**DRAFT MINUTES - ASHRAE MEETING - Houston**
**TC 2.3 - Gaseous Air Contaminants/Removal Equipment**
**TC Meeting**

Tuesday (6/26/18), 1:00 pm - 3:30 pm George Brown Convention Center – Room 372CF

Meeting membership attendee list is as follows:

<table>
<thead>
<tr>
<th>Last Name</th>
<th>Name</th>
<th>Member Status</th>
<th>Position</th>
<th>Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agopian</td>
<td>Mr. Nick Agopian</td>
<td>VM</td>
<td>Member</td>
<td>P</td>
</tr>
<tr>
<td>Bayer</td>
<td>Dr. Charlene W. Bayer, PhD</td>
<td>VM</td>
<td>Member</td>
<td>-</td>
</tr>
<tr>
<td>Choi</td>
<td>Dr. Kyung-Ju Choi, PhD</td>
<td>NV</td>
<td>Program Chair</td>
<td>P</td>
</tr>
<tr>
<td>Freeman</td>
<td>Mr. Peter Freeman</td>
<td>VM-NQ</td>
<td>Member</td>
<td>-</td>
</tr>
<tr>
<td>Haas</td>
<td>Mr. Daniel Haas</td>
<td>VM</td>
<td>Member</td>
<td>P</td>
</tr>
<tr>
<td>Hingorani</td>
<td>Dr. Sanjeev Hingorani, PhD</td>
<td>VM</td>
<td>Vice Chair</td>
<td>P</td>
</tr>
<tr>
<td>Krafthefer</td>
<td>Mr. Brian Krafthefer</td>
<td>VM</td>
<td>Handbook Chair</td>
<td>P</td>
</tr>
<tr>
<td>Kwong</td>
<td>Mr. Kevin Kwong</td>
<td>VM</td>
<td>Member</td>
<td>P</td>
</tr>
<tr>
<td>Lee</td>
<td>Dr. Chang Seo Lee</td>
<td>VM-NQ</td>
<td>Member</td>
<td>-</td>
</tr>
<tr>
<td>Levasseur</td>
<td>Ms. Paula Levasseur</td>
<td>VM</td>
<td>Chair/Webmaster</td>
<td>P</td>
</tr>
<tr>
<td>Listvan</td>
<td>Dr. Marilyn Listvan</td>
<td>VM</td>
<td>Member</td>
<td>P</td>
</tr>
<tr>
<td>Mathur</td>
<td>Mr. Ashish Mathur</td>
<td>VM</td>
<td>Member</td>
<td>P</td>
</tr>
<tr>
<td>Middlebrooks</td>
<td>Mr. Matt Middlebrooks</td>
<td>NV</td>
<td>Membership Chair</td>
<td>P</td>
</tr>
<tr>
<td>Muller</td>
<td>Mr. Christopher Muller</td>
<td>VM</td>
<td>Member</td>
<td>-</td>
</tr>
<tr>
<td>Owen</td>
<td>Ms. Kathleen Owen</td>
<td>VM</td>
<td>Research Chair</td>
<td>P</td>
</tr>
<tr>
<td>Sherwood</td>
<td>Scott Sherwood</td>
<td>VM</td>
<td>Member</td>
<td>P</td>
</tr>
<tr>
<td>Tronville</td>
<td>Dr. Paolo M. Tronville, PhD</td>
<td>VM</td>
<td>Standards Chair</td>
<td>P</td>
</tr>
<tr>
<td>Zaatari</td>
<td>Dr. Marwa Zaatari, PhD</td>
<td>VM</td>
<td>Secretary</td>
<td>P</td>
</tr>
</tbody>
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**Summary of Motions**

