

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS, INC.
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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 days following the meeting.)

TC/TG/MTG/TRG No. TC 2.9 DATE: June 24, 2013

TC/TG/MTG/TRG TITLE: Ultraviolet Air and Surface Treatment

DATE OF MEEING: Monday, June 24, 2013 LOCATION: Denver, CO

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
See Attached Minutes for List				

DISTRIBUTION

<i>All Members of TC/TG/MTG/TRG plus the following:</i>	
TAC Section Head:	Thomas J. Sobieski (jtsobieski@atlanticbb.net)
TAC Chair:	Charles H. Culp (cculp@tamu.edu)
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters:	Chapter Technology Transfer: Jean-Gabriel Joannette (jgjoannette@pageaumorel.com) Research Liaison: Harvey Sachs (hsachs@aceee.org) Special Pubs: William S. Fleming (flemg@aol.com) Standards Liaison: Hoy R. Bohanon (hrbohanon@workingbuildings.com)
Manager Of Standards Manager Of Research & Technical Services	Stephanie Reiniche (sreiniche@ashrae.org) Michael Vaughn (mvaughn@ashrae.org)

**ASHRAE Technical Committee 2.9 (TC 2.9)
Ultraviolet Air and Surface Treatment
Main Committee Meeting Minutes**

**MEETING AGENDA
2013 ASHRAE Summer Meeting**

**Monday, Jan 24, 2013 at 10:00-NOON
Room Silver, Tower building, Sheraton Hotel**

**These DRAFT minutes have not been approved and are not the official record until approved by the
Technical Committee at the 2013 Summer Conference in Denver, Colorado**

“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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The Chair called the meeting to order at 10:06 AM. Participants introduced themselves and an attendance sheet was circulated. (Scanned copy of attendance sheet attached)

Voting Member Attendance:

First Name	Middle	Last	Email Address	Email Address 2	7/1/2012	Present at Denver Mtg
					ASHRAE Roster	
Katja	D	Auer	Katjadorisauer@yahoo.com		V	X
Charles	E	Dunn	chuckdunn@lumalier.com	cdunn2@lumalier.com	V	
Stuart		Engel	sengel@sanuvox.com		V	
Eugene	W	Faris	gfaris@nailor.com		V	
Forrest	B	Fencl	forrest.fencl@uvresources.com		V	X
Karin	K	Foarde	kkf@rti.org		V	Removed in Emergency roster change
Jaak		Geboers	jaak.geboers@philips.com		V	X
Samuel		Guzman	sguzman@auvco.com		V	X
Matt		Middlebrooks	mmiddlebrooks@filtrationgroup.com		V	X
Dave		Witham	davew@uvdi.com		V	

5 of 10 Voting Members present. Quorum achieved. (See attached sign in sheet)

Voting Present	5	Quorum met
Voting-Not-Present	4	Voting not in attendance
Total Voting	9	

Dallas minutes were distributed to all, a motion was made by Steve Martin to approve and seconded by Forrest Fencil, Vote: 5/0/0/4/9 [for/against/abstain/absent/total]

Chair's Breakfast Report:

Katja Auer read the chairs breakfast report...highlights below.

1. Employment Discipline added to ASHRAE Bio Online Input form – members asked to please update ASHRAE Bio accordingly
2. ASHRAE looking for TC volunteers willing to Support Content Development and QC for Society Technical Program at Society Meetings – please contact Tony Giometti at Giometti@ashrae.org if interested
3. New York Meeting 18 – 22 Jan 2014
4. Seattle Meeting 28 June – 2 July 2014

TC 2.9 Website Report: Bob Coleman, Webmaster

Bob Coleman updated the website just a few weeks before this meeting. Roster will be updated and uploaded...no other comments.

