

AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS,  
INC.  
1791 Tullie Circle, N.E./Atlanta, GA 30329  
404-636-8400

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

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

TC/TG/TRG NO 1.1 DATE June 2013

TC/TG/TRG TITLE: Thermodynamics and Psychrometrics

DATE OF MEETING 06/24/2013 LOCATION Denver, Colorado

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDENCE
S.A. Sherif	12	Roy Crawford	11	Ray Rite
James Schaefer	12	Vernon Peppers	12	Patrick Collins
Bill Fox	11	Laura Schaefer	09	Christopher Halford
		Ron Nelson	07	Art Geisler (Research Liaison)
		Hans-Joachim Kretzschmar	11	Alamelu Brooks
		Corresponding members		Jason Alphonso
		Mark Ahlers	05	
		Chad Bowers	09	
<i>Corresponding members</i>		Robert Braun	05	
Omar Abdelaziz ( <i>Secretary</i> )	08	Ellen Franconi	99	
Howard Cheung	11	Jonathan Douglas	07	
Steven Brown	07	Don Gatley	01	
Stanislav Perencevic	09	Siviakumar Gopalnarayanan	06	
Vikrant Aute	11	Sebastian Herrman	11	
Tony Jacobi	91	Anna Hueffed	09	
Tom Kuehn	96	Edwin Huestis	11	
		Jason Hugenroth	07	
		Omar Huzayyin	11	
		Edward Keuper	98	
		Sandy Kelin	02	
		Ness Lakadawala	11	
		Jason LeRoy	99	
		Liping Liu	09	
		Pedro Mago	05	
		Thomas Meyer	07	
		Pavan Naicker	11	
		Nicole C Okamoto	04	
		Jose Perez-Galindo	04	
		Eric Ratts	01	
		Trilochan Singh	95	
		Robert Tozer	97	
		Florian Zink	09	
		Kurt Zoellick	09	

**Distribution**

*All members of TC/TG/TRG plus the following:*

TAC Section Head:	<a href="mailto:SH1@ashrae.net">SH1@ashrae.net</a>
TAC Chair:	<a href="mailto:TACchair@ashrae.net">TACchair@ashrae.net</a>
All Committee Liaisons As Shown on TC/TG/TRG Rosters:	
RAC Research:	<a href="mailto:RL1@ashrae.net">RL1@ashrae.net</a>

Program:	<a href="mailto:PL1@ashrae.net">PL1@ashrae.net</a>
Standards:	<a href="mailto:SL1@ashrae.net">SL1@ashrae.net</a>
Handbook:	<a href="mailto:hbf1@ashrae.net">hbf1@ashrae.net</a>
Chapter Technology Transfer:	<a href="mailto:CTTC1@ashrae.net">CTTC1@ashrae.net</a>
Special Pubs:	<a href="mailto:Mark.fly@ashrae.net">Mark.fly@ashrae.net</a>
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**Unapproved Minutes**  
**TC 1.1 Thermodynamics and Psychrometrics**  
**Monday, June 24, 2013, Denver, Colorado**  
**2:15 pm – 4:15 pm**

**1. Call to Order:**

S. A. Sherif called the meeting to order at 2:15 pm. The attendance sheet (current TC1.1 Roster) was distributed and attendees registered. Sherif asked attendees to introduce themselves. Sherif reviewed quorum. Three out of the 7 voting members were present; thus quorum was not established.

The Chair circulated the new roster, the meeting agenda, the unapproved meeting minutes from Dallas, TX, and the TAC notes from 2013 ASHRAE winter conference.

**2. Liaison Reports:**

Art Geilser (Research Liaison) indicated that a new RTAR form is approved and should be used as of September first. He also has to approve any new PES or PMSC. The new procedures require that the research liaison, Art, has to participate with the PES or at least have someone from RAC. Art also relayed RAC's feeling that student involvement is not important in future project evaluations. The deadline for the next round of RTARs and work statements is September first; otherwise it will be in New York. Finally, he stressed that currently RAC has no backlog of research projects and that there is about \$1M of available funds.

Victor Penar (Section Head)

- ASHRAE decided a new method for turning in activity sheets to be online → no manual tallying; a computer program will consolidate section's activity sheets for each section head
- We have a lot of corresponding members who are not coming back on? Economics; companies not affording to pay for travel; retiring members; etc.
- Getting more voting members; why so many corresponding members that are not well engaged in the committee
- This is Vic's last meeting as Section head
- Where is Samuel Sami? There is a certificate of appreciation for him that needs to get it to him.
- Vic gave Sherif a certificate of appreciation for his leadership in the TC.

**2. Chair Report and Announcements:**

Sherif updated the committee's listserv and sent it to everybody. He requested that we keep updating the distribution list and remove the ones that bounce back.

