

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS,
INC.
1791 Tullie Circle, N.E./Atlanta, GA 30329
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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 10.7 DATE 3/12/13

TC/TG/TRG TITLE Commercial Food and Beverage Display and Storage Equipment

DATE OF MEETING January 28, 2013 LOCATION Dallas, TX

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Dean Swofford	2011	Massoud Ali	2011	See attachment
Cynthia Gage	2013	Robert Sperl	2010	
Georgi Kazachki	2009	Massoud Neshan	2011	
Cesar Luis Lim	2010			
Robert Sperl	2010			
Maryline Rassi	2011			
Pradeep Bansal	2013			
Dave Demma	2013			
Charlie Hon	2013			

DISTRIBUTION

All Members of TC/TG/TRG plus the following:

TAC Section Head:	Eric Adams
TAC Chair:	<u>Charles Wilkin</u>
TAC Vice-Chair:	<u>Charles Culp</u>
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	Pradeep Bansal - RAC Alan Podhorodeski - Handbook Richard Hall - Standards William Fleming - Special Pubs Dennis Wessel - Program Scott Wayland- CTTC Florentino Mendez - ALI/PDC
Manager Of Standards	Stephanie Reiniche
Manager Of Research & Technical Services	Mike Vaughn
Admin Asst - Technical Services	Tara Thomas

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

**Minutes of
TC 10.7, Commercial Food and Beverage Display and Storage
28 January 2013, 2:15pm – 4:15pm
Dallas Ballroom A2 (CC1)
Dallas Sheraton
Dallas, TX**

1. Call to Order

The TC 10.7 meeting was called to order by Chair D. Swofford at 2:20pm. Members and guests present introduced themselves. A sign-in sheet was circulated, which is attached to these Minutes as Attachment A.

2. Review and Revise Agenda

The agenda for the meeting was reviewed and approved unanimously.

3. Determination of Quorum

Quorum was established at this meeting, with nine voting members present (P. Bansal, D. Demma, C. Gage, C. Hon, G. Kazachki, C. Lim, M. Rassi, R. Sperl, D. Swofford).

4. Review Current Scope / MBOs

For the benefit of those present, D. Swofford read the current Scope and MBOs for TC 10.7.

5. Update on New Scope / MBO Suggestions

D. Swofford noted that the Title and Scope of TC 10.7 was updated during the San Antonio meeting to include walk-in coolers and freezers (less than 3,000 ft²), commercial refrigeration systems, beverage dispensers, commercial ice makers and water coolers. These revisions were discussed with the chairs of the Section 10 committees during the Section 10 Breakfast meeting held this morning (28 January 2013). All Section 10 chairs were in favor of the revisions. The revised Title and Scope will be forwarded to the Technical Activities Committee (TAC) for approval at their meeting on Wednesday morning (30 January 2013).

6. Recognition of Liaisons and Announcements

Research Committee Liaison (P. Bansal)

P. Bansal noted that ASHRAE has a significant amount of funding available for sponsoring research projects and he encouraged TC 10.7 to take advantage of this funding by submitting RTARS to RAC.

Refrigeration Committee Liaison (C. Lim)

The contract for RP-1634, "Guide for Sustainable Refrigerated Facilities and Refrigeration Systems," is being finalized with Massey University (New Zealand). The Project Monitoring Subcommittee (PMS) has been appointed and work on this project is expected to start soon. UNEP co-funding for this project in the amount of \$200,000 has been confirmed.

Peer review of the 50% draft of the "Refrigeration Commissioning Design Guide" is currently being solicited. Comments on the draft document are due to ASHRAE by 8 February 2013.

The ASHRAE/NIST Refrigerants Conference took place 29-30 October 2012 in Gaithersburg, MD. Despite hurricane Sandy, the conference was a success.

The 5th annual George C. Briley Award for the best refrigeration-related article published in the *ASHRAE Journal* was presented to Mr. Steve Taylor for his article “Optimizing Design and Control of Chilled Water Plants (Part I)”.