TC 2.9 Subcommittee Reports

TC 2.9 Research Subcommittee Report: Steve Martin, Research Subcommittee Chair

Steve Martin attended the Research Subcommittee Chair's breakfast this morning. Richard Vincent was unable to attend the Denver Annual Conference. In his absence, Steve Martin and Jason DeGraw attended the Research Subcommittee Chair's breakfast from 06:30 to 08:00 on Monday, June 24, 2013.

Important items from the Research Subcommittee Chair's Breakfast:

- 1.) ASHRAE currently has 58 active research projects ongoing at a cost of over \$11 million.
- 2.) The number of RTARs being submitted to RAC has dropped off significantly over the last year or two. At the last RAC meeting, there were only 5 RTARs and 2 Work Statements for RAC to consider. TCs are encouraged to get more RTARs into RAC for consideration.
- 3.) To help reduce frustration with RTAR submittals, RAC has developed a new fillable PDF form for submitting RTARs, complete with word limits for each section. The new form encourages RTAR authors to be brief and concise. It should also reduce to amount of information that RAC requires in response to their comments on submitted RTARs. The new form is expected to go live and be available for use in the next month or two.
- 4.) The Section 2 liaison to RAC has been David John for the last year. David's term on RAC has ended. Harvey Sachs will serve as the new RAC liaison for TC 2.9.
- 5.) To have items considered by RAC at their next meeting, they must be submitted to Harvey Sachs prior to August 15, 2013. During the RAC meeting, authors of RTARs and Work Statements are allowed to call in to be available to answer questions from RAC members. This may increase the likelihood of acceptance and is encouraged. Harvey Sachs can provide the time that each research item will be discussed shortly before each RAC meeting.

David John and Harvey Sachs reviewed all TC 2.9 research activities on the RAC books at this time:

RP-1509: This research project is complete and all deliverables have been submitted to ASHRAE. RAC needs a form from the TC and/or PMC to officially close out this research project. (NOTE: Steve Martin and Richard Vincent will work to get the appropriate form submitted to Harvey Sachs as soon as possible).

RTAR 1652: Richard Vincent - Computational Fluid Dynamics (CFD) for Planning Upper Room UVGI Placement, with Ventilation Systems in Public Settings. The RTAR has been reviewed once by RAC and returned with comments. A revised version that addresses the RAC comments needs to be submitted.

RTAR 1653: Dave Witham/Bob Kaufman - Quantify the Degradation of Critical HVAC components and Materials Exposed to UVC Levels Typically Used in HVAC Systems. The RTAR has been conditionally accepted and RAC is awaiting a Work Statement that addresses the comments.

RTAR 1669: Jason DeGraw - Measurements of the Response of Cooling Coils to Ultraviolet Radiation Modeling. The RTAR was conditionally approved. Jason has authored an updated RTAR and Work Statement that addresses the RAC comments. Jason submitted the Work Statement to Harvey Sachs on June 24, 2013.

RTAR 1685: Bob Schier - Field Studies to Identify the Biofilm Microorganisms on HVAC Coiling Coils and in Drain Pans. The RTAR has been reviewed once by RAC and returned with comments. A revised version that addresses the RAC comments needs to be submitted.

Three new RTARs are also being prepared for submittal to RAC:

Ashish Mathar volunteered to be the lead author on an RTAR to conduct round-robin testing in support of SPC 185.1.

Dean Saputa volunteered to be the lead author on an RTAR to conduct round-robin testing in support of SPC 185.2.

Forest Fencil submitted a new RTAR, entitled "Study UV-C's Ability to Clean and Restore Cooling Coil Airflow and Heat Transfer Characteristics to Near-New Design Conditions." This RTAR was forwarded to Harvey Sachs on June 24, 2013 for his comments prior to a TC vote.

No new research topics were recommended for TC 2.9 to consider. Focus will be placed on pushing the existing RTAR into RAC for eventual acceptance.

TC 2.9 Standards Subcommittee Report: Jaak Geboers, Standards Subcommittee Chair

Jaak Geboers reported the following:

- SPC-185.1- All public review comments have been addressed and submitted online and Steve Martin will be submitting the documents to the liaison for another 45-60 day public review.

