

AMERICAN SOCIETY OF HEATING REFRIGURATION 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. 6.10 DATE 1/25/12

TC/TG/MTG/TRG TITLE FUELS AND COMBUSTION

DATE OF MEETING 1/24/12 LOCATION Chicago IL

MEMBERS PRESENT	MEMBERS ABSENT	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Bill Roy (VM – Chr)	Ray Albrecht (CM)	Thomas Neill (G)
Tom Butcher (VM – prg)	Marc Neufcourt (VM)	Mehdi Doura (G)
Larry Brand (VM)		David Bixby (G)
Shamel Kassab (VM)		John Dunlap (L/Sec Head)
George Kusterer (VM)		Steve Hancock (L/Research)
Earl Rightmier (CM – rsch.)		Jennifer Guerrero-Feneira (G)
Paul Sohler (VM – Sec.)		Raymond Westers (G)
Hall Virgil (VM)		Bruce Billedeaux (G)
Cory Weiss (VM-hb)		Aykut Yilmaz (G)
		David Herrin (G – Rsch. Contractor)
		Limin Zhou (G – Rsch. Contractor)
		Eric Adair (G)
		Shalin Ray (G)
		David Rousayue (G)
		Justin Westmoreland (G)

Key: CM = Corresponding Member, G = Guest, L = ASHRAE Liaison, IM = International Member

Distribution

ALL MEMBERS OF THE TC/TG/TRG

TECHNICAL ACTIVITIES COMMITTEE CHAIRMAN: Craig Wray (TACchair@ashrae.net)

TAC SECTION HEAD: John Dunlap (JDunLap@DunLappartners.com)

ASHRAE LIAISONS:

Program: Lane Jackins (PL6@ashrae.net)

Research: Lawrence Markel (RL6@ashrae.net)

MANAGER OF RESEARCH: Michael Vaughn (MORTS@ashrae.net)

ADDITIONAL DISTRIBUTION: TCStaff@ashrae.net

These draft minutes have not been approved and are not the official, approved record until approved by this committee

PAS 1/25/12

ASHRAE TC 6.10 Meeting Minutes

Date: January 25th, 2012

Location: Chicago, IL

Chair: Bill Roy

- 1) Call to Order – Meeting was called to order at 3:32PM
- 2) Quorum Determination – Eight of nine voting members were present at the beginning of the meeting (the remaining voting member arrived late), so a quorum was established.
- 3) Review and Approval of Minutes - The minutes of the 6/28/11 meeting in Montreal were approved by a unanimous vote.
- 4) Liaison Reports – The following reports from other committees were presented:
 - a. Section 6 – John Dunlap (Section 6 Leader) awarded Earl Rightmier a certificate of appreciation for his years of service as chair of TC 6.10. In addition, he reported the following:
 - i. Volunteers are needed to review research papers.
 - ii. A few other sections have just experimented with a web based meeting so that people who were unable to attend the meeting in Chicago could participate. To do this a camera was placed in the meeting room and GoToMeeting was projected onto a screen in the meeting room.
 - iii. The first Young Engineers Mixer was held on Sunday, January 22 and was well attended. Mr. Roy, who was also there, noted that there was not very much interest in combustion on the part of the attendees.
 - b. Chair Meeting – Mr. Roy reported on the TC chair breakfast:
 - i. Mr. Roy noted that, effective with the San Antonio meeting in June, speakers will be charged a \$100 registration fee instead of free registration. At the same time, ASHRAE has announced plans to reduce the registration fee for non-speakers.
 - ii. Mr. Roy announced that he will start forwarding some of the questions he is receiving through the TC 6.10 website to other members of the TC.
 - iii. Mr. Roy and Mr. Dunlop discussed the requirements for receiving the following ASHRAE awards:
 1. Hightower Award
 2. Distinguished Service Award
 3. Meritorious Service Award.

