

Draft Minutes
TC 2.3 - Gaseous Contaminants/Removal Equipment
Research Subcommittee Meeting
Atlanta Sunday 5:00-7:00 pm

1. Meeting call to order @ 5:08pm
2. Introductions and Sign-In – 5 min
3. Review of Minutes from Houston – 5 min
 - A. Minutes available at <https://tc0203.ashraetcs.org/documents.php>
4. RAC Report (Liaison TC 2.3 – Pawel W) – 5 min

1838 was accepted with comments. Need to answer to Pawel. Will not go out for bid until >1 year.

RAC has no money. Will need to prioritize projects. RAC may not be able to fund more projects until 2020.

RTAR on IAQP – list of contaminants. 1869-RTAR was accepted with comments. Needs to go to a work statement. Gemma will get started.

Pawel’s term is ending in June.
5. Hints for Writing a Work Statement – 20 min

Kathleen presented a PowerPoint presentation on how to write a Work Statement.

Charlene – ASHRAE changed procedures. Bidders cannot have voted on the work statement, cannot have been involved in the preparation of the WS, or have seen any the final version of the Work Statement. This impacted some projects coming out of 62 (info from Hoy – Chair). Pawel/Kathleen will check on this at Research Chair breakfast.

Information from RAC meeting: If don’t complete cover letter, they automatically reject (lost 6 months). Make sure you have tasks and add “PMS will review and approve before continuing to next task”.
6. Active Projects – 15 min
 - A. **1720-TRP Validation of gas-phase air-cleaner performance test method (Standard 145.2) by laboratory testing of commercially available filtration devices – Kartik Potukuchi PES: Paula Levasseur, Chris Muller, Gemma Kerr, **Nick Agopian**. PI: Kathleen Owen**

Paula – Task 1 already completed. Ran into a problem; Kartik can no longer Chair and can no longer be a part of the group. Gemma has offered to Chair. Paula will ask Pawel how to make official with ASHRAE. Kartik has sent email to ASHRAE that task 1 was completed so Kathleen can receive funds. Task 2 is almost complete. Gemma will send out to group after Paula officially makes the Chair changes.

Pawel said that Paula simply needs to inform RAC that there will be a new PMS Chair.

- B. **1579-TRP Testing and Evaluation of Ozone Filters for Improving IAQ**— Sanjeev Hingorani, Kevin Kwong, Matt Middlebrooks, Nick Agopian, and Thad Ptak are on the PES. Awarded to U. Texas – Austin. Project start date 1/1/2019
Sanjeev – ASHRAE has made first payment to PI. PI will have a conference call with PMS to kick off project.

- C. **1755-RP, Impact of Gaseous Contamination and High Humidity on the Reliable Operation of Information Technology Equipment in Data Centers**”. TC9.9 on-going project, TC 2.3 co-sponsor, Chris Muller on PES. Jensen is the PI.
Paula - Almost finished.

7. Work statements and RTARs – Updates – 20 min

- A. **1780-WS, Test Method to Evaluate Cross-contamination of Gaseous Contaminant within Total Energy Recovery Devices**; Responsible Committee: TC 9.10 (Laboratory Systems); Co-Sponsors: TC 2.3. Nick Agopian on PES/PMS. Went out for bid in September 2018.
Pawel doesn't think this went out for bid. TC 2.3 is only a co-sponsor.

- A. **1838-WS Testing of Electronic Air Cleaners** – w/145 & 62.1 – Kevin Kwong, Chang-Seo Lee, Jeff Roseberry, Kartik Potukuchi, Tony Abate, and Tandeep Chadha Shooting for the August 15 deadline. Nick has been put on the committee as 2.3 rep to help with work statement. Ashish for 2.

Copied from above: 1838 was accepted with comments. Need to answer to Pawel. Will not go out for bid until >1 year.

- B. **1867-RTAR: Development and validation of a model for assessing the corrosion risk of Datacom equipment under different pollution and thermal environmental conditions**. TC 9.9 sponsor. 2.3 co-sponsored. Submitted to RAC by Dustin W Demetriou on 8/15/18. Jensen Zhang was lead RTAR author but will not be a WS writer. TC 2.3 needs a person on the WS writing group. RTAR rejected at fall RAC meeting. 12/10/18 most comments from RAC were about distinguishing 1867 from 1755 whose final report is due 12/31. Thus, can be discussed in Atlanta.