<table>
<thead>
<tr>
<th>#</th>
<th>Motion</th>
<th>Vote (For-Against-Abstain-Absent-Chair Voting Status)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Motion to approve TC 2.3 minutes from Chicago. Kathleen Owen 1st, Sanjeev Hingorani 2nd</td>
<td>11-0-0-4-CNV</td>
</tr>
<tr>
<td>2</td>
<td>Motion to sponsor RTAR: Evaluation of HVAC Ventilation Effectiveness in reducing Semi-Volatile organic compounds (SVOC’S) in indoor spaces. Brian Krafthefer 1st, Kathleen Owen 2nd</td>
<td>10-0-0-5-CNV</td>
</tr>
<tr>
<td>3</td>
<td>Motion to accept the Handbook Subcommittee recommendation to forward to ASHRAE Chapter 46 titled “Air Cleaners for Gaseous Contaminants” found in the HVAC Applications volume. Brian Krafthefer 1st, Ashish Mathur 2nd</td>
<td>10-0-0-5-CNV</td>
</tr>
<tr>
<td>4</td>
<td>Motion to co-sponsor the TC 2.9 Joint Seminar on Cannabis. Marilyn Listvan 1st, Brian Krafthefer 2nd</td>
<td>11-0-0-5-CV</td>
</tr>
</tbody>
</table>
1) Meeting was called to order by Chair @ 1:00pm
   a) ASHRAE Code of Ethics
      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. It was determined that there was a Quorum with 12 of 16 voting members present at roll call.
      i) Voting Members for this meeting: Charlene Bayer, Paula Levasseur, Sanjeev Hingorani, Kathleen Owen, Peter Freeman(NQM), Scott Sherwood, Chris Muller, Marwa Zaatari, Nick Agopian, Daniel Haas, Marilyn Listvan, Ashish Mathur, Brian Krafthefer, Paolo Tronville, Kevin Kwong, Chang Seo Lee (NQM)
      ii) 14 Voting Members and 2 NQM
      iii) > ½ Voting Members Present (8) (Yes - 12/16)
   c) Chair’s Report
      i) Review title & Scope of TC
      ii) Improper use of ASHRAE Letterhead
      iii) Posting of Technical Bulletins (white papers) on Website
         • TC must vote to approve TAC is responsible for review prior to posting
         • Only presentations given at ASHRAE conferences with approval by the speaker(s) may be posted on the website
      iv) New TC MOP – can be located on the ASHRAE Website www.ashrae.org/TCs
      v) Updated ATC presentation template for use with local chapter presentations available at the same link above.
   d) Reporting from ASHRAE liaisons
      i) No reports

2) Review and Approval of previous meeting minutes from Chicago.
   a) Motion to approve minutes from Chicago by Kathleen Owen
   b) Seconded by Sanjeev Hingorani
   c) 11-0-0-4-CNV (For-Against-Abstain-Absent-Chair Voting Status)

3) Summary of Votes between meetings
   a) WS1780 - Test Method to evaluate cross contamination of gaseous contaminants within total energy recovery wheels.
      i) 10 Yes - 3 No – CNV

4) Committee Votes needed
   a) Breakout for TRP-1579 (Closed Session for Voting Members only)
   b) Breakout for TRP-1720 (Closed Session for Voting Members only)
   c) RTAR: Evaluation of HVAC Ventilation Effectiveness in reducing Semi-Volatile organic compounds (SVOC’S) in indoor spaces
      i) Scott Sherwood left the meeting (11 of 16 voting members present)
      ii) Motion to sponsor RTAR by Brian Krafthefer
      iii) Seconded by Kathleen Owen
      iv) 10-0-0-5-CNV (For-Against-Abstain-Absent-Chair Voting Status)
5) Review of Action Items from Last Meeting