Anyone other than a current committee chairman may be nominated for these awards. Criteria for receiving these awards are on the ASHRAE website and include a scoring system based on service to the ASHRAE over the past **four** years.

c. Research - Steve Hancock (Research Liaison) – Mr. Hancock introduced himself as the new research liaison and provided the following updates:

- i. ASHRAE staff is looking for a project “Completion Form” to close out RP1388 (High Altitude Boiler and Water Heater Research Project).
- ii. A work statement for RTAR 1417 (Venting Research) must be submitted by 10/1/12 or this RTAR will be permanently dropped.
- iii. A draft final report for RP1517 (Combustion Driven Oscillation in Boilers) is due on 3/1/12. Dr. Herrin, a representative of the contractor, indicated that they would likely miss this date by one or two months. Mr. Hancock then suggested that the contractor request a 6 month “no cost extension” from the TC.

5) Handbook – Mr. Weiss reported on Handbook subcommittee activities. The subcommittee is currently reviewing the Fuels and Combustion chapter in *Fundamentals*. At the Montreal meeting, members of the Handbook subcommittee agreed to review portions of this chapter. As of the meeting, Mr. Weiss had only received comments back from one member. Revisions to this chapter are due by 4/12/12. Mr. Weiss reported that he is planning to solicit feedback before February 24th so that the subcommittee can vote on the revisions by 3/31/12. Mr. Roy suggested that at least some coverage of biofuels be added to this chapter and asked for volunteers to prepare draft coverage on this topic. Mr. Roy also asked Mr. Weiss to contact the two contractors who have done high altitude research for TC 6.10 (U of Alberta, Gas Consultants) to solicit comments related to the coverage in this chapter.

Mr. Weiss also noted that no target dates have yet been announced for review of the other chapters. A brief discussion ensued about the status of the chapters in *Systems and Equipment* that are approaching the galley proof stage. My Virgil pointed out that a suggested correction had been received regarding some of the subscripts used in the venting chapter and suggested that these corrections be made before these chapters actually reach the galley proof stage. Mr. Weiss said that he would check on the status of these galleys.

6) Research – Mr. Rightmier reported on the status of the following research projects:

a. Dr Herrin of the University of Kentucky provided an update on the status of RP1517 (Combustion Driven Oscillations in Boilers). Dr Herrin reported that:

- i. Measurement of upstream and downstream impedance and burner resistance is now complete as well as validation of the portion of the model that predicts these functions.
- ii. The flame transfer function set-up is nearing completion and flame transfer functions for both burners should be completed in approximately one month.
- iii. Approximately \$32,000 remains in the budget for this project.
- iv. The next meeting of the PMS will probably occur in April after all testing is complete and the results have been reviewed.

Mr. Roy noted that Dr. Baade has had to resign as PMS chair due to medical issues and that Mr. Sohler has agreed to serve as PMS chair for the duration of this project. In addition to Mr. Sohler, Mr. Butcher and Mr. Rightmier are also members of the RP 1517 PMS.

In follow-up to item 4(ciii) above, the TC voted unanimously to grant the contractor a 6 month no-cost extension to complete this project.

b. The disposition of RTAR 1417 (Venting) was discussed. Mr. Bixby noted that there is already research in progress to categorize water heaters, as well as to modify the venting tables shown in NFPA-54 (the *National Fuel Gas Code*) to cover larger venting capacities. Dr Brand indicated that GRI is also doing research on venting Energy Star water heaters into chimneys and that this testing will be completed in approximately 6 months, at which point it will be sent to the NFPA-54 committee. After further discussion it was agreed that no action needed to be taken by the TC on this RTAR at this time.

