

ASHRAE TC 10.7
Commercial Food & Beverage Refrigeration Equipment
Minutes of 2019 Winter Meeting
Monday, January 14, 2019, 2:15 pm - 4:15 pm
Omni Hotel, International Ballroom EF, Atlanta, GA

1. Welcome & Introductions

Chairman Tim Anderson welcomed the members and guests and called the meeting to order at 2:21 pm. Members and guests introduced themselves. The Agenda was distributed, and a sign-in sheet was circulated. Mr. Anderson reminded everyone that the ASHRAE Code of Ethics must be adhered to by those doing ASHRAE business whether or not the participant is an ASHRAE Member. The Code of Ethics can be found at <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>

2. Review and Revise Agenda

No changes were requested and the agenda was approved.

3. Determination of Quorum

Quorum was established with eight (8) of eleven (11) voting members present.

Members Present: Lauren MacGowens (VM 6/19), Timothy Anderson (VM 6/19), Massoud Neshan (6/21), Brian Fricke (VM 6/21), Shitong Zha (VM 6/19), Gustavo Pottker(6/19), Stephen Schaefer (6/21), Jeff Bauman (6/21).

Not Present: Cesar Lim (Non-Quorum 6/19), Pradeep Bansal (6/19), Daryl Erbs (6/21),

4. Scope / MBO's

For the benefit of guests, the TC's scope and objectives were reviewed.

5. Liaisons & Announcements

Committee Liaisons:

- Section Head Jim Tauby
- Program Committee Liaison Kevin Gallen
- Research Committee Liaison Krishnan Gowri
- Handbook Committee Liaison Scott Fisher
- Chapter Technology Transfer Committee Liaison Gerald Hartford
- Standards Committee Liaison Cecily Grzywacz
- Refrigeration Committee Liaison..... Charlie Hon
- ALI/PDC LiaisonHugh McMillan
- MTG Low GWP Liaison..... Brian Fricke

Committee Liaisons were acknowledged and brief announcements were given.

▪ **Section 10 (Jim Tauby)**

ASHRAE is in the process of combining committees and groups to make meetings more efficient and ensure that input can be provided in a sufficient and cohesive manner. Jim asked for input on which groups may be best to merge with TC 10.7. Can be within Section 10 or other relevant TCs. ASHRAE would like to see the schedule shift so that technical seminars are in the morning and all TC meetings in the afternoon. With fewer TCs this would allow for adequate input and participation without meeting overlap. This request for combination of committees originally came from the finance committee as an efficiency increase request.

Feedback forms should be returned by February 1st, 2019. The committee voiced concerns over reduction in meeting time and bodies to get the same amount of work completed.

▪ **Handbook (Scott Fisher)**

Refrigeration was published and exceeded expectation for the amount of revision completed. The committee will now start the update process over for the next round of revisions. The new committee members will be appointed over the next month and Dave Demma volunteered to remain as the 10.7 handbook subcommittee chair.

▪ **MTG – Low GWP (Brian Fricke)**

This MTG on Low GWP is the cognizant committee for monitoring and review of three projects of joint research by DOE, AHRI and ASHRAE. There following three projects were discussed and brief update given:

- **RP-1806, *Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update.***
Status: running a bit behind schedule working on modeling issues.
- **RP-1807, *Guidelines for Flammable Refrigerant Handling, Transporting, Storing, and Equipment Servicing and Installation.***
Status: final report was accepted.
- **RP-1808, *Servicing and Installing Equipment Using Flammable Refrigerants: Assessment of Field-made Mechanical Joints.***
Status: final report was accepted.
WS 1865 determination ?????
Was conditionally approved and will be submitted to RAC this spring.

▪ **Refrigeration Committee (Charlie Hon)**

Charlie gave brief update from refrigeration committee. Because of the suggested structure changes to ASHRAE committees, the refrigeration committee is reevaluating their current makeup and membership. The committee would like to include more members to reach all TCs, SPCs and general membership needs. The full committee scope will be reviewed for necessary changes.

6. Membership

2017-2018 membership table:

Voting Members (11)	End Date	Leadership Team	
Timothy Anderson	6/30/2019	Chair:	Timothy Anderson
Pradeep Bansal	6/30/2019	Vice Chair:	Brian Fricke
Massoud Neshan	6/30/2020	Secretary:	Lauren MacGowens
Lauren MacGowens	6/30/2019	Handbook Chair:	David Demma
Shitong Zha	6/30/2019	Program Chair:	Caleb Nelson
Daryl Erbs	6/30/2020	Research Chair:	Shitong Zha
Cesar Lim (NQ)	6/30/2019	Standards Chair:	Jon Murray
Gustavo Pottker	6/30/2019	Webmaster:	Kyle Larson
Jeff Bauman	6/30/2021	MTG Low GWP Liaison:	Brian Fricke
Brian Fricke	6/30/2019		
Stephen Schaefer	6/30/2021		

Jon Murray requested to be added to the voting roster. Anyone interested in joining the committee should contact Tim or Lauren.

7. Review Draft Minutes from the 2018 Summer Meeting in Houston, TX.

A motion was made and seconded to approve the Houston meeting minutes. VOTE: 8-0-0-2

8. Subcommittee reports

A. Program Subcommittee (Gustavo Pottker, Chair)

Two seminars were giving during this conference. Both had great attendance.