<table>
<thead>
<tr>
<th>#</th>
<th>Action Item</th>
<th>Owner</th>
<th>Meeting Initiated</th>
<th>Update at Last Meeting</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Collection of TC member bibliography papers for website posting</td>
<td>Marilyn Listvan</td>
<td>Atlanta</td>
<td>Work is still in progress</td>
<td>Ongoing</td>
</tr>
<tr>
<td>2</td>
<td>Development of a course on gas phase filtration to be part of ASHRAE supported classes and sent to chapters. Send the TC 2.4 presentation as an example</td>
<td>Paula Levasseur /Brian Krafthefer</td>
<td>Atlanta</td>
<td>Marilyn will help coordinate this presentation</td>
<td>Open</td>
</tr>
<tr>
<td>3</td>
<td>Start an email discussion between TC 2.3, TC 2.4 TC 2.9 &amp; SSPC 145 Regarding starting an MTG to see how to use/test devices</td>
<td>Ashish Mathur</td>
<td>Las Vegas</td>
<td>Completed but topic is related to discussions in New Business</td>
<td>Completed</td>
</tr>
<tr>
<td>6</td>
<td>Start Twitter account</td>
<td>Marwa Zaatari</td>
<td>Long Beach</td>
<td>Send relevant TC 2.3 articles/information to Marwa to Tweet</td>
<td>Completed</td>
</tr>
<tr>
<td>7</td>
<td>Abstract for ASHRAE 125th anniversary: 2019-2020</td>
<td>Brian Gemma Barney?</td>
<td></td>
<td>Barney, Marilyn, and Brian submitted the abstract to ASHRAE’s Historical Committee</td>
<td>Completed</td>
</tr>
</tbody>
</table>

6) Subcommittee Reports
   a) Handbook – Subcommittee Chair – Brian Krafthefer
      i) The subcommittee took a final review of Chapter 46 and voted unanimously to forward to ASHRAE.
         • Brian Krafthefer motioned for acceptance of the Handbook Subcommittee recommendation to forward to ASHRAE Chapter 46 titled “Air Cleaners for Gaseous Contaminants” found in the HVAC Applications volume
         • Seconded by Ashish Mathur
      ii) The subcommittee will be going into Chapter 11 at the next ASHRAE meeting.
      iii) Online handbook reviews can be done at any time in contrast to the 4-year review period of the paper handbook.
      iv) The next paper handbook is due in 2021.
   b) Membership – Subcommittee Chair – Matt Middlebrooks
      i) There is strong membership on TC 2.3 with a good balance of 16 voting members.
      ii) Voting members rotating off after June 2018 – Marilyn Listvan, Ashish Mathur, and Kathleen Owen
      iii) Rotating on as voting members after June 2018 – Tony Abate, Gemma Kerr, and Jeff Roseberry
      iv) Scott Sherwood is resigning as a voting member. An emergency replacement voting member will be decided on by the officers.
      v) Subcommittee changes:
• Pete Freeman is the new Standards Chair
• Kevin Kwong is the new Membership Vice Chair

c) Planning – Subcommittee Chair – Sanjeev Hingorani
   i) There were 13 subcommittee meeting attendees.
   ii) Marilyn, along with help from Nick and Kevin, will be working on a PowerPoint presentation to describe TC 2.3.
   iii) Brian has developed a roadmap for all activities in TC 2.3.
   iv) An MTG is forming on the topic of Health and Wellness
       • Marwa is the representative for 62.1
       • TC 2.3 has been accepted to be involved in the MTG and a representative will need to be decided upon. The Chair currently has 3 volunteers that would be willing to represent TC 2.3.
   v) Matt has proposed a new MTG on a guideline on how to implement combined filtration technologies. This would involve TC 2.3, TC 2.4, and TC 2.9.
   vi) It was requested that all members and guests help to publicize TC 2.3 by tweeting and/or joining the LinkedIn page.

d) Professional Development Coordinator – Barney Burroughs
   i) Guideline 29 (Risk Management of Public Health and Safety in Buildings) has been sent for public review.

e) Program – Subcommittee Chair – KJ Choi
   i) There were 18 subcommittee meeting attendees.
   ii) Two seminars will be submitted for Atlanta:
       • Room air cleaner, can it improve IAQ?
       • Back to basics (Ashish chair)
   iii) TC 2.9 is looking to submit a seminar on cannabis and is looking for co-sponsorship
       • Marilyn Listvan motioned to co-sponsor the TC 2.9 Joint Seminar on Cannabis
       • Seconded by Brian Krathefer
       • 11-0-0-5-CV (For-Against-Abstain-Absent-Chair Voting Status)

f) Publications – Subcommittee Chair – Marilyn Listvan
   i) Marilyn requested any meeting attendees to send in publications relevant to TC 2.3.
   ii) Marilyn is looking to compile a bibliography of committee member papers on gaseous contaminants.