Sherif discussed some of the announcement from the section breakfast:

- High tower award deadline September 1<sup>st</sup> 2013
- 2013/2014 service to ASHRAE nomination process; nomination due to RAC by September 30<sup>th</sup>.
- New ASHRAE award summary sheet that is for use by TAC should simplify things
- New Template for presentation available for use with local chapters
- New MTG: Cold Climate Design Guide to coordinate technical activities for cold climate design guide with REAVA. This is led by XX and YY.
- The employment discipline has been added; ASHRAE use the biographical forms. They have added this field and would like all members to update it.
- ENP beta test of (electronic and present) is in place in Denver. It is already proved effectiveness.

- TC interested in content development should contact section head
- CEC recently implemented technical program changes; suggested that the program SC chair attend the program training.
- New TC activity form to be used in order to automate things.
- New sign in sheet developed for use with TC meeting attendance.
- Our website is up and running. We are trying to populate it with past approved committee minutes.
- They would like us to welcome members and visitor; also thank you letters to the employers are available. Please contact your TC chair and he will wire it to the right people.
- Upcoming program dates: NY website was live June 3<sup>rd</sup>; the deadline is August 12<sup>th</sup> for seminars and forum. For Seattle the deadline is September 23<sup>rd</sup> for technical papers and the abstract of the conference papers. The site will be live January 2<sup>nd</sup> 2013. Please check attached for other ASHRAE deadline and other ASHRAE endorsed conferences.

### **3. Previous Minutes Approval:**

No quorum available!

### **4. Roster Updates:**

A new roster was approved for 2013/14. The chair thank all active members. James Schaeffer will be the chair, Omar will be the vice chair, and Liping will be the secretary.

### **4. Subcommittee Reports:**

Research Subcommittee

The committee can have a mail ballot to approve RTAR written before August 15<sup>th</sup>. Tony will work on the “mass diffusivity of refrigerant in oil” and Bill and Omar will work on “Not in kind technology mapping for different HVAC&R applications”. James discussed an RTAR idea about evaluating contaminants’ limits to still consider air as standard air; Sherif argues that the ideal is to develop a correction factor to correct air properties with different contaminants. He also argues that we need to have a solid definition for standard air.

Omar discussed the idea of new psychrometric processes arising from tighter and improved building envelopes

Program Subcommittee (Howard Cheung)

The submitted forum on “psychrometric applications in high altitudes” was not approved because it has a limited applications. Tom Kuehn said that the forum acceptance rates are becoming lower (4 out of 20). New program activities such as special seminars, parallel keynote presentation, etc. Tom passed on CEC notes to Howard.

For NY; Howard is trying to recruit speakers for “second law applications in HVAC systems design”. He was not able to get speaker to come mainly since most of the notable speakers are international and they have not enough funds to support their travel. Tony suggested using “Second Law for the person on the street”; and “Exergy for the person on the street”. Sherif discussed the need to emphasis the relevance of second law for ASHRAE community. He suggested to co-sponsor it with TC7.4 “Exergy Analysis for Sustainable Buildings”.

Howard will plan for a seminar session on “psychrometric applications in high altitudes”; Ray will work with Howard and chair the session. Omar said that it might not be relevant for ASHRAE’s program. The committee said that it is better to focus the effort on the seminar for second law. Tony can be a speaker (or one of his students); Howard has a specific application of second law efficiency for variable speed systems, Vikrant has co-authored a paper comparing entropy generation and “entrancy” for second

law analysis. Steven Brown said he has not heard about the “entrancy” before; Tony described it as a method to evaluate the “heat transfer ability” of a system or a stream. Steven asked who the target audience is; Sherif said the ASHRAE general audience. Liping said that TC1.1 has already presented in Long Beach in CA a seminar on second level: (look at page 6 of the notes). Howard will Chair. Sherif suggested that Howard to work with the TC members on developing a title in the essence of “pricing energy” and “quality versus quantity”.

For Seattle we have a plan for “Thermoacoustic Refrigeration” seminar Greg Swift, Laura Schaeffer, and Penn state, Cila Herman from Johns Hopkins Mechanical Engineering. Steve Brown will chair.

#### Standard Subcommittee (Roy Crawford)

A standard proposal was approved and James will present the case for PPIS on Tuesday between 11 am to 1 pm. James will be the chair and the committee has already started on it.

#### Handbook Subcommittee (Youngfang Zhong)

Nothing to update; 2 chapters were approved and are available in the bookstore.

#### Website:

The TC website is alive and updates; more content will be populated with Sherif’s support. Please contact him for any request to change, add, or delete any website content. Sherif recommended that TC member send older minutes to Vikrant to add to the website.

Vikrant asked whether we would like to list the roster (name and position only).

