

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING  
ENGINEERS, INC.**

**1791 Tullie Circle, N.E./Atlanta, GA 30329**

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**TC/TG/MTG/TRG MINUTES COVER SHEET**

**(Minutes of all Meetings are to be distributed to all persons listed below within 60  
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TC/TG/MTG/TRG

No.

TC02.09

DATE:

February 6<sup>th</sup>, 2023

TC/TG/MTG/TRG

TITLE:

Ultraviolet Air and Surface Treatment

DATE OF

MEETING:

February 6<sup>th</sup>, 2023

LOCATION:

Atlanta / Virtual

Name	Affiliation	TC Position	Voting Status	Appointed	End Year
Robert Coleman	Trane Technologies	Webmaster	VM	7/1/2022	6/30/2026
Aaron Engel	Fresh-Aire UV	Secretary	VM	7/1/2020	6/30/2023
Larry Fletcher	RGF Environmental	Standards SC Chair	VM	7/1/2021	6/30/2025
Sam Guzman	American Ultraviolet	Vice Chair	VM	7/1/2020	6/30/2024
Kevin Kwong	LMS Technologies		VM	7/1/2022	6/30/2026
Ashish Mathur	UVDI	Chair	VM	7/1/2022	7/1/2024
Matt Middlebrooks	Camfil USA		VM	7/1/2021	6/30/2023
Scott Sherwood	Eco Care Corporation	Program SC Chair	VM	7/1/2021	6/30/2025
Steve Welty	Green Clean Air		VM	7/1/2021	6/30/2025
Katja Auer	American Ultraviolet	Handbooc SC Chair	NVM	N/A	N/A

Stephen Martin	CDC/NIOSH	Membership SC Chair	NVM	N/A	N/A
Richard Vincent	Mount Sinai Hospital	Research SC Chair	NVM	N/A	N/A

## **DISTRIBUTION**

<b><i>All Members of TC/TG/MTG/TRG plus the following:</i></b>	
TAC Section Head:	John Cohen
TAC Chair:	Craig Messmer
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters:	Steve Hammerling (Staff Liaison) William Hutzel (Research Liaison) Gerald Kettler (Standards Liaison)
Manager Of Standards  Manager Of Research & Technical Services	

## **ASHRAE Technical Committee 2.9 (TC 2.9)**

### **Ultraviolet Air and Surface Treatment**

### **Main Committee Meeting Minutes**

## **MEETING AGENDA**

**Atlanta, Georgia & virtual February 6<sup>th</sup>, 2023**

**Monday, February 6<sup>th</sup>, 2023, at 10:00 am - EST**

**These DRAFT Meeting Minutes have not been approved and are not the official record until approved by the Technical Committee at the Summer 2023 meeting**

“TC 2.9 Scope – TC 2.9 is concerned with all aspects of equipment and systems that utilize ultraviolet radiation to destroy or de-activate chemical and/or biological air and surface contaminants in HVAC systems and indoor spaces, including, but not limited to, effectiveness, safety, maintenance, and economics.”

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### **Meeting came to order at 9:00 am EST**

### **Ashish Mathur, TC2.09 Chair opened the meeting**

### **Voting members Present:**

Bob Coleman	Kevin Kwong	Steve Welty
Aaron Engel	Ashish Mathur	
Larry Fletcher	Matt Middlebrooks	
Sam Guzman	Scott Sherwood	

### **Roll Call of Voting members: 9 of 9 voting members present (quorum is met)**

### **Introductions – Name and affiliation of participants**

### **Review Agenda: All in favor**

### **Review of Draft Minutes from 2022 Summer Meeting / Virtual Conference**

### **Motion to approve the 2022 Summer meeting / Virtual Conference minutes by Sam Guzman, 2<sup>nd</sup> by Bob Coleman. No ASHRAE staff or liaison in room.**

Date	Topic	Motion	Vote					
			F	Ag	Ab	NV	CV	
2/6/23	<i>Approve the 2022 Summer meeting agenda.</i>	Approve Winter 2022 TC 2.9 agenda	9	0	0	0	Y	PASS

### **Review Action Items from TC Chair breakfast**

- 5 or more employees get 10% discount
- New full dues paying members receive one complimentary registration to the winter or annual conference
- Decarbonization is a major initiative for ASHRAE
- Standards have 80 active project committees, 31 published guidelines, 131 published standards
- MTG has a separate MOP document
- Number of memorandums of agreement with other groups and sectors. Looking for topics and ideas to move forward.
- 

### **Website: Bob Coleman, Webmaster**

- Web site is up to date

## **Subcommittee Reports**

### **Research Subcommittee: Richard Vincent, Chair**

- Rate constant project has gone under contract: purpose, listing of rate constants for design for UV applications.
- Work statement on air cleaner efficiency. Approved at RAC meeting. Going up for funding / bidding
- Upper room UVGI for tall spaces: needed research for GPC37. In process to get funded.
- 185.1 round-robin testing reinitiated.
- GPC 37 Design guideline draft should be completed for ASHRAE 2023 summer meeting in Tampa. Topics discussed: how to apply upper air UV to reduce airborne microorganisms. Safety, dosage, usage, technology. Different microorganisms will be included in the guideline. GPC37 meet every 3 weeks for guideline participation.