g) Research – Subcommittee Chair – Kathleen Owen
   i) At the research chair breakfast, ASHRAE representatives confirmed that ASHRAE will fund cannabis research projects. Any projects would need to go through an additional step with ASHRAE’s legal department.
   ii) The deadline for the Grant-in-Aid award program for graduate students is March 1st.
   iii) The December deadline date for research submissions is the 3rd instead of the usual 15th because of the earlier ASHRAE Winter 2019 Atlanta meeting date.
   iv) RAC will hold a webinar for PMS training. All PMS members are strongly encouraged to take the training.
   v) The PMS chairs are reminded to turn in the disposition forms at the end of ASHRAE research projects.
   vi) See Research Subcommittee minutes for updates on individual research topics.
h) Standards – Subcommittee Chair – OPEN
   i) Pete Freeman is the new subcommittee Chair.
   ii) ASTM D6646 – 03 (accelerated hydrogen sulfide test method) is in the revision process.
   iii) Updates from Barney Burroughs:
        • TRG 4 – IAQ Procedure Development is very active and TC 2.3 should be paying attention
          regarding the Contaminants of Concern
        • 62.1 is developing a guideline as a companion document. The draft will be completed by the
          Atlanta meeting. The document will incorporate all current changes to the IAQP and
          anticipating changes for 2020.

   i) Website – Subcommittee Chair – Paula Levasseur
      i) No updates

j) SPC145 – Subcommittee Chair – Matt Middlebrooks
   i) No updates for 145.1
   ii) The Title/Purpose/Scope of 145.2 has been changes to remove the restriction on the testing of
       electronic and reactive types of devices.
   iii) An authoring portal will be created for updating the 145.2 document.
   iv) There remain questions about recirculation and chamber test methods. The outcome of the
       meeting discussions was that these test methods would not be the responsibility of 145.2. Defer
       to ISO Working Group 11 because they are further along in the development of a chamber test
       method.

7) Report from TC liaisons
   a) Barney Burroughs – The resilience and building security TG submitted a request to become a TC. The
      decision will be made at this Houston meeting.

8) New Business
   a) Richard Fox Co-RP
      i) Richard spoke about his research topic at the January Research Subcommittee meeting.
      ii) Mike Vaughn proposed moving forward with a Co-RP. If a project is already funded then ASHRAE
          is able to partner and provide some additional funding.
      iii) The research consortium is led by Fraunhofer IBP and the Technical University of Denmark along
          with participation from Ludwig Maximilian University in Munich, Airbus, Honeywell, and the UK
          National Physical Laboratory.
      iv) The subject of the study is the combined effects of CO₂ and VOCs at altitude on cognitive
          performance and comfort responses.
      v) The total project funding is estimated to be $990k of which $180k is being requested from
          ASHRAE ($60k each year for 3 years).
      vi) Richard is requesting a list of TCs for co-sponsorship:
          • 62.1 has voted to co-sponsor
          • TC 5.3 voted to co-sponsor
          • TC 2.3 will submit a letter ballot
      vii) Liaisons from each co-sponsoring committee will be on the oversight committee.

b) Proposal from TC 1.4 for Special Publication or potential new Guideline (36)
   i) TC 1.4 is asking TC 2.3 for interest to include molecular filtration in the Guideline.
   ii) Send any comments to Paula and Paula will forward on to the authors.
   i) Research ideas on combined filtration technologies are increasing being proposed.
   ii) Matt’s proposal is an MTG or GPC on how to implement combined filtration systems.
   iii) Matt is putting together a Title/Purpose/Scope and will come back to TC 2.3 for a vote.

d) Rahul – Next AFS conference in Charleston, SC Sept 11-12. Short courses on 10th. Many talks relevant to TC 2.3.
   i) Students can attend for free if they present a poster.
   ii) The conference website is afsfall.societyconference.com

9) Agenda suggestions for the Winter Meeting in Atlanta
   a) No suggestions

10) Adjournment
   a) Motion to adjourn the meeting at 2:50pm.
   b) Nick Agopian 1st
   c) Marilyn Listvan 2nd