#### **7. Old Business:**

Nothing to report

#### **8. New Business:**

Nothing to report

#### **9. Adjournment:**

Sherif dismissed the TC since we don’t have quorum.

Submitted by Omar Abdelaziz

## ASHRAE TC/TG/TRG ACTIVITIES SHEET TC/TG/TRG

DATE June 2013

TC/TG/TRG NO. 1.1 TC/TG/TRG TITLE: Thermodynamics and Psychrometrics

CHAIRMAN: S.A. Sherif VICE CHAIRMAN: James Schaefer, Jr. SECRETARY: Omar Abdelaziz

### TC/TG/TRG Meeting Schedule

#### Location Past 24 months

- Montreal – June 25-29, 2011
- Chicago, IL – January 21-25, 2012
- San Antonio, TX – June 23-27, 2012
- Dallas, TX – January 27-31, 2013

#### Location next 24 months

- Winter 2014 – New York, New York; Jan. 18 – 22
- Annual 2014 – Seattle, Wash; June 28 – July 2
- Winter 2015 – Chicago, Illinois; Jan. 24 – 28
- Annual 2015 – Atlanta, Georgia; June 27 – July 1

### TC/TG/TRG Subcommittees

Function	Chairperson
Standards	Roy Crawford
Handbook	Youngfang Zhong
Programs	Howard Cheung
Research	Bill Fox
Webmaster	Vikrant Aute

### RESEARCH PROJECTS – Current & Past

<u>Project Title</u>	<u>Contractor</u>	<u>Monitoring Comm. Chair</u>	<u>Report Made</u>	<u>Reported by</u>
TRP – 1460				
URP – 1485	Don Gatley	Ron Nelson	June 2008	

### LONG RANGE RESEARCH PLAN

<u>Rank</u>	<u>Title</u>	<u>W/S</u>	<u>Approved</u>	<u>To R&amp;T</u>
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### HANDBOOK RESPONSIBILITIES

Year and Volume	Chapter and Title	No.	Deadline	Handbook Sub. Liason
2013 Fundamentals	1 Thermodynamics		2012	Youngfang Zhong
	6 Psychrometrics		2012	

### STANDARDS ACTIVITIES

**TECHNICAL PAPERS from Sponsored Research** – Title, when presented (past 10 yrs & planned)

**TC/TG/TRG Sponsored Symposia** – Title, when presented (past 10 yrs & planned)

- Exergy Efficient Systems and Applications for Sustainable Buildings, Long Beach, CA – June 2007
- Exergy: A New Frontier in Green Building Simulation, Long Beach, CA – June 2007
- Psychrometrics at Extreme Conditions; Cincinnati, OH - June 2001
- Thermoeconomics and Second-Law Analysis of HVAC&R Systems; Atlanta, GA - January 2001
- Second-Law Studies of Systems and Processes; Chicago, IL - January 1999

**TC/TG/TRG Sponsored Conference** – Title, when presented (past 10 yrs & planned)  
Exergy as a Measure of Performance and Sustainability (planned), Albuquerque, NM – June 2010

**TC/TG/TRG Sponsored Seminars** – Title, when presented (past 10 yrs & planned)  
Thermoelectric cooling new applications for an old idea, Dallas, TX – January 2013  
Magneto-Caloric Refrigeration: Are You Attracted to Cool Ideas?, Chicago, IL – January 2012  
Thermodynamics of Advanced Cycles and Systems, Orlando, FL – January 2010  
Thermoeconomics of Net Zero Design, New York, NY – January 2008  
Exergy 101 for Beginners, Long Beach, CA - June 2007  
Exergy 201 Use it or Lose it, Long Beach, CA - June 2007  
Advanced Cycles and Systems, Dallas, TX – January 2007  
Advanced Cycles and Systems for Air Conditioning, Refrigeration and Power, Quebec City, Canada – June 2006  
Exergy Analysis and Sustainability, Part I: Fundamentals, Quebec City, Canada – June 2006  
Soft Cake Yet Not Crusted: Humidity Control and Measurement Challenges and New Technologies at Room, Low, and High Temperature Ranges, Chicago, IL – January 2006  
Second Law Analysis and Optimization: Orlando, FL – February 2005  
How Second-Law Analysis Can Save You Money; Atlanta, GA - January 2001

**TC/TG/TRG Sponsored Forums** – Title, when presented (past 10 yrs & planned)  
Thermodynamics of Biological Systems and Processes (planned); Orlando, FL – June 2009  
Thermodynamics of Sustainable Urban Energy Systems; Chicago, IL – January 2009  
Humidity Measurements at Extreme Temperatures; Denver, CO – June 2005

**JOURNAL PUBLICATIONS** – Title, when published (past 3 yrs & planned)

Submitted by: Omar Abdelaziz