Jensen – This was rejected. RAC couldn't see any difference between this and existing projects. Existing project must be completed first. On hold for next meeting.

- C. **1869-RTAR: Evaluation of Indoor Air Contaminants with respect to Development of a Revised Indoor Air Quality Procedure (IAQP) Design Compound and Design Target Lists for Standard 62.1**. Champion: Gemma Kerr. WG: James Dennison, Dean Tompkins, Marwa Zataari, Hoy Bohanon, Wayne Thomann. Submitted 8/15/18, 11/8 accepted with comment to go on to WS
Discussed earlier. Gemma will get WS started with help from Dean and Marwa. Aiming for May 15th deadline for approval at Summer Kansas City meeting.

- D. **1877-RTAR** – Outdoor ozone in naturally ventilated buildings. cosponsored from 62.1, Charlene on PMS. 2.3 is a cosponsor. 4.3 (Jordan Clark) submitted in Dec 2018
Submitted and no updates. Will hear update at Research Chair breakfast.

- E. **1846-RTAR** Real Time Small sensors: Brian K., Fuoad Parvin, Thad Ptak, Jeff Roseberry, Sanjeev H., Jensen Zhang.

I. Submitted, rejected, decided to keep it open. After particulate sensor project is finished we may decide to write a new one. Thad Ptak will help provide data from sensors in China. Brian to schedule a telecom in 1 month after Thad forwards information within 2 weeks. Brian will send out the RTAR again to see where things stand.

Submitted, rejected, and kept open.

Thad – Information was sent out. Thad does not believe this project is needed.

Marilyn – Brian is still very much interested.

Jordan Clark wants to be added.

Action Item: Paula will send Jordan Clark information to Kathleen who will send out to the group.

- F. 1858-RTAR sVOCs including how SVOC emissions change with temperature - Sanjeev*, Jianshun Zhang, Kevin Kwong, Ying Xu 11/8/2018 Rejected by RAC 5-0-0. We have to decide what to do next.

Rejected. Jensen will look at it and Sanjeev will follow-up. Issue is scope was too broad. (added later - Jensen talked to Pawel at the research chair breakfast. Sanjeev, Jensen, and Pawel all agree it should be resubmitted. Sanjeev and Jensen will work on it in time for May submission.)

8. Proposed RTARS and other work: status updates - 40 min

- A. Occupant Related Pollution Loads - Chang-Seo Lee*, Thad Ptak, Marilyn Listvan, Dean Tompkins

I. Looking for TRG4 co-sponsorship - some interest. Dean will help write and several others. Need co-sponsorship and needs more clarity before TRG4 will co-sponsor.

II. Dean has people from TRG4 who want to help. He will both contact them with the document and send Kathleen the names

Delete this topic for now.

- B. Bipolar Ionization/Reactive Air Cleaner performance test method for VOC etc. removal and testing a variety of commercially-available ionization devices. Tony Abate champion, Scott Sherwood, Jensen, Dean Tompkins, Charlie Waddell, Chang-Seo, Marilyn Listvan, Ashish. Hold until we hear results of ISO/IEC.

Gemma – IEC has done the work to organize collaboration with WG 11. Part 1 just specifies an AHAM-type chamber. Part 2 is for non-viable particles. Gases will be covered in a different part (Part 3).

Thad – Part 3 will be based on GBT test method. Main concerns are formaldehyde and toluene. Possible mixture of 8 gases but may run into issues with gas analyzers.

Gemma – Bipolar ionization may be covered by a future part.

- C. The effects of filtration on health. Dean Tompkins, Nick Agopian, Lexuan Zhong with EHC interest.

I. Dean is writing a draft for a lit search. There is new MTG forming that is dealing with wellness and health. It will not be ready for August 15th.

Dean – Will bring this up to the MTG to gather interest. Not a lot of information in peer-reviewed literature. Started a draft of the lit search.

- D. Multi-contaminant challenge what acceptable VOC levels-on hold. Ashish to champion, Kathleen, Gemma, and Paula.

I. Ashish, Jensen, and Gemma wanted this idea left on the list

II. We need a better name for this item

Gemma – New Name – “Acceptable VOC types and concentrations for inclusion in multi contaminant test gases.

Do we still want this on the list? Leave this On Hold.

- E. The role of gas filtration improving IAQ in Residences – Jensen, Nick, Lexuan Zhong and Kathleen. Keep the topic and see if we can get someone to present a paper of case study. KJ Choi to try to set a program.