- c. Mr. Rightmier agreed to obtain and complete the project “Completion Form” needed to close out RP1388 (High Altitude Boiler and Water Heater Research Project) as requested by the Research Liaison.
- d. Mr. Rightmier suggested a research project to investigate the indirect measurement of thermal efficiency by first measuring combustion efficiency and then measuring and subtracting jacket losses. After some discussion it was agreed that:

- i. Dr. Butcher will compile a summary of the techniques currently in use for measuring jacket and “unaccounted for” losses.
- ii. A working group, chaired by Mr. Rightmier, will write a research proposal on this topic. This working group consists of the following people:

- 1. David Bixby
- 2. Tom Butcher
- 3. Mehdi Doura
- 4. Shamel Kassab
- 5. Tom Neill
- 6. Paul Sohler
- 7. Aykut Yilmaz

- e. Mr Kusterer suggested that research was needed to document, and help solve, problems with the accuracy of portable combustion analyzers used in the field. Possible problems identified included the accuracy with which these instruments measure air-fuel ratio and temperatures, the accuracy with which they calculate combustion efficiency, and the way in which the efficiencies thus obtained are used in the field. It was also noted that AHRI has been working on a standard for combustion analyzers, but no one present at the TC knew much about this standard. After some discussion it was agreed that the TC would form a working group to obtain and review a draft copy of this standard to see what it covered and whether there was a need for research on this topic. Mr. Kusterer agreed to chair this working group and the following people agreed to serve on it:

- 1. David Bixby
- 2. Larry Brand
- 3. Tom Butcher
- 4. Mehdi Doura
- 5. Shamel Kassab
- 6. Tom Neill
- 7. Paul Sohler
- 8. Aykut Yilmaz

- 7) Website – Dr. Butcher reported that the website is up and running, but has very little content at the moment. Several ideas were discussed as possible additions to this website including:

- a. The slides from Dr Herrin’s presentations to the TC on RP1517. It was agreed, however, that these slides should only be posted if the donors of the boilers used in this project agreed.
- b. Papers from old TC6.10 research projects
- c. A link to GRI’s web site allowing the user to easily obtain Vent II.

- 8) Programs – Mr. Roy reported that the combustion analyzer forum was not accepted for the Chicago meeting due to lack of available space in the program. The TC agreed that this forum should be re-submitted for the Dallas meeting. In addition, Dr. Butcher suggested a seminar on advanced combustion technologies for Dallas and agreed to work on a proposal for this with Larry Brand. Bill Roy also said that

he would follow up with Carl Suchovsky at Gas Consultants to see when he could present a conference paper on RP1388 (High Altitude Boiler and Water Heater Research Project).

- 9) Standards – Mr. Virgil provided a brief update on the activities on ULC S636 and noted that the next ULC S636 meeting would be held in Northbrook IL on 2/9/12. He reported that there are discussions about adding a greater “safety margin” to the temperature limit currently being used, as well as moving to heat deflection temperature rather than flue temperature, as the criteria for accepting the use of non-metallic venting. Mr. Virgil also expressed concern about the validity of temperature testing done with the heat generator currently prescribed by this standard. Finally, Mr. Virgil said that he would like to see more participation by US appliance manufacturers on the ULC S636 committee and urged interested parties to attend the 2/9/12 meeting.

Mehdi Doura was nominated and accepted by the TC as the new Standards Subcommittee Chairman.

- 10) Membership – Mr. Hall reviewed the roster of Voting and Non Voting members with the TC. David Bixby, Tom Neil, Justin Westmoreland, and Aykut Yilmaz requested to be added to the roster as Corresponding Members. Mr. Yilmaz announced that he would be replacing Marc Neufcourt as AHRI’s representative on this committee. A current roster for the committee is shown in Attachment A.

