

**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. TC 2.9 DATE: January 28, 2013

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

DATE OF MEEING: Monday, January 28, 2013 LOCATION: Dallas, TX

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 ( <a href="mailto:jtsobieski@atlanticbb.net">jtsobieski@atlanticbb.net</a> )
TAC Chair:	Charles H. Culp ( <a href="mailto:cculp@tamu.edu">cculp@tamu.edu</a> )
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters:	Chapter Technology Transfer: Jean-Gabriel Joannette ( <a href="mailto:jgjoannette@pageaumorel.com">jgjoannette@pageaumorel.com</a> ) Research Liaison: David John ( <a href="mailto:david_john@tampabay.rr.com">david_john@tampabay.rr.com</a> ) Special Pubs: William S. Fleming ( <a href="mailto:flemg@aol.com">flemg@aol.com</a> ) Standards Liaison: Hoy R. Bohanon ( <a href="mailto:hrbohanon@workingbuildings.com">hrbohanon@workingbuildings.com</a> )
Manager Of Standards Manager Of Research & Technical Services	Stephanie Reiniche ( <a href="mailto:sreiniche@ashrae.org">sreiniche@ashrae.org</a> ) Michael Vaughn ( <a href="mailto:mvaughn@ashrae.org">mvaughn@ashrae.org</a> )

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

**Monday, January 28, 2013 – 10:00 to 12:00  
Dallas, Texas  
Sheraton Dallas – Majestic 5 room**

**These DRAFT minutes have not been approved and are not the official record until approved by the  
Technical Committee at the 2013 Winter 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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In the absence of the chair (Katja Auer), Stuart Engle, Vice Chair, called the meeting to order at 10:06 AM. Participants introduced themselves and an attendance sheet was circulated.

**7 of 9 Voting Members present. Quorum achieved. (See attached sign in sheet)**

<b>Voting Present</b>	<b>7</b>	<b><u>Quorum Met</u></b>
<b>Voting-Not-Present</b>	<b>2</b>	<b>Voting not in attendance: Katja Auer and Gus Faris</b>
<b>Total Voting</b>	<b>9</b>	

<b>Voting Members Present</b>		<b>Corresponding Members Present</b>	
Chuck	Dunn	Joseph	Firrantello
Stuart	Engle	John	Andros
Forrest	Fencl	Bob	Coleman
Jaak	Geboers	Bob	Culbert
Sam	Guzman	Jason	Degraw
Matt	Middlebrooks	Brian	Hafendorfer
Dave	Witham	Byron	Hagan
		Steve	Martin
		Ashish	Mathur
		John	Putman

	Uri	Rainisch
	Dean	Saputa
	Scott	Sherwood
	Brad	Stanley
	Richard	Vincent
<b>GUESTS</b>		
Benoit	Despatis	
Henry	Greist	
Phil	Maybee	
Sunil	<a href="#">Nanjundaram</a>	
Brian	Rogers	
Dean	Tompkins	
Paolo	Tronville	
Steve	Welty	

**Also in attendance**

Annette	Dwyer	Handbook Liason	<a href="mailto:adwyer@munters.com">adwyer@munters.com</a>
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Introductions made by all in attendance.

Stuart Engle, distributed copies of the minutes from the TC 2.9 Main Committee meeting held on June 25, 2012 at the ASHRAE Winter Conference in San Antonio, TX. Date of meeting should be changed to June 25, 2012

Matt Middlebrook made a motion to approve the minutes from San Antonio with the changes noted above. Motion seconded by Steve Martin. **Voting on approval of the San Antonio meeting minutes was as follows: 7/0/0/2/9 [for/against/abstain/absent/total]. San Antonio meetings minutes were approved.**

**Chair's Breakfast Report:**

Stuart Engle read the chairs breakfast report (copy attached with meeting minutes)

Scott Sherwood, John Putman and Jason Degraw were added to the following reviewers list below:

TC 2.9 List of Volunteers to Serve as Reviewers/Session Chairs For Technical Papers/Sessions Related to Ultraviolet Technologies			
Name	Email	Paper Reviewer?	Session Chair?