### **Standards Subcommittee: Larry Fletcher, Chair**

- Last year's 185.2 updates being reviewed / written.
- 185.3 test method for devices used for bioaerosols in a chamber chaired with Linda Lee. Finished and submitting for review.  
Steve Martin. Main committee voted to accept, Unanimous to move forward. ASHRAE should be posting online for 60 days for public review.
- 185.4 test method for whole room devices used for surface disinfection-chaired Katja Auer moving forward.
- GPC37 Richard Vincent Standard moving forward.
- 185.5 : ASHRAE decided to make this outside of 2.9. It would be a separate standards project.
- New standard: SPC241 (William Bahnfleth chair) air mitigation pathogen standard. According to Steve Martin it's "creating lots of interest". Apply to most buildings protect against COVID and other infectious viruses. This has been Fast tracked, task from white house (not ANSI standard). Included in 621.1 62.2 committee.

## **Programs Subcommittee: Scott Sherwood, Chair**

- One submitted article for ASHRAE winter 2023, not accepted. Article on “passive house”. Will be re-submitting to include a new name to incl. decarbonization.
- A special note: There is greater emphasis on ASHRAE’s decarbonization initiatives and if at all possible, we should include the subject for future program applications.

### **New program ideas for ASHRAE Summer 2023 Tampa:**

- Monitoring: How do I know my UVC is working? Linda Lee and Scott Sherwood
  - What to measure / microbiology testing.
- Effective air exchanges and decarbonization
  - Troy Cowan: With the use of UV technology air changes can be decreased to save energy and resources.
- What role does UV play / best mix of technology / potential by-products. Brian Hafendorfer: Showed interest on the subject.
- How safe is my UVC system now that its installed.
  - Henry Geist offered to chair this program
- ABC of GUV, Aaron Engel / safety exposure limits Dave Sliney / applications of UV design

### **New program ideas for ASHRAE Winter 2024 Chicago:**

- Applying UV in public spaces.
- Current standards for UV
- Larry Fletcher chair. Understanding the various standards incl. Steve Martin, Katja Auer, Richard Vincent
- UVC and decarbonization to see if William Bahnfleth can chair.
- MERV8 plus UV = MERV13. Increase air exchanges with UVC
- Future of UV (potential panel discussion)

## **Handbook Subcommittee: Katja Auer, Chair**

- Dean Saputa has been an instrumental member working on various TC2.9 committees and projects including Handbook. We’ll miss you Dean!!!
- Kicked off Ch.17. Update 14-page chapter to included new lamp technologies.
- Will work on scheduling meetings.
- Need to use ASHRAE editing portal. Already associated sections to update with members.

**Membership Subcommittee: Steve Martin, Chair**

- Aaron Engel rolls off in June 2023
- In a healthy voting position

**Reports from Liaisons****SSPC 62.1, *Ventilation for Acceptable Indoor Air Quality*, Brian Hafendorfer**

- Question posed: Should microorganisms be part of ventilation rate somehow?
- 5.7.2 UVC systems. General language is being modified removing 185nm in equipment to change to nanometers between 100-200nm.

**SSPC 62.2, *Ventilation and Acceptable IAQ in Residential Buildings*, Henry Greist**

- Addendum out for public review. IAQ subcommittee for ETS proposal. Discussion on working group by Nick Agopian.
- ETS Group to improve application and 62.2 standard.
- IAQ subcommittee: updating title, purpose, scope to state 62.2 does not apply to buildings that allow smoking

**SSPC 145, *Test Method for Assessing the Performance of Gas-Phase Air Cleaning Equipment*, Matt Middlebrooks**

- 60-day revision 145.2. Doc rewritten to remove exclusion for electronic devices. 55 comments during public review. Questions include how to measure by-products generated.
- 145.4: duct and chamber combo test method has just started. What does this test method even look like?

**TC 9.6, *Healthcare Facilities*, Ashish Mathur**

2 projects related to UV. Work statement was just approved. Comments in infectious disease that far UV technology is coming and 9.6 should be aware of the technology.

**UL-1995 / UL 60335-2-40 update, Brian Rogers**

- 1995 2-40 published 4<sup>th</sup> edition Nov. 2022. 1995 will be phased out. If you make product changes need to follow the 2-40 requirement.

**UL8803: *Outline of Investigation for Portable UV Germicidal Equipment With Uncontained UV Sources*, Carl Bloomfield**

- UL 8803 up for ballots to become official standards. 8802 outlines for ballot but failed. Sub committee working on addressing topics of concern for the ballot.
- Bring in some IUVA people on SPC185.3 and 185.4

**IUVA- Ashish Mathur**

- Good participation by IUVA Healthcare working group members on SPC185.3 and 185.4.

**AHRI - Julie Majurin**

- Looking to collaborate on projects with ASHRAE
- Julie not present

**IES - Richard Vincent**

- 2 x RPs. Dr. Sliney RP44 and RP27 series rates threshold limits for UV exposure. How to use handheld radiometers.
- January 2023 NEC publish on safe use of UV

**NIST – Joy Dunkers**

- Joy works with Cameron Miller. Looking at standard means to measure device output and support microbiology for killing efficacy and helping to organize community engagement & workshops.

Joining us virtually to discuss:

- “Model Evaluation of Secondary Chemistry due to Disinfection of Indoor Air with Germicidal Ultraviolet Lamps”, Jose L. Jimenez (one of authors)

**Old Business**

- Nothing to report

**New Business**

- Nothing to report

**Motion to adjourn meeting by Sam Guzman and the 2nd was made by Ashish Mathur. Meeting was adjourned at 12PM**

**Meeting Attendees:**

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