Seminar 12: Life After R-404A

Sunday, January 13th, 11:00am – 12:30pm

Seminar 23: Advances in Low-GWP Refrigeration System Architectures

Monday, January 14th, 8:00am – 9:30am

The subcommittee identified the following topics for programs in upcoming conferences. There is not a refrigeration track for Kansas City. For Orlando the committee suggested the following seminar be submitted.

- Forum idea for Kansas City: Grid-interactive supermarkets of the future (Ramin)
 - Ramin wrote an abstract for the subcommittee's review.

A motion was made and seconded to submit this forum for Kansas City VOTE: 8-0-0-3(ACTION 1)

- Seminar idea for Orlando Refrigeration Track: State of the art refrigeration technologies with low-GWP refrigerants (Georgie)
 - Hydrocarbons
 - TC CO2
 - Experience with low-gWP blends
 - Ejector technology in commercial refrigeration systems

Presenters: Shitong, Gustavo, Stefan (CTS), Tim Anderson

Additional Ideas:

- Efficient fan operation in condenser applications
- Solar powered WICF

All authors will need to submit the following items: Presentation title, abstract, Q&As and brief bio.

Other ideas for future consideration:

- IoT, Big Data, and control methodologies to improve the operation and efficiency of commercial refrigeration equipment – Raman and Daryl Erbs
- Coating technologies – Stefan Elbel and Raman F.
- Transactive control (electrical load shifting) for refrigeration equipment (e.g., ice makers) to correspond to renewable power generation.
 - Could thermal storage fit into this?
- Seminar on blast chillers and freezers and other “specialty refrigeration applications”
- Living with a 150 gram charge limit on Hydrocarbons
- Doing it All efficiently with CO2 Refrigeration anywhere in the World
- Design and Performance Validations of Ultralow Charge Ammonia Cascade Systems for Retail Food Environment
- Opportunities for Utilizing Two-Phase Ejectors to Increase Efficiency of Commercial Refrigeration Systems Using Natural Refrigerants
- Packaged Ammonia/CO2 Systems for Refrigeration
- Mitigating Refrigeration Impacts on the Grid

B. Research (Shitong Zha, Chair)

- RTAR 1706 – *Minimum Refrigerant Charge Attainment for Commercial Refrigeration Systems*
This RTAR was rejected by RAC. No additional action is needed
- RTAR 1722 – *Optimizing Air Curtains for Refrigerated Display Cases with Glass Doors*
RTAR was submitted and we are waiting on a response from RAC.
- RTAR 1831-*Validation of a Test Method for Applying a Standardized Frost Load on a Test Evaporator in a Test Chamber with an Operating Conditioning System* WS must be submitted before 2019 to address comments submitted with acceptance of RTAR. Lauren to follow up with Detlef **(ACTION 2)**
- **RTAR proposal from TC 4.1 – Heat gain from self-contained refrigeration equipment**

Summary: This research project will measure heat gain loads of popular commercial self-contained refrigeration equipment. These loads will be published in the ASHRAE handbooks and will be used to perform internal heat gain calculations for commercial buildings that include food-service facilities. This published data will allow designers to size HVAC systems correctly.

TC 4.1 is asking 10.7 if it will cosponsor this RTAR.

Motion to deny sponsorship was made and seconded on the basis of much of this information being available publicly today. An RTAR and research project funds are unnecessary.

Future Suggestions:

CO2 DX case test method: different from HFC DX cases (e.g., entering refrigerant liquid temperature) TC 2.6 and 10.6 possibly interested in cosponsoring

Cold storage transactive control load shifting- 10.5 10.1 10.6 interested – Daryl to draft and submit Shitong to follow up with Daryl on whether this was submitted. **(ACTION 3)**

C. Handbook (Dave Demma, Chair)

No meeting in Atlanta. No additional action at this time.

There was a request to include Insulation for piping, tanks, etc. – Jim Young of ITM was present and recommended that in our chapters we refer to Refrigeration Handbook Chapter 10 (Insulation Systems for Refrigerant Piping) handled by TC 10.3.

The refrigeration committee is looking at the refrigeration handbook for possible restructuring of the handbook and chapters. An update will be given at upcoming meetings.

Additional items for consideration: additional alternative refrigerants, heat gains in typical self-contained refrigeration equipment.

D. Standards subcommittee (Jon Murray, Chair)

Standards:

- **SPC 18:** *Methods of Testing for Rating Drinking-Water Coolers with Self-Contained Mechanical Refrigeration*
Standard is up to date
- **SPC-29** *Methods of Testing Automatic Ice Makers* (Daryl Erbs)
Was reaffirmed in 2018
- **SPC 32.1** *MOT for Rating Vending Machines for Bottled, Canned and Other Sealed Beverages* (Scott Mitchell)
Standard is up to date.
- **SPC 32.2** *MOT for Rating Pre-Mix and Post-Mix Beverage Dispensing Equipment* (Daryl Erbs)
Waiting to be published
- **SSPC-72** *MOT Open and Closed Commercial Refrigerators and Freezers* (Jon Murray)

--	--	--	--