No updates

- F. Demand-based air-cleaner operation to save energy. Brian Krafthefer, Jensen Zhang, Kyle Kisebach, someone from GPC 35 – Brian will work on this after the RTAR on Sensors.

1. Not ready for RTAR.

Paula - This will depend on a successful project on sensors. This idea is much further out.

- G. Venting for 3D Printers: needs champion (Paula, Gemma, Marwa, and Dan)

I. Gemma reported that Brent Stephens informed her that UL is working on this.

II. We need the TC that handles exhaust. and 2.4 is interested. Kathleen to see what TC might be responsible. Kevin Marple kmarple@benzco.com of TC9.2 is interested.

Kathleen talked to TC 9.2. Kevin Marple wants to work on it but is looking for a Champion.

Action Item: Kathleen to give Kevin Marple contact to Brent.

Action Item: Kathleen will send email to all interested parties (and Kevin, Brent) to find a Champion. Kathleen will type up information from Dan Mason and include in email to group.

Chrystal – Should include particulates.

Gemma – Agreed, we need to get TC 2.4 involved.

- H. Effect of particles on loading on gas filters, with possible interest in looking at other combinations of technologies in the same air cleaner (probably a separate project) 2.4 / 2.3/ 2.9 (Matt, Brian, Paula, VJ, Brent) [from research chair breakfast: Brent will mention this to 2.4 to see if anyone else wants to help write]

Matt – They have a draft. Close but may not be ready for a vote yet. Should be able to submit before Kansas City.

Get this out to Kathleen and Brent for votes.

Take Brent off working group list.

- I. Marijuana/cannabis – effect on air quality in homes cars etc., needs champion

Paula – Exhaust issue.

Take this off the list.

9. New ideas - 10 minutes

Ashish – From 62.1 meeting. Talk of ultrafine particles shedding from carbon filters/media. Is there literature on this? Particle emissions loading HEPA filters.

Charlene – Does not believe any literature exists on this. Addendum A on IAQP would set level so low that carbon filters would not pass. Tabled for 62.1-2019. Does not think that this project idea should start at ultra-fines. Start at larger particles.

Ashish – Is a simple data gathering, not a test method, needed?

10. Gas-phase dinner plans

11. Adjourn Meeting @ 6:38pm

Research Chair Breakfast Notes

A. Jensen Zhang received “Service to ASHRAE Research” award for service to 2.3, 4.3, and 4.10

B. Proposal updates

- i. 7 RTARs reviewed: 6 accepted with comments, 1 rejected
 - ii. 5 WS reviewed: 2 conditionally accepted, 3 returned to TC
 - iii. Reviewed 2 funded extension requests
 - iv. Reviewed contractor selection for one project
- C. Research Manual – please use this document. It has all the answers!
- D. Co-funding – ASHRAE is encouraging this!
- E. PMS Training – the PMS (project monitoring subcommittee) is essential to good projects. Please take the (required) PMS training. It’s available live twice a year by Webinar, but the slides are also available for review. Spring date TBD.
- F. Since Pawel was at 2.3 research, there are no additional comments on our RTAR/WS.

Attendees:

Name	Company	Name	Company
Paula Levasseur	LMF Services	Dan Mason	Bioclimatic
Jeffrey Roseberry	ProMark Associates, Inc.	Kevin Kwong	LMS Technologies
Sanjeev Hingorani	Lennox Industries	Peter Freeman	Jacobi Carbons
Kyung-Ju Choi	Clean and Science	Charlene Bayer	Hygieia Sciences
Ashish Mathur	UVDI	Marilyn Listvan	Listvan Consulting
Gemma Kerr	Canada	Andrew Goodby	Ahlstrom Munksjo
Dean Tompkins	Dean Tompkins Group	Lexuan Zhong	University of Alberta
Chris Hsieh	Trane	Kia Kiantaj	LMS Technologies
David John	Stan Weaver & Co.	Lucas Powers	Jacobi Carbons
Vivek Gaur	Columbus Industries	Yiwen Di	Delos Living
Dan Haas	Parker Hannifin	Jayesh Doshi	eSpin
Scott Sherwood	Eco-Care Corp.	Thad Ptak	AO Smith
Christine Sun	FTI	Chrystal Jolliffe	Columbus Industries
Matt Middlebrooks	Filtration Group	Kathleen Owen	Owen Air Filt. Consulting