

ASHRAE TC 10.1  
Custom Engineered Refrigeration Systems  
2015 Annual Meeting Minutes

2:15 – 4:15 P.M.  
Monday, June 29, 2015  
Atlanta Hilton, Room 315, (3<sup>rd</sup> Floor)  
Atlanta, GA

Members In Attendance: Don Fenton, Todd Jekel, Richard Love, Bruce Griffith, Jim Young, Eric Smith, Greg Scrivener, Ron Vallort, Tom Wolgamot, Wayne Borrowman  
Members Absent: Andy Pearson

Minutes – Atlanta (Annual Meeting) - 2015

1. Chair called the meeting to order at 2:15pm.
2. Quorum established with 8 of 10 members present including the chair. AP not counting towards quorum.
3. Introduction of Members and Guests
4. Request for changes and additions to the agenda
  - A. Added a liaison report for Section 10 by Ken Cooper.
5. Report on Section Head Meeting (Don Fenton)
  - A. Reminder of ASHRAE's Code of Ethics.
  - B. Vote for continuance of TC 10.1. (7-0-0 CNV) [Vote taken prior to TW joining]
  - C. Hightower Award deadline is September 1 to Ken Cooper
  - D. Service to ASHRAE Research Award deadline is September 1 to RAC.
  - E. New ASHRAE TC website
6. Approved 2015 Winter (Chicago) Meeting Minutes. Moved by ES, seconded by RL (8-0-0 CNV) [Vote taken prior to WB joining].
7. Liaison Reports
  - A. Research (John Shonder)
    - i. Request for progress report from 1602-RP
    - ii. Ezzat Khalifa from Syracuse University will be new liaison. John will be new chair of RAS.
    - iii. 61 Active RPs for a total of \$10 million
  - B. Handbook (Kelly Cramm)
    - i. Six (6) chapters
      1. 4 Liquid Overfeed
      2. 5 Component Balancing in Refrigeration Systems
      3. 13 Secondary Coolants in Refrigeration Systems
      4. 45 Concrete Dams and Subsurface Soils

- 5. 46 Refrigeration in the Chemical Industry
  - 6. 50 Terminology in Refrigeration
  - ii. Also have Chapters 47-49 as well, with a Bill Murphy as the liaison (former TC 10.4 responsibility)
  - iii. Will send timeline to Handbook subcommittee chair and TC chair electronically.
- C. Section (Ken Cooper)
  - i. Recognition of Don Fenton's efforts as TC 10.1 Chair with a certificate suitable for framing. Applause! Don thanked the committee for just being who they are and following through in completing TC 10.1 committee work.
- D. GCCA (Ron Vallort)
  - i. ASHRAE has taken no position on the USGBC guideline.
  - ii. Will distribute Ron's report with the minutes.
- E. Low-GWP MTG (Doug Scott)
  - i. Starting to look at system impacts for HFOs
  - ii. Not much of interest for TC 10.1 so far. Doug will continue to review the MTG's activities looking for issues or research that would interest the TC.
- 8. Committee Reports:
  - A. Handbook (Levi Haupt)
    - i. Have a reviewer for Chapter 4 and a reviewer for Chapter 47.
    - ii. Need reviewers for other chapters.
      - 1. Eric Smith offered for Chapters 4, Doug Scott offered for Chapter 5, Greg Scrivener offered to contact University of Saskatchewan about Chapter 45
      - 2. LH will send out electronic copies to interested parties.
    - iii. If interested, please e-mail [levi.haupt@fluke.com](mailto:levi.haupt@fluke.com).
  - B. Research (Tom Wolgamont)
    - i. 1602-RP. Getting close to completion. Draft final report has been submitted. PMS needs to review.
    - ii. 1634-RP. Approximately 70% complete. PMS meeting at 4:30pm after this meeting. Doug Scott invited all interested parties to attend.
    - iii. RTAR development
      - 1. Transient response by components & system to transient loads (tabled)
        - a. Questions regarding what is exactly the point
      - 2. Refrigeration load developed by defrosting a coil for different defrost methods
        - a. Doug Reindl & Don Fenton will assist in development/
      - 3. Liquid vapor separation in vessels

- a. Todd Jekel to contact Sam Martin regarding CFD for two-phase flow to update the RTAR/workstatement

4. Simulation of compound vs. cascade refrigeration systems (tabled)

C. Standards (Bruce Griffith)

- i. SSPC 15 met on Sunday (6/28) from 1 pm until 5 pm.

1. The committee continues to work on a re-write of the Standard. The main purpose of the re-write is to structure the standard in mandatory (code) language, eliminate redundancy and develop a logical format.
2. A subcommittee was formed to create a Safety Standard for Residential Refrigeration Systems (potentially 15.2). A title, purpose and scope has been approved. Conceptually, SSPC 15 could develop 15.1 as a Safety Standard for [Commercial and Industrial] Refrigeration Systems.
3. Carrier presented a CFD analysis to evaluate ventilation requirements for machinery rooms. Initial focus was on LFL and 2L refrigerants. However, the CFD model could be used for all refrigerants and other parameters (RCL, OEL, etc.).
4. Summary of change proposals:
  - a. Discharge Relief Line Sizing (Table 3) – proposal to expand for higher pressures, include tubing and move to normative appendix D. Motion made and voted to submit changes for public review.
  - b. Section 9.4.4 – proposal to change evaporators to heat exchanger coils, develop a definition for “heat exchanger coils” and eliminate exceptions. Motion made to submit changes for public review depending on letter ballot from absent members.
5. The 2L ad hoc committee is still working on changes for a potential advisory public review. They met Sunday (6/28) morning from 8 – 10 am.