The Ad Hoc Refrigerant Management Program (RMP) Exploratory Committee continues their work. The goal the committee is to evaluate the interest and commitment of stakeholders in a voluntary RMP aimed at minimizing the emissions and overall environmental impact of refrigerants used in the HVAC&R industry. The committee has approved a list of stakeholders with contacts and assignments, a script for use in communications, a list of anticipated FAQs, and a feedback form. Committee members have now started to reach out to stakeholders and will then summarize responses and make recommendations to Technology Council.

Section 10 Breakfast Announcements (D. Swofford)

A new input field entitled “Employment Discipline” has been added to the ASHRAE member biographical input form. All TC members are encouraged to log on to ASHRAE’s biographical database and enter their employment discipline. This information will then assist TC chairs in maintaining a balance of voting members on their committees.

TAC has prepared a PowerPoint presentation describing the functions and activities of ASHRAE’s Technical Committees. It is intended that this presentation will be given at local ASHRAE Chapter meetings to encourage member participation in TCs.

A list of upcoming conferences which may be of interest to ASHRAE members is provided in Attachment B.

7. Membership

D. Swofford encouraged interested visitors to become corresponding members of TC 10.7.

G. Kazachki’s term as voting member will be ending 30 June 2013.

W. Wells will no longer be able to serve in the position of Secretary. C. Gage offered to fill the Secretary position, however, a volunteer must then be sought to fill the resulting vacant position of Program Subcommittee Chair.

B. Fricke will assume the position of Chair effective 1 July 2013. R. Sperl volunteered to fill the resulting vacant position of Vice Chair.

8. Review Draft Minutes from the 2012 Summer Meeting in San Antonio

The minutes of the 25 June 2012 TC 10.7 meeting were reviewed and unanimously approved.

9. Subcommittee Reports

Program Subcommittee (C. Gage)

The Program Subcommittee met on Sunday, 27 January 2013, from 5:15pm to 6:00pm.

C. Gage noted that ASHRAE has received 105 conference papers for the Mini Conference in Denver. Furthermore, any paper passing the peer review process will be accepted for presentation at the Denver meeting. ASHRAE plans to continue the Mini Conference at the Summer meetings.

The deadline for submitting seminar sessions for the Denver meeting is 11 February 2013.

All of the programs submitted by TC 10.7 for the Winter meeting in Dallas were rejected. These included a forum on supermarket hot gas defrost piping guidelines (C. Roberts), a seminar on demand-side management (V. Baxter), and a seminar on infiltration into walk-in coolers (K. Kamensky). V. Baxter inquired with CEC as to why the TC 10.7 programs were rejected and the feedback was that there was simply more program submissions than there was space to accommodate the sessions.

TC 10.7 co-sponsored two seminars at the Winter meeting in Dallas: Seminar 44, “System and Components Performance and Efficiency with Low-GWP Refrigerants”, and Seminar 52, “System and Components Performance and Efficiency with Low-GWP Refrigerants, Part 2”.

Four conference papers have been submitted for the Summer meeting in Denver (with TC 8.9 as a co-sponsor):

- B. Fricke: LCCP of refrigeration systems
- X. Wang: Low-GWP commercial refrigeration, including results from the AHRI-AREP program
- S. Mitchell: Laboratory evaluation of demand response strategies in residential refrigerators
- H. Navaz: Infiltration in walk-in coolers

The Refrigeration Committee will be submitting a seminar on low-GWP supermarket refrigeration for the Summer meeting in Denver. Individuals interested in participating in this seminar are encouraged to contact G. Kazachki. Since this proposed seminar deals with supermarket refrigeration, TC 10.7 could be a potential co-sponsor.

TC 10.7 will resubmit V. Baxter’s seminar on demand-side management for the Denver meeting and resubmit C. Roberts’ forum on hot gas piping for the New York meeting. In addition, it was suggested to resubmit for the Denver meeting the seminar on GWP impacts of commercial refrigeration, initially submitted for the San Antonio meeting. S. Zha agreed to serve as session chair for this seminar.

An issue was raised regarding the design approach for high-glide refrigerants, viz., condenser sizing, compressor maps, dew point vs. bubble point vs. mid-point temperatures, etc. It was suggested that this topic would be suitable for a seminar to be presented at the New York meeting, entitled, “System Design Procedures with Zeotropes”.