- SPC-185.2 – All public review comments have been addresses and will be submitted online after an email vote (quorum was not met at the meeting). The two commenters who submitted questions were in attendance and the committee was able to address the concerns directly to them when formulating a response.
- Future SPC-185 committee meeting will be rolled into the Sunday, TC-2.9 Program, Handbook and Standards general meeting...this allows members not having to travel in on Fridays.
- Chuck Dunn has resigned as Chair of SPC-185 and a vote has been submitted to the voting members to move Dean Saputa as Chair of the overall SPC-185 and also to add Steve Martin as chair of SPC-185.1...due to a non quorum an email vote is currently out.

TC 2.9 Program Subcommittee Report: Sam Guzman, Program Subcommittee Chair

**Programs sub-committee – Sam Guzman – Co-Chair
Brian Hafendorfer – Co-Chair**

Three submitted – two accepted – one is happening on Tuesday at 9:45-10:45- Analysis of Chemical and Physical effects of UV bulbs on cooking emissions
Tim Farrell
Benoit Despatis
UV Radiating into the future – was accepted and due to several conflicts we were not able to pull it off. ASHRAE has said they will resubmit for NYC. This would be a better venue as the attendance is much better.
Looking to resubmit:
An introduction to the new standards: SPC 185.1 & 185.2
Steve Martin / Dean Saputa
UV Radiating into the future
Dave Witham /Ashish Mathur
Forrest Fencil
Research and Field studies – Jason Degraw / Joe Farincello
A topic was proposed by Scott Sherwood regarding the proper application of UV in an HVAC system
Sub topics
UL/CSA – Benoit
Fundamentals of a successful install
The ABC's of UVC
Validation, safety, dose, O&M
Need to confirm title, speakers, and sub-topics

TC 2.9 Handbook Subcommittee Report: Steve Martin, Handbook Subcommittee Chair

TC 2.9 is currently in a good position with Handbook responsibilities. The new Chapter 60 was published in the 2011 Applications book and the updated Chapter 17 was published in the 2012 Systems and Equipment book. Our next formal responsibility is having an updated version of the Applications chapter finalized and accepted by the TC no later than at the 2014 Annual Conference in Seattle, Washington. To be included with that process, we have received comments on Chapter 60 from two

members of the ASHRAE College of Fellows that need to be considered during the chapter update. Steve Martin and Jaak Geboers have developed an initial response to the comments and identified other small updates that should be made. Steve Martin will submit a complete Track Changes version of Chapter 60 to the TC members for comment, along with the TC 2.9 minutes from the Denver meeting. The Word file is formatted so that the formatting is correct when it is converted to the print version of the chapter. So, sections appear to be out of order and choppy. This is intentional, so please do not make changes to the formatting of the file, only to the content. Please send any comments on the proposed changes or any recommendations for additional changes to Steve by the end of December 2013. Steve will compile all the changes for discussion and final vote at the Seattle Annual Conference.

During the TC 2.9 Handbook Subcommittee Meeting, Annette Dwyer introduced herself as our liaison to the ASHRAE Handbook Committee for the Systems and Equipment volume. She also provided a brief update from the ASHRAE Handbook Committee meeting:

- 1.) The Handbook comment database is not currently working, but AHSRAE emails any comments received on the website to the Chair of the cognizant TC. (NOTE: There have been no comments received on either chapter authored by TC 2.9).
- 2.) All Handbook chapters are encouraged to add online content, such as spreadsheets, animations, videos, etc. that are not conducive to the print handbook. This online content is sold by subscription to AHSRAE handbook Online Plus. (NOTE: TC 2.9 does not currently have any online content for either chapter). To help increase the amount of online content, ASHRAE will give one person per Handbook chapter a complimentary subscription to Online Plus, to see what other chapters have done. An email will be sent in the near future to the TC Chair to appoint which TC member will be given the free subscription.

