the approval process within ASHRAE. If approved, EHC has scheduled a seminar on the paper for Atlanta. There was a motion by Marilyn Listvan that a letter be sent to TAC to protest that the TC was not included as technical experts in the position paper. The motion was seconded by Gemma Kerr and passed with a vote of 12-0-0-2-CNV

**11. New business:**

- Barney Burroughs mentioned that Guideline 29 (building security) is up for renewal. A new committee will be formed and will be calling for members. The scope of the guideline includes chem-bio.
- People interested in a workshop on air cleaning that will be held in China in July should contact Chris Muller for details.

**12. There were no agenda suggestions for the Summer Meeting in Atlanta, GA.**

**13. The meeting was adjourned**