R. Faramarzi indicated that he is currently conducting laboratory and field studies of CO₂ vending machines, and that he might have information to present from these studies at the New York meeting.

A motion was made by C. Hon and seconded by R. Sperl to support the proposed upcoming program sessions. The motion was passed unanimously.

Research Subcommittee (D. Erbs)

The Program Subcommittee held its meeting on Sunday, 27 January 2013, from 6:00pm to 6:45pm.

A no-cost extension has been approved for RP-1467, “Balancing Latent Heat Load Between Display Cases and Store Comfort Cooling,” so that the contractor can complete the final report and prepare a technical paper.

As noted by the Refrigeration Committee Liaison (C. Lim), RP-1634 has been awarded to Massey University. S. Zha had expressed interest in serving on the PMS, however the committee is full, and thus, TC 10.7 will not have representation on the PMS.

D. Erbs reiterated the comments of the Research Liaison (P. Bansal) that ASHRAE has not received enough acceptable RTARS to cover the available research funding, and thus, TC 10.7 is encouraged to submit RTARS.

Work continues on the draft RTAR regarding minimum refrigerant charge attainment for commercial refrigeration systems, with C. Gage and C. Roberts to assist D. Erbs. It is anticipated that this RTAR will be distributed to the voting members of TC 10.7 for letter ballot approval well in advance of the May 15 deadline. TC 8.4 will co-sponsor this proposed project.

TC 7.5 has agreed to co-sponsor WS-1615, "Fault Detection and Diagnostic Methods for Supermarket". R. Faramarzi has reviewed the work statement and it appears to be comprehensive and includes both refrigeration and HVAC. It was recommended that the work statement be forwarded to RAC. Thus, WS-1615 will be distributed to the voting members of TC 10.7 for letter ballot approval prior to the May 15 deadline. Volunteers are being sought to serve on the Proposal Evaluation Subcommittee (PES).

The floor was then opened for discussion regarding future research project ideas. It was noted that at the San Antonio meeting, M. Friedrich from TC 10.8 had expressed interest in quantifying walk-in cooler loads. TC 10.8 now indicates that Dr. Love from Massey University is performing similar research.

C. Roberts suggested a potential research topic on air curtain design for doored display cases. C. Roberts will draft an RTAR for this project.

D. Erbs will explore the possibility of developing an RTAR related to heat exchanger design for high-glide refrigerants, with co-sponsorship from TC 8.4.

D. Scott from TC 10.1 has expressed interest in investigating return gas temperatures for medium- and low-temperature refrigeration systems. TC 10.7 would be interested in this topic, and is awaiting action from TC 10.1 as to whether or not they will proceed with the development of an RTAR on this topic.

With the growing interest in, and use of, CO₂, it was noted that currently Standard 72 does not provide guidance on measuring the performance of refrigerated display cases which use two-phase secondary fluids. What measurements and devices would be required to characterize the performance of evaporators in which two-phase fluids are used? It was suggested that this would be a good topic for RTAR development, and perhaps TC 8.5 could be a co-sponsor.

Finally, it was noted that peer review of the 50% draft of the "Refrigeration Commissioning Design Guide" is currently being solicited. Comments on the draft document are due to ASHRAE by 8 February 2013. It was mentioned that the current version of the guide will cover "prototypical" systems, with future editions to include details of specific systems. ASHRAE would greatly appreciate receiving feedback on how the guide will be used.

Handbook Subcommittee (D. Demma)

The Handbook Subcommittee held its meeting on Sunday, 27 January 2013, from 6:45pm to 7:30pm.

TC 10.7 is responsible for two chapters in the Refrigeration Handbook:

- Chapter 15: Retail Food Store Refrigeration and Equipment
- Chapter 16: Food Service and General Commercial Refrigeration Equipment

D. Demma noted that the updates to the two the two handbook chapters are in good shape. His goal is to have the handbook update process wrapped up by April 2013 and to do a letter ballot to approve the chapters before the summer meeting in Denver.