Steve Martin	<a href="mailto:smartin1@cdc.gov">smartin1@cdc.gov</a>	Yes	Yes
Gus Faris	<a href="mailto:gfaris@nailor.com">gfaris@nailor.com</a>	Yes	Yes
Richard Vincent	<a href="mailto:richard.vincent@mountsanai.org">richard.vincent@mountsanai.org</a>	Yes	NO
Brian Hafendorfer	<a href="mailto:bhafendorfer@trane.com">bhafendorfer@trane.com</a>	Yes	NO
Dave Witham	<a href="mailto:dave.witham@uvdi.com">dave.witham@uvdi.com</a>	Yes	NO
Scott Sherwood	<a href="mailto:ecocareny@aol.com">ecocareny@aol.com</a>	Yes	NO
John Putman	<a href="mailto:edyn@earthlink.net">edyn@earthlink.net</a>	Yes	NO
Jason Degraw	<a href="mailto:degrow@psu.edu">degrow@psu.edu</a>	Yes	YES

**TC 2.9 Website Report: Bob Coleman, Webmaster**

Bob Coleman updated the website just a few weeks before this meeting. No other comments.

**TC 2.9 Subcommittee Reports**

**TC 2.9 Research Subcommittee Report: Richard Vincent, Research Subcommittee Chair**

Richard Vincent attended the Research Subcommittee Chair's breakfast this morning.

ASHRAE Technical Committee 2.9 (TC 2.9)  
 Research Subcommittee Minutes  
 January 28, 2013  
 Sheraton Dallas, Room Majestic 5

Report of the Research Chair, Richard L. Vincent

1. Review of Unsolicited Proposal (URP)
  - a. UVGI in Building AHU: Increasing Performance and Decreasing Energy Consumption, Shelly Miller, PhD, PI, U. of Colorado, Boulder

A proposal evaluation subcommittee was established by the TC 2.9 Committee Chair to review the referenced unsolicited proposal. A phone conference call went over the proceed and the committee did an initial review. This review was discussed with the PES in Dallas. A few suggested changes were desired; however, the PES was in favor of proceeding if funds were available. However, the TC 2.9 research liaison with the Research Advisory Committee (RAC), David Johns advised against submission to the RAC as he had just learned that most URP's were not being accepted. It was rather advised to develop the research topic into a work statement which Dr. Miller could be a bidder.

**Action:** A subcommittee of Forrest Fencl, Dave Witham, and Bob Coleman was formed to develop the topic into a workstatement for submission to the RAC at either the March 15<sup>th</sup> or May 15<sup>th</sup> submission points.

2. Research Chairs Meeting

Richard Vincent attended the research chairs breakfast and received copies of the research presentation and schedule of RTARs and WSs. Additionally, it was announced that there would be a forum at ASHRAE's Denver meeting which would describe the process of how to participate in ASHRAE's Research Program.

3. Progress on RTARs and Work Statements (WS)

At the research committee meeting the status of RTARs and WS were reviewed.

Pending

1652-RTAR—Vincent Computational Fluid Dynamics (CFD) for Planning Upper Room UVGI Placement, with ventilation systems in Public Settings

**Action:** Needs to submit a revision covering initial RAC comments.

1653-RTAR—Witham/Kaufman Quantify the Degradation of Critical HVAC components and Materials Exposed to UVC Levels Typically Used in HVAC Systems.

**Action:** Needs to develop a work statement no later than August 15, 2014.

1669—RTAR DeGraw Measurements of the Response of Cooling Coils to Ultraviolet Radiation Modeling

**Action:** Revised RTAR was submitted to David Johns for review by the RAC. This RTAR is conditionally approved and needs to become a work statement by August 14, 2014.