- 11) Adjournment – Meeting was adjourned at 6:15PM

Respectfully Submitted,

Paul Sohler
Secretary

Attachment A: TC 6.10 Roster (After Changes Made by Chairman on 1/24/12)

Name	Employer	Appointed Year	End Year	Position
Mr Paul Sohler	Crown Boiler Co	07/01/2011	06/30/2014	Secretary
Dr Peter K Baade	Peter Baade Company	07/01/2011	06/30/2015	MEMBER NON QUORUM
Dr Peter Novak, PhD	Energotech Doo	07/01/2009	06/30/2013	MEMBER NON QUORUM
Mr Larry Brand	Gas Research Institute	07/01/2010	06/30/2014	Member
Mr Shamel A Kassab	Weil McLain	07/01/2010	06/30/2014	Member
Mr Hall Virgil, PE	Retired	07/01/2010	06/30/2014	Member
Mr George M Kusterer	Bock Water Heaters	07/01/2009	06/30/2013	Member
Mr William J Roy	Carrier	07/01/2011	06/30/2013	Chair
Mr Thomas A Butcher, PhD	Brookhaven National Laboratory	07/01/2010		Vice Chair
Mr Earl J Rightmier	AERCO International	07/01/2011		Research Subcommittee Chair
Mr Bruce Billedeaux, PE	Maverick Technologies	07/26/2011	07/25/2013	Provisional Corresponding Member
Mr Fatir Hussain Syed	Trane Residential Solutions / Ingersoll Rand	06/24/2010	06/24/2012	Provisional Corresponding Member
Mr Cory Weiss	Field Controls LLC	07/01/2011		Handbook Subcommittee Chair
Mr Raymond J Albrecht		07/01/2008		Corresponding Member
Dr John W Andrews	Brookhaven Natl Lab	07/01/2001		Corresponding Member
Ms Hollace S Bailey	Bailey Engineering Corporation	07/01/1998		Corresponding Member
Mr Ronald B Bailey	Bailey Engineering Corp	07/01/2001		Corresponding Member
Mr John E Batey	Energy Research Center	07/01/1997		Corresponding Member
Ms Denise M Beach	National Fire Protection Association	07/01/2008		Corresponding Member
Dr Ulrich Bonne	Honeywell Technology Center	07/01/1990		Corresponding Member
Mr John R Busse	Johnson Controls, Inc.	07/01/2002		Corresponding Member
Dr Kirby S Chapman, PhD	Kansas State University	07/01/1992		Corresponding Member
Dr James Douglas Dale	University Of Alberta	07/01/1997		Corresponding Member
Mr Paul S Delaney	Southern California Edison	07/01/1994		Corresponding Member
Mr Paul Eric Glanville	Gas Technology Institute	07/01/2009		Corresponding Member
Mr Dieter R Goetting	University Stuttgartke - Hlk	07/01/2007		Corresponding Member
Mr Cory L Hasiak, PE	Simplicity CED, LLC	07/01/2004		Corresponding Member
Mr Laurence P Keelan	Keelan & Assoc Inc	07/01/1991		Corresponding Member
Mr Richard F Krajewski	Brookhaven National Lab	07/01/1997		Corresponding Member
Dr S Win Lee	Canmet Combustion Research Lab	07/01/2007		Corresponding Member
Mr James D Lutz	Lawrence Berkeley National Laboratory	07/01/1994		Corresponding Member
Mr Roger J McDonald	Brookhaven Natl Laboratory	07/01/1991		Corresponding Member
Mr Thomas Elmer Neill	Smith Cast Iron Boilers	07/01/2011		Corresponding Member
Mr Edwin A Nordstrom		07/01/2008		Corresponding Member
Mr William F Raleigh	Teknitherm Engineering	07/01/2004		Corresponding Member
Mr Aniruddh Roy	AHRI	07/01/2009		Corresponding Member
Mr David A Scearce, PE	PB Heat, LLC	07/01/2009		Corresponding Member
Mr Shawn M Scott	Gas Technology Institute	07/01/2002		Corresponding Member
Mr James Strack, PE	Constellation Energy	07/01/1992		Corresponding Member
Mr Brian D Videto, PhD	Carrier Corp	07/01/2010		Corresponding Member
David Bixby	AO Smith			Corresponding Member
Mehdi Doura	Lochinvar			Corresponding Member
Justin Westmoreland	Pacific gas & electric			Corresponding Member
Aykut Yilmaz	AHRI			Corresponding Member