It was noted that Chapter 16 has not undergone a significant update recently and perhaps it might be out-of-date, with the exception of the section on ice machines which D. Erbs recently revised. It was suggested that a

committee of equipment manufacturers should be formed to review Chapter 16 for the next handbook revision cycle.

Standards Subcommittee (V. Baxter)

Standard 18, “Methods of Testing for Rating Drinking-Water Coolers with Self-Contained Mechanical Refrigeration,” was recently reaffirmed, so no immediate action is required with this standard.

SPC 29, “Methods of Testing Automatic Ice Makers,” has achieved balance and can now officially conduct business. D. Erbs, chair of SPC 29, stated that his goal is to have the draft standard ready for public review by June 2013.

There is no activity to report regarding Standard 32.1, “Methods of Testing for Rating Vending Machines for Bottled, Canned and Other Sealed Beverages,” and Standard 32.2, “Methods of Testing for Rating Pre-Mix and Post-Mix Beverage Dispensing Equipment.” However, these standards will be coming up for review soon.

Standard 72, “Method of Testing Open and Closed Commercial Refrigerators and Freezers” is nearing completion. C. Hon, chair of SPC 72, indicated that minor editorial work is being done and that the standard will be sent to the committee members within a few weeks for their review. Pending approval by the SPC 72 members, the standard will then be sent to ASHRAE for public review.

Comments from the fourth public review of Standard 147, “Reducing the Release of Halogenated Refrigerants from Refrigerating and Air-Conditioning Equipment and Systems,” have been received. It is anticipated that this standard will be completed within one year.

K. Kamensky, chair of SPC 210, “Method of Testing for Rating Commercial Walk-in Refrigerators and Freezers,” made a call for additional members for the committee. The committee is currently updating the scope for Standard 210.

J. McHugh made a request to solicit information from manufacturers regarding high-efficiency refrigeration equipment which will be included in Standard 189.1, “Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings.” A meeting will be held Monday, 28 January 2013 from 4:30pm to 5:30pm to obtain input for a revised commercial refrigeration efficiency table that is representative of premium levels of efficiency for commercial refrigeration products.

Website (K. Larson, D. Swofford)

According to K. Larson, the TC 10.7 website is up-to-date. The information which was posted on the old website hosted by the University of Wisconsin is being transferred to the new site hosted by ASHRAE.

10. New Business

None.

11. Adjournment

The meeting was adjourned at 4:07 pm.

Respectfully Submitted,
Brian Fricke

Attachments

1) Attendance List

Name	Company/Affiliation	Status
Dean Swofford	Hillphoenix	Chair/VM
Brian Fricke	Oak Ridge National Labs	Vice Chair/CM
David Demma	United Refrigeration	Handbook/VM
Cynthia Gage	US EPA	Program/VM
Daryl Erbs	Manitowoc Food Service Group	Research/CM
Van Baxter	Oak Ridge National Lab	Stds/CM
Cesar Luis Lim	San Miguel Corporation	VM
Charles Hon	True Manufacturing	VM
Georgi Kazachki	Cryotherm Consulting	VM
Maryline Rassi	AHRI	VM
Pradeep Bansal	ORNL	VM
Robert Sperl	Wegmans	VM
Carl Roberts	Zero Zone Inc.	CM
David Cowen	Food Service Technology Center	CM
Jon Murray	Structural Concepts	CM
Kristina Kamensky	Prismitech LLC	CM
Mark Spatz	Honeywell	CM
Neil Monson	Target	CM
Patti Conlan	Arkema	CM
Ramin Faramarzi	Southern California Edison	CM
Sarah Widder	PNNL	CM
Shitong Zha	Hill Phoenix	CM
Tim Anderson	Hussmann Corporation	CM
Caleb Nelson	CTA	Guest
Chad Bowers	Creative Thermal Solutions	Guest
Cody Miller	Royal Vendors	Guest
Colin Weber	Navigant Consulting Inc	Guest
Curt Lawson	Dupont	Guest
Dave Godwin	US EPA	Guest
David Dorste	Parker-Sporlan	Guest
Denis Livchak	Food Service Technology Center	Guest
Depak Negandhu	Royal Vendors	Guest
Gustavo Pottker	Honeywell	Guest
Jason Paquette	Structural Concepts	Guest
Jeff Newel	Hillphoenix	Guest
Jon McHugh	McHugh Energy	Guest
Mazyar Amin	Miami University	Guest
Mike Saunders	Emerson Climate	Guest