1685—RTAR Sheir Field Studies to Identity the Biofilm Microorganisms on HVAC Colling Coils and in Drain Pans

**Action:** Resubmit with how RAC comments were address.

New

An RTAR for a Round Robin on SP 185.1 was discussed. Kathleen would provide model of work statement for a similar round robin (see attached). A committee of Ashish Mathar (lead), Dave Witham, Brian Hafendorfer and Matt Middlebrooks was formed to develop this RTAR and would get support for the effort from TC 2.3.

Meeting Notes Prepared by Richard L. Vincent, TC 2.9 Research Chair

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

SPC-185.1 Chuck stated that the standard had come back from the committee that 5 changes qualified as substantive. The committee voted to send it out for public review.

SPC-185.2 The voting members of SPC-185 all voted in favor to send SPC-185.2 out for public review. Dean Saputa, Chair of 185.2 has sent the draft to the standards liaison for edit.

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

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

**Brian Hafendorfer – Co-Chair**

Seminars, Programs, and Forums

We submitted one programs for Dallas it was rejected. So we will resubmit for Denver. The three we will be submitting for San Antonio are:

- 1.) **Life cycle energy Savings when using UV lamps for coil irradiation: An introduction to the current research**
- Shelly Miller – University of Colorado
  - Joe Frantella - PennState

*Change title, punch up abstract, confirm Bill and get him on board first.*

- 2.) **The next generation of UV energy and applications. / UV the next generation**
- Section 1 – UV in OR and patient rooms (9.6 co-sponsor)
  - Section 2 – How to Improve building EUI with UV solutions
  - Section 3 – Intro to the PennState research

- 3.) **We discussed reaching out to 2.3 to co-submit a program on their current RP 1457 “By product production from Photocatalytic Oxidation Associated with Indoor air cleaning devices”. I attended their programs meeting and talked about the potential. I was informed that the PI has asked for a three month extension because he isn’t ready to deliver**

We had a visit from Tim Farrell. Tim and his colleagues have done some research on using UVC and Ozone in kitchen grease hoods. Mr. Farrell and his team determined that there is no benefit from using UV / Ozone in the hoods. We had a lively debate and we decided we would reach out to TC 5.10 and that it may be more appropriate for them to be a part of any submission. Mr. Farrell will supply copies of his research for distribution to the committee members for review and comment.

**Submittal due dates:**

**Denver Meeting June 22-26 2013**

**Seminar, Forum Sessions proposals February 11<sup>th</sup> 2013**

**Technical Papers February 15<sup>th</sup> 2013**

**New York Meeting January 18-22 2014**

**Seminar, Forum Sessions proposals August 12<sup>th</sup> 2013**

**Technical Papers February 12<sup>th</sup> 2013**

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

TC 2.9 is currently in a good position with Handbook responsibilities. In the last two cycles we have had the new Chapter 60 in the 2011 Applications book and the updated Chapter 17 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 prior to the 2014 Annual Conference in Seattle. 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 worked on an initial response to the comments while in Dallas. Steve will work to compile the response to comments by the 2013 Annual Conference in Denver and send the draft changes out to TC members for comment.

During the TC 2.9 Handbook Subcommittee Meeting, Annette Dwyer introduced herself as our new liaison to the ASHRAE Handbook Committee.

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

Membership roster is up to date; however Dean Saputa stated that our committee and its corresponding membership is top heavy on manufactures and that we have a need to add users and academic members to the voting body.

Currently with 9 total voting members we have the following voting types:

<b><u>Voting Type (total of 9 voting members)</u></b>	<b><u>Total Voting Members</u></b>
Manufactures	5
Users	3
Academic	0
International	1 (Jaak Goebbers)

**General Business**

Byron Hagan and 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.

ISO/TC 142/WG-2 Stuart Engel stated that the last meeting was not well attended. ASHRAE 185.1 has been submitted to ISO as a new work item proposal. It has closing date of 4-24-2013 for voting.

**New action Items:** None

**Meeting to adjourn at 11:20, motion approve**