Steve Martin noted that Applications Chapter 46, entitled "Control of gaseous Indoor Air Contaminants" has suddenly shown up in the list of chapters under TC 2.9 control in ASHRAE Handbook Central. This chapter is typically maintained by TC 2.3. Annette is looking into the reasons for this and whether TC 2.9 has been asked to actually contribute to the PCO sections of that chapter or this is simply the result of a clerical error.

TC 2.9 Membership Subcommittee Report: Dean Saputa, Membership Subcommittee Chair

Dean Saputa has reported that the roster has been updated and submitted to ASHRAE for approval. He reminded anyone that wanted to become a corresponding member to go online and make a formal request to join the committee.

General Business

Brian Rogers provided a brief update on UL1995, and in particular, the ongoing UV aspects of the testing standard. It's currently being sent to the UL-STP for voting.

Draft will be sent for voting Oct or Nov...Brian will report back to the committee in New York.

ISO/TC 142/WG-2 Benoit Despatis-Paquette stated that the next meeting will be in Atlanta.

New action Items:

Shelly Miller reported that she is on the board of directors for IUVA and is looking for new members to join IUVA and to participate in upcoming seminars and webinars.

Annett Dwyer- Our Handbook Liaison spoke and stated that comments about our chapters are available on line or have been emailed to the TC chair.

Each chapter has one free online subscription to view other handbook chapters online content...TC Chair is to email Annett with that person's name who will have access to the online content.

Meeting to adjourn at 11:29, motion made by Katja Auer, Seconded by Steve Martin, approved by all.

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TC Sign-in Sheet

Meeting Info: TC 2.9 Date: 6/24/2013

Name	Affiliation	E-mail	Member (VM,CM,Guest)	YEA Member?
KATJA AUER	Xenitos	KATJA.BORISAUER@yahoo.com	VM	Yes
DEAN SPATZ	UVA	Dean.Spatz@uvaresearch.org	CM	NO
FORREST FENCE		forrest.fence@uvaresearch.com	VM	NO
JAAP GEBOERS		jaap.geboers@philips.com	CM	No
SAM GUZMAN	AMERICAN U	Sguzman@amuniv.com	VM	No
STEVE MARTIN	CDC/NIOSH	smartin1@cdc.gov	CM	No
JOE FERRANTELO	PENN STATE	jxf282@psu.edu	CM	Yes
JASON DeGraw	Penn State	degraw@psu.edu	VM	No
Brian Hafendorfer	Trane	bhafendorfer@trane.com	CM	Yes
Bob Coleman	Trane	vcoleman@trane.com	VM	No
Benoit Despatis	SAMUVOX	BDESPTIS@samuvoc.com	CM	YES
Henry Grest	Lennox	henry.grest@lennoxintl.com	CM	No
DAVID SKEETON	UMATHEA	DAVID@T2451-Inc-Air.com		NO
Scott Sherwood	ECOCARE	ecocareny@aol.com	VM	NO
ASHISH MATHUR	UVDI	ashish.mathur@uvdi.com	CM	NO
Uri Reinisch	Stelit Air	uri@stelitair.com	CM	Yes
Matt Middlebrooks	FG	mmiddlebrooks@filtrationgroup.com	VM	No
Brad Stanley	AAF	bstanley@aafintl.com	?	N
Julia Luongo	CU Boulder	julia.luongo@colorado.edu	Guest	Yes
Shelley Miller	CU Boulder	shelley.miller@colorado.edu	?	NO
Chunxiao Sun	UN-Lincoln	csun@huskers.unl.edu		No.
GRACE BYFIELD	RTI	gbyfield@rti.org	Guest	No.
Byron Hagan	Nailor	bgronhagan@yahoo.com	CM	No
BRIAN RODGERS	UL	brian.rodgers	Guest	No