

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

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

**404-636-8400**

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

(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/MTG/TRG

No.

TC02.09

DATE:

January 31, 2022

TC/TG/MTG/TRG

TITLE:

Ultraviolet Air and Surface Treatment

DATE OF  
MEETING:

Monday, January 31, 2022

LOCATION:

Caesars Palace,  
Roman III (P) /  
Virtual

Name	Affiliation	TC Position	Voting Status	Appointed	End Year
Aaron Engel	Fresh-Aire UV	Program SC Chair	VM	7/1/2020	6/30/2022
Jaak Geboers	Signify Lighting BV	Standards SC Chair	NQVM	7/1/2021	6/30/2025
Sam Guzman	American Ultraviolet	Secretary	VM	7/1/2020	6/30/2024
Henry Greist	Lennox Industries	Chair	VM	7/1/2020	6/30/2022
Richard Vincent	Mount Sinai Hospital	Research SC Chair	NVM		
Ashish Mathur	UVDI	Vice Chair	NVM	7/1/2022	
Stephen Martin	CDC/NIOSH	Membership SC Chair	NVM		
Dean Saputa	UV Resources	Handbook SC Chair	NVM		
Robert Coleman	Trane Technologies	Webmaster	NVM		
Brian Hafendorfer	Gray Architects and Engineers		VM	7/1/2018	6/30/2022
Kathleen Owen	Owen Air Filtration Consulting		VM	7/1/2018	6/30/2022
Larry Fletcher	RGF Environmental		VM	7/1/2021	6/30/2025
Steve Welty	Green Clean Air		VM	7/1/2021	6/30/2025
Vincent Hwang (YEA)	AHRI		VM	7/1/2021	6/30/2025
Scott Sherwood	Eco Care Corporation		VM	7/1/2021	6/30/2025
Matt Middlebrooks	Camfil USA		VM	7/1/2021	6/30/2025
Benoit Despatis-Paquette			NQVM	7/1/2021	6/30/2025

## **DISTRIBUTION**

All Members of TC/TG/MTG/TRG plus the following:

Larry Smith, TAC Chair

Jon Cohen, Section Head

William Hutzler, Research Liaison

Kettler Gerald, Standard Liaison

Steven Hammerling, Staff Liaison

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

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

#### **Main Committee Meeting Minutes**

## **MEETING AGENDA**

**Caesars Palace, Roman III (P) & virtual January 31, 2022**

**Monday, January 31, 2022, at 2:30 pm - 4:30 pm PST**

**These DRAFT Meeting Minutes have not been approved and are not the official record until approved by the Technical Committee at the Summer 2022 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 2:34 pm PST**

**Henry Greist, TC2.09 Chair opened the meeting**

**Voting members Present:**

Aaron Engle	Matt Middlebrooks
Brian Hafendorfer	Kathleen Owen
Sam Guzman	Henry Greist
Larry Fletcher	Steve Welty

**Roll Call of Voting members: 8 of 10 voting members and 0 of 2 non-quorum voting members present (quorum is met)**

**Introductions – Name and affiliation of participants**

**Review Agenda: All in favor**

**Review of Draft Minutes from 2021 Summer Meeting, Virtual Conference**

**Motion to approve the 2021 Summer meeting Virtual Conference minutes by Kathleen Owen, 2<sup>nd</sup> by Ashish Mathur**

Date	Topic	Motion	Vote					
			F	Ag	Ab	NV	CV	
6/16/21	<i>Approve the 2021 Summer meeting agenda.</i>	Approve Summer 2021 TC 2.9 agenda	8	0	0	5	Y	PASS

**ASHRAE Liaison Report: No update (Liaison not present)**

**Summary of Vote Between Meetings:**

Date	Topic	Motion	Vote					
			F	Ag	Ab	NV	CV	
8/20/21	<i>Vote for Chair for TC2.9 Approved TPS 185.4 "Method of Testing In-Room Ultraviolet Devices and Systems for Microbial Inactivation on Surfaces in a Test Room"</i>	Approve Chair	10	0	0	2	Y	PASS

**Review Action Items from TC Chair breakfast**

- 4 key points to strategic plan – works well for us
- Leadership transparency Sec → Vice → Chair - Need involved volunteers Aaron and Jaak candidates for Secretary. Aaron accepted the nomination
- Stakeholder balance – TC needs to maintain good mix of manufacturers vs users vs academics

**Subcommittee Reports**

**Research Subcommittee: Richard Vincent, Chair**

ASHRAE starting to fund some of the project already approved.

RTAR-1928 - submitted by Matt Middlebrooks was accepted in July with comments - 1928 "Improving test methods to measure air cleaner performance against airborne pathogens" Matt is working on the Work Statement –Sent responses to liaison: no response. March 15<sup>th</sup> is the due date, TC membership to review and comment prior to March 15<sup>th</sup>, 2022.

