

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. 1.3 DATE 02/15/16

TC/TG/MTG/TRG TITLE Heat Transfer and Fluid Flow
DATE OF MEETING 26 January 2016 LOCATION Orlando, FL

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE	
Ray Rite	2014	Justin Kauffman	2013	Lindsey King	Jeff Stamd
Joe Huber	2013	Branko Korenic	2012	S.A. Sherif	Xiaofei Wang
Lorenzo Cremaschi	2014	Rick Couvillion	2013	Will Asher	David Halbrooks
Liping Liu	2014	Michael Ohadi	2012	Art Geisler	Pat Geoghegan
Tony Jacobi	2012			Icksoo Kyung	Israel Martinez
Steve Eckels	2015			Nataraj Hariharan	Andreas Knoepfler
Achim Gotterbarm (NQ)	2014			Omar Abdelaziz	Steffen Rieger
Stanislav Perencevic (NQ)	2012			Satyam Bendapudi	Melanie Derby
Evraam Gorgy	2015			Kumar Sivagnanam	Florian Hudelmaier
Man-Hoe kim	2015			Yang Zou	Jay Kohler
				Vikrant Aute	Jay Jayaraman
				Yirong Jiang	Brian Fonk
				Sankar Padhmanabhan	Mary Weatherbee
				Vishaldeep Sharma	Duncan Phyfee
				Stefan Elbel	Paul Raftery
				Yang Zou	Amir Jokar
				Zahid Ayub	Kashif Nawaz
				Satheesh Kulankara	

<i>All Members of TC/TG/MTG/TRG plus the following:</i>	
TAC Section Head:	Nadar R Jayaraman
TAC Chair:	Eric W Adams
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters:	Arthur L Giesler, Van D Baxter, Arsen K Melikov, S A Sherif, Darin W Nutter
Manager Of Standards	Stephanie Reiniche
Manager Of Research & Technical Services	Mike Vaughn



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DISTRIBUTION

ASHRAE TC 1.3 – Heat Transfer and Fluid Flow Annual Meeting, 26 January 2016

Call to Order and Reading of TC 1.3 Scope (Rite)

Chair Ray Rite called the meeting to order at 1:00pm. The title, purpose and scope of the TC were read

Introduction of members and guests (Rite)

Introductions around the room followed

Establishment of Quorum (Rite)

- 8 of 14 voting members who count against quorum (2 of 2 NQ) were present, so a quorum was established
- Voting members present included: Rite, Cremaschi, Gotterbarm, Kulankara, Jacobi, Huber, Gorgy, Perencevic, Kim, Liu
- Voting members absent were: Ohadi, Couvillion, Kauffman, and Korenic

Rite indicated that Justin Kauffman has delegated his duties as chair to Ray Rite (former vice chair) as Justin has reduced his involvement in ASHRAE due to short-term relocation to China. Consequently, Evraam Gorgy has been advanced to Vice Chair and Kashif Nawaz volunteered for the Secretary position (Thanks!)

Review/Approve Minutes from Atlanta, June 2015 (Rite)

Motion:

Approve minutes as submitted. (Huber/Eckels) 9-0-0-3-CNV

Section Head Comments (Jokar)

- ASHRAE recommends that TC officers use the email alias available for each officer. The new TC websites are now up and running. Guest interested in joining the TC can click on the “Join TC” button located at the top right of the webpage.
- Concerning publishing material on the website, no copyrighted material should be uploaded (including the material ASHRAE owns such as reports or papers).

Program Subcommittee (Cremaschi)

- Seminar 22: Innovative Design, Materials and Manufacturing Techniques for Heat/Mass Exchangers. The seminar was well attended Monday 25th 2016 8-9:30AM. Abdelaziz led the submission as well as chairing the seminar
- Request for co-sponsor: UN/IIR inviting TC 1.3 to co-sponsor a seminar. Goal is to bring the “Highlights of the 24th Intl Congress of Ref. in Japan. Chair Van Baxter, Speakers: Hrnjak (new developments in micro channel heat exchangers), Domanski (summary of results), McLinden (screening and analysis of low GWP refrigerants), Lundquist (role of heat pumps). Rite to follow up
- List of seminars and workshops were sent to Rite and Cremaschi
- Currently, no open items for St Louis
- Kim can put together a paper on shape optimization in mini-channel heat exchangers. The deadline for St Louis submission is February 8th. Currently no papers are ready for St Louis. TC 8.4 may co-sponsor. There is a minimum submission for two papers with a high chance of rejection. Three papers have a better chance of acceptance. Rite to check if TC 8.4 can co-sponsor.

New Ideas:

Eckels suggested a seminar or workshop on condenser tubes development (no final title, yet). This was submitted but not accepted. TC 8.5 to co-sponsor. This will go under Tracks 1 and 4.



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- For Las Vegas, a conference paper session is desired where three papers can be submitted: In-tube heat transfer and pressure drop (Al Hajri), oil and non-lubricants (Cremaschi), and a paper from RP1556 (Asher/Eckels). Volunteers are needed for papers review and combining Learning Objectives
- King volunteered to chair the session in Las Vegas. Cremaschi will help king with the process

Cremaschi agreed to continue heading the Program Subcommittee

Handbook Subcommittee (Nawaz for Couvillion)

TC 1.3 is responsible for five Fundamentals chapters 3, 4, 5, 6, and 33. Prior proposal for reorganizing or rewriting Chapter 5 was decided not to be carried out. Results of RP1352 (Ammonia) and RP1394 (CO2) will be added to Chapter 4 as indicated by Jokar. However, those single phase correlations will also be referenced in Chapter 5. Changes will be ready for an email ballot in two weeks.