Niel Hayes	Hillphoenix	Guest
Paul Sullivan	Honeywell	Guest
Randy Haseman	Underwriters Laboratories	Guest
Robert Dody	Structural Concepts	Guest
Robert Vance	Coilmaster	Guest
Scott Wujek	Creative Thermal Solutions	Guest
Stefan Elbel	Creative Thermal Solutions	Guest
Sun Oung	BR Labs	Guest
Ankit Sethi	Honeywell	Guest
Brijesh Darji	Intertek	Guest

Attachment 2

Upcoming Workshops and Conferences:

- **ACREX India 2013**, March 7 – 9, Mumbai, India. Endorsored by ASHRAE. Contact ishrae_m@vsnl.net or www.acrex.in.
- **HVACR & Mechanical Conference for Professional Educators**, March 11 – 13, Colorado Springs, CO. Endorsed by ASHRAE. Contact 703-600-0308 or www.instructorworkshop.org
- **2nd IIR International Conference on Sustainability and the Cold Chain**, April 2-4, 2013, Paris, France. www.iccc2013.com.
- **Architectural Engineering (AEI) Conference**, April 3 – 5, State College, Pa. Endorsed by ASHRAE. Contact 814-865-6395, njs1@psu.edu, or <http://tinyurl.com/AEI2013>.
- **China Refrigeration Expo**, April 8 – 10, Shanghai, China. Endorsed by ASHRAE. Contact crexpo@biec.com.cn or www.tinyurl.com/3us47qv
- **ASHRAE Webcast, Assessing Building Energy Performance: From Principles to Practice**, April 18. Endorsed by ASHRAE. Contact (678)539-1200, ashraewebcast@ashrae.org, or www.ashrae.org/ABEPwebcast
- **International Workshop on Building and Ductwork Airtightness**, April 18 – 19, Washington. Endorsed by ASHRAE. Contact the Air Infiltration and Ventilation Centre at 32 2 655 77 11, info@aivc.org, or <http://tinyurl.com/ay9owvz>.
- **5th International Conference Ammonia Refrigeration Technology**, May 9-11, 2013, Ohrid, R. Macedonia, <http://www.mf.edu.mk/en/>
- **CLIMA 2013**, June 16 – 19, Prague, Czech Republic. Endorsed by ASHRAE. Contact 420 284 001 444, fax 420 284 001 448, clima2013@guarant.cz, or www.clima2013.org.
- **ECOS 2013**, July 16 – 19, Guilin, China. Endorsed by ASHRAE. Contact ecos2013-china@iet.cn or <http://tinyurl.com/d6s3gnk>.
- **CIAR XX**, July 22 – 23, Cartagena, Colombia. Endorsed by ASHRAE. Contact ciar2013@acaire.org or <http://tinyurl.com/CIAR2013>.
- **5th International Conference – Solar Air Conditioning**, Sep. 25-27, Black Forest, Bad Krozingen, Germany. Endorsed by ASHRAE. Contact: <http://solaircon.com/>
- **CLIMAMED**, Oct. 3 – 4, Istanbul. Endorsed by ASHRAE. Contact 90 3124194571, ttmd@ttmd.org.tr, or www.climamed.org.
- **IAQ 2013: Environmental Health in Low Energy Buildings**, Oct. 15 – 18, Vancouver, BC, Canada. Contact ASHRAE at 800-527-4723, ext. 1158, IAQ2013@ashrae.org, or www.ashrae.org/IAQ2013.
- **11th International Energy Agency (IEA) – Heat Pump Conference**, May 12-16, 2014, Montreal, Canada. Contact: www.iea-hpc2014.org. See attached call for papers pamphlet. Paper Abstracts due April 15, 2013.