Jeremy Yon discussed Ozone testing and possibly investigating a RTAR

Ashish Mathur discussed “Far UV” and a possible RTAR for a literature review to determine if any gaps exist

Matt reopened discussion on RTAR 1928 and potentially taking a vote during this meeting. A motion was made by Matt Middlebrooks to have 2.9 sponsor the RTAR 1928, 2<sup>nd</sup> by Kathleen Owen. Chair opened formal discussion, Ashish commented that many members have not reviewed the RTAR and may not be ready for a vote, Sam suggested to put a time of 1-2 weeks to review and have a letter ballot.

Potential Co-sponsors TC 2.3, 2.4, 9.6, 9.7, EHC – some meeting Tuesday some met Sunday.

Chair tabled discussion and vote. Chair will confirm distribution to the membership and has asked for the voting members to complete their review in 2 weeks for a February 14<sup>th</sup>, 2022, letter ballot vote.

Richard Vincent said research is always looking for new topics and projects and encourage the submission of new research projects.

## **ASHRAE Liaison Report – TAC - Jon Cohen Head of Section 2**

Jon provided a brief description of his role as the voice of the TC to the ASHRAE leadership. He also mentioned the many resources available to the TC and the sub-committees on the TAC website ([www.ASHRAE/TAC.org](http://www.ASHRAE/TAC.org))

### **Project Committees:**

#### **GPC-37-Upper Room UVC - Richard Vincent, Chair**

Bi-weekly meetings, 40-50 people are attending the sessions on average. Adding section on Mechanical ventilation. Several sections are done and the process of bringing the sections together has started. Goal is to have a draft available for the Summer 2022 meeting in Toronto.

#### **SPC-185 - Methods of test to Inactivate Microorganisms - Steve Martin, Chair**

Currently (2) published standards that are 10 years old, that were republished in 2020. 185.2 was updated after Larry Fletcher supplied feedback based on the practical application of the method of test as written. Changes to 185.2 should be submitted to the 185 Main Committee for a vote soon. Steve commented on 185.1 and he and Kathleen are considering some updates and they will inform the TC as the changes needed are determined.

### **(2) new Standards Project Committees were established under SPC185.**

#### **SPC 185.3 - Method of Testing In-Room Devices and Systems for Microorganism Removal or Inactivation in a Chamber – Linda Lee, Chair**

Katja Auer (Vice Chair) provided the update. All interested parties must request to join the SPC via the website. Linda’s goal is to have a draft prepared by June. The meeting

on the 26<sup>th</sup> of January was productive with the focus being primarily on the chamber design. Kathleen provided an update on an outline draft with comments. Also, a request for active members interested in contributing to reach out was made. A comment was made that this SPC is high profile within ASHRAE as it would be the first standard to include multiple technologies.

**Next meeting: February 16, 2022, 9:30-11:30 am CST**

**SPC185.4 - Method of Testing In-Room Ultraviolet Devices and Systems for Microbial Inactivation on Surfaces in a Test Room – Katja Auer, Chair**

All interested parties must request to join the SPC via the website. The work has begun with the first meeting being held. This MOT is specific to surfaces in a test room and UV energy, but various wavelengths, lamp technologies, LEDs, and devices can be tested to this standard. Ashish explained that some of the initial work put together by the IUVA was the catalyst for the recent ASHRAE / IUVA MOU, with the goal of developing an ANSI standard.

**Next meeting: February 9, 2022, 9:30-11:30 am CST**

**Standards Subcommittee: Jaak Geboers, Chair**

- Reports received from Project Committees
- All the standards are currently up to date

**Programs Subcommittee: Aaron Engel, Chair**

**Seminars proposed to be submitted:**

**UV Wavelengths and LEDs** – Not all UV wavelengths are the same. There are various wavelengths of UV light that can prove beneficial for some applications and may pose issues for others. This seminar will discuss the various UV wavelengths that can be used for buildings and facilities and when to choose one wavelength over another for the desired results – Aaron Engel, Ashish Mathur

**UVC Experience Best Practices and how to apply UVC** - This session would discuss: An explanation of UV dose, application information, what we know and do not know, and chemicals vs. UV – Linda Lee, Katja Auer, Aaron Engel, Sam Guzman

**New TLVs** - This session would discuss the recent updates to the Threshold Limit Values by the AIGCH -This was discussed but will not be submitted for the summer meeting.

**Handbook Subcommittee: Dean Saputa, Chair**

- Currently the handbook committee is working on electronic updates
- Restarting regularly scheduled Committee meetings in February

**Membership Subcommittee: Steve Martin, Chair**

- Currently there are 10 voting members 2 NQ voting members
- 4 voting members will come off with plan to replace HG, BH, KO, AE

- 2 New voting members BC, AM – (1) AE 1 year extension
- Kevin Kwong will also roll on as voting member
- This cycle we are staying the same with 10 voting and 2 NQ voting.