Paul Raftery (guest from TC 6.5) indicated that some material TC 6.5 wanted to be added to Chapter 25 was rejected but redirected to Chapter 4. Nawaz mentioned that Chapter 4 is due in March. Raftery to communicate with Nawaz about same.

Membership Subcommittee (Gotterbarm)

VM rolling off: Jacobi, Ohadi, Perencevic, Korenic

New: Sharma, Nawaz, Ayub

New secretary: Nawaz will be secretary starting 2/1.

The number of corresponding members is 74

Webmaster/Journal/Insights Reports (King)

New webpage is up to date and running. King attended training. New website is significantly easier to maintain. There's some information yet to be transferred; however all basic information transfer is complete. Information such as ASHRAE reports, abstracts, and link to ASHRAE bookstore can be made available on the TC webpage.

King will check the status of uploading the Chicago and Atlanta minutes and communicate back to Rite.

King agreed to continue as Webmaster.

Research Subcommittee (Huber)

Research Chair's Breakfast Notes:

- Art Giesler (Vice-Chair RAC) gave the presentation
- Current strategic plan to remain in effect till 2018
- No nominations were submitted for Service to ASHRAE, Homer Addams Award, or New Investigator awards. Deadlines are September 30th, December 15th for the Service to ASHRAE and Homer Addams awards, respectively
- AHRI has committed \$1M for collaborative research effort of flammable refrigerants (2L roadmap)
- 9 RTAR reviewed by RAC; 5 accepted and 4 rejected
- 4 WS reviewed; 1 accepted, 1 conditionally accepted, 1 returned, and 1 not acted upon for being incomplete
- Co-sponsoring TCs should be providing input to the development of RTAR and WS
- Deadline for submitting RTAR and WS is May 15th

Comments:

TC Chair, Research Subcommittee, and authors will be notified if RTAR/WS was rejected

TC 1.3 Research Status:

1556-RP "Characterization of Liquid Refrigerant Flow Emerging From a Flooded Evaporator Tube Bundle" (PI: Steve Eckels, Kansas State University - PMS: Jon Hartfield, Zahid Ayub,



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Satheesh Kulankara, Satyam Bendapudi) Will Asher presented on Sunday. Testing with R-123 is ongoing, new condenser was installed to gain more capacity. No cost extension till February 28, 2017 was request by PI. PMS agreed to go ahead with a conference paper for Las Vegas

Motion:

Approve 1556-RP no cost extension. (Huber/ Perencevic) 8-0-1-3-CNV. Eckels abstained

New RTARs:

RTAR 1683 “Experimental Evaluation of Two-Phase Pressure Drop and Flow Pattern in U-Bends with Ammonia” is approved and now in the WS phase. TC8.4 to co-sponsor and included in the WS work.

RTAR “Spray Evaporation on Enhanced Tube Bundles with Low GWP Pure Ref. and Ref./Miscible Oil Mixture” was approved by email ballot. Low GWP MTG to co-sponsor to reach broader constituency (Abdelaziz is TC1.3 liaison and will communicate with Schultz). No spring meeting to renew proposal if RAC approves the WS.

RTAR 1737: “Study of the Effects of Modifying the Wetting Surface of Evap Condensers in Ref. Systems for Performance Improvement” (Lead Author: Amir Jokar) was rejected by RAC. Huber will rework the format and try to re-submit.

At TC8.4 Vikrant, Abdelaziz, and Sethi suggested a new topic studying pressure drop in 5-7 mm tubes (TC1.3 to co-sponsor). The title may include “heat transfer and pressure drop investigation of low GWP refrigerants in small diameter tubes.” Huber volunteered to help TC 8.4 write the RTAR.

Comments:

New RTARs do not need to include several references. Some were accepted with just two or three references

Huber volunteered to continue leading the Research Subcommittee

Chair Comments (Rite)

Chair's Breakfast Notes:

- Steve Duda received the George B Hightower Award
- No nominations were received for the 2015-2016 Service to ASHRAE Research Award
- 4 new MTGs were established (IAST Impact of ASHRAE Standards and Technology on Energy, ISPAQE Indoor Swimming Pool Air Quality and Evaporation, OBB Occupant Behavior in Buildings)
- RAC prioritize research topics related to the residential sector
- TC officers are recommended to use their ASHRAE email alias
- Deadline for submitting seminar and forum proposals for St Louis is Monday February 8th 2016
- Remote participation meeting (ENP meeting) was proven successful for the standards committee
- Several TCs (5 in Section 1) volunteered to perform the roster update online trial

New Business (Rite)

No new business.

Schedule Next Meeting (Rite)

Tuesday, 28 June 2016 in St Louis at 1-3:30PM.

Adjournment (Rite)

Motion to adjourn at 2:19PM

Minutes Recording (Gorgy)

Submitted as draft on 2/10/16