**Henry Greist made a point to explain that the current path to becoming a full corresponding member of the TC can be accelerated if the applications are received within the next week.**

### **TC website: Bob Coleman, Webmaster**

(\* Website update was skipped during the Las Vegas meeting Bob Coleman provided update for addition to these minutes)

- TC 2.9 primarily uses Basecamp for communication and document storage. Any member without access to the Basecamp site should contact webmaster or the chair to request access.
- TC 2.9 website was updated before the meeting with schedule, agenda, and previous meeting draft minutes.
- If there is any public facing information (announcements, documents, etc.) that should be added to the website, please contact the webmaster.

### **Reports from Liaisons**

#### **SSPC 62.1, *Ventilation for Acceptable Indoor Air Quality*, Brian Hafendorfer**

- Section 5.7 of Standard 62.1 is specifically concerned with ozone generation
- It is important to rewrite Section 5.7.2 to be inclusive of all the ozone generating wavelengths
- 5.7 change proposed for 2022 or 2025
- 5.7.2 shall not produce @185 (or ozone generating wavelengths?)
- Added “Labeled” & “Listed” to the definitions will
- Rewriting 5.7.2 to not allow UV-V (less than 200 nm) is probably the right approach
- Jeremy Yon commented “caution on using UL2998 look to UL8802”

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

- Changed some of the language to match 62.1, going out to public review
- Vote to upgrade minimum MERV rating from 6 to 11 via letter ballot
- Considered MERV 13 but concerns over existing equipment failure

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

- revised to include testing and by product information
- 1928 Adding in Reactive Air Cleaners moving slow

#### **SSPC 161, *Air Quality Within Commercial Aircraft*, Aaron Engel**

- Nothing to report meeting scheduled later during the conference

**TC2.3, Gaseous Air Contaminants and Gas Contaminant Removal Equipment, Matt Middlebrooks**

- Nothing to report meeting scheduled later during the conference

**TC2.4, Particulate Air Contaminants and Particulate Contaminant Removal Equipment, Kathleen Owen**

- Nothing to report meeting scheduled later during the conference

**TC 9.6, Healthcare Facilities, Katja Auer**

- Steve Welty announced the AIHA Guidelines are now available for free
- Steve Martin - recent paper regarding UV dosimeters shows positive results

**TRG4, Dean Thompkins**

- 30-35 Attendees
- 1838 adding O3, formaldehyde, ROH, and particles
- Appendix C ref. Secondary organic aerosol generation

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

- 5th edition is in effect until 1/1/24
- 2-40 is going out for comment until 3/1/22
- Annex T 8802 is in preliminary review

**US TAG for ISO/TC 142 Update, Dean Saputa**

- Kevin mentioned update to 158-58 doc on UV safety regarding increased use of 222 nm
- 

**AHRI - Julie Majurin**

- Nothing to report

**IES - Richard Vincent**

- RP44 All about UV applications
- Dave Sliney webinar February 17<sup>th</sup>
- LM92 & LM93 measurement standards heading to publishing
- Harmonizing the definitions between IES and ASHRAE

**CIE - Richard Vincent**

- Recent published tech report on Upper Room UVC
- CIE 247:2021 Guide for the Gonioradiometric Measurement of Upper Air Ultraviolet Germicidal Irradiation Luminaires

**NEMA – Jeremy Yon**

- Effort made to change IBC codes were unsuccessful but referred to pandemic committee for additional future consideration
- GLA Global Lighting Association is an industry organization that educates and has been working on outreach to the WGBC and WHO outreach programs

- Continuing to monitor and look for opportunities to influence regulatory approach both federally and at the states

### Old Business

- Nothing to report

### New Business

- ASHRAE-NEMA Collaboration on Direct Irradiation Below Exposure Limits (DIBEL) – This would include various sources, emission controls, various wavelengths (Far UV through UVA and Visible)
- Research and Guideline opportunities
- Reach out to Jeremy for more information

**Motion to adjourn meeting by Brian Hafendorfer and the 2nd was made by Sam Guzman. Meeting was adjourned at 5:34pm PST**

### Meeting Attendees:

First Name	Last Name	Position	E-mail Address
Katja	Auer	Corresponding Member	KatjaDorisAuer@yahoo.com
Robert	Coleman	Webmaster	Robert.Coleman@TraneTechnologies.com
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Larry	Fletcher	Provisional Corresponding Member	lfletcher@rgf.com
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<b>Harris</b>	<b>Sheinman</b>	<b>Handbook Liaison</b>	