- ii. ASHRAE Standard 34:

1. SSPC 34 reviewed a proposal to reduce the burning velocity limit for 2L refrigerants from 10 cm/sec to 5 cm/sec. This was voted on at the Seattle committee meeting and rejected. The current chair stated that research would need to be conducted to change the existing velocity limit.
2. There was an effort to look at the entire toxicity classification. SSPC 34 is reviewing the requirements for A and B toxicity classification. A work statement was prepared to address the boundary between A and B. Currently based on OEL of 400 ppm.

3. The committee continues to receive requests for new refrigerants. There are 9 new applications to review at the Atlanta meeting. Due to time constraints, SSPC 34 may only be able to address 6 of the 9.
4. SSPC 15 requested an update for the inclusion of LFL values into Standard 34. It is on the SSPC 34 work list, but will not be addressed at Atlanta.

D. Programs (Dan Dettmers)

- i. Sunday night had a **REFRIGERATION PROGRAMAPOLOOZA** to generate ideas
  1. Taste of IIAR seminar
  2. Back to Basics conference papers
  3. Lightning Round (3-5 minutes per speaker) as a 90-minute workshop
- ii. Atlanta, GA – June 2015 (This meeting)
  1. No programs from 10.1.
- iii. Orlando, FL – January 2016
  1. Lightning Round
- iv. St. Louis, MO – June 2016
  1. Back to Basics conference paper topics TBD
- v. Other upcoming:
  1. Las Vegas, NV – Jan.-Feb. 2017
  2. Long Beach, CA – June 24-28
  3. Chicago, IL – Jan. 20-24

E. Webmaster (Ryan Hoest)

- i. Website is up to date.

F. Membership (Don Fenton)

- i. New chair will be Wayne Borrowman.
- ii. New vice chair will be Kent Perkins.
- iii. All other subcommittee chairs remain the same.
- iv. Don Fenton, Eric Smith & Ron Vallort to roll off.
- v. Bill Brayman requested membership. Bill will contact DF.

G. ALI Coordinator (Dan Dettmers)

- i. No report.

9. Old Business

- A. All action items from the Chicago meeting have been completed or are progressing.
- B. FAQs have been reviewed and DF sent back to ASHRAE.

10. New Business

- a. None.

11. Announcements

- A. The next meeting will be in Orlando, FL, 2:15 PM on Monday, January 25, 2016.

12. Motion to adjourn GS, second RL (8-0-0 CNV [RV had left prior to vote]). Meeting adjourned at 4:05pm.

## Hammerling, Steve

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**From:** Ron Vallort <ronvallort@aol.com>  
**Sent:** Wednesday, May 06, 2015 6:52 PM  
**To:** thomas@mmpa.com  
**Cc:** dunderwood@hvacrtdu.com; Littleton, Jeff; Hammerling, Steve; matthew.ritter@arkema.com  
**Subject:** GCCA Annual Meeting 2015 - ASHRAE/GCCA Liaison Report

Tom,

I recently attended the 124<sup>th</sup> IARW-WFLO Annual Meeting in Orlando April 26-29, 2015 as the appointed ASHRAE/GCCA Liaison. The GCCA (Global Cold Chain Alliance) serves as the focused voice of the cold chain industry, representing 1,300 member companies in over 65 countries.

GCCA continues to stress the importance of the Cold Chain in delivering safe, high-quality food and other products to consumers around the world. The theme of the Conference was, "Delivering Value" spotlighting the role logistics companies play within the cold chain around the world. In today's temperature-controlled logistics industry, companies have advanced to offer services as total supply chain solution providers to address growing customer needs.

I continued discussions with members of the IARW, WFLO, and IACSC Board of Directors about the present and future interaction of ASHRAE members with their groups. ASHRAE members in the various GCCA groups and committees continue to lend their engineering expertise.

I spoke with GCCA Members about the interaction between GCCA Members and ASHRAE. Some of the areas of mutual interest are as follows:

- **Refrigeration Trends:** Low charge ammonia systems and ammonia/CO2 refrigeration systems are seen as the answer to increasing government regulations, public opinion and the phase out of R-22. Interest is very high in low-charge ammonia package systems that can be "dropped in" to replace R-22 systems, or facility expansions, or for using multiple roof-top units in new refrigerated facilities with less piping and no machine room.  
  
**General Duty Clause:** Even though the ammonia charge may be less than the 10,000 pounds requiring PSM and RMP programs, it is assumed by the EPA that any facility using ammonia would have controls, procedures, and plans in place to prevent or handle a release.
- **2014 Global Capacity Report:** The total estimated capacity of refrigerated warehouses is 552 million cubic meters worldwide, a 20% increase over 2012. India has surpassed the United States in refrigerated warehouse capacity (130 cubic meters versus 115 cubic meters). Household income drives warehouse growth, as incomes grow consumers favor large-scale shopping formats seen as "modern retail".
- **Construction Trends:** Using technology such as Building Information Modeling (BIM) and 3D virtual design can improve the design and construction process of cold storage facilities. BIM defines interferences and can correct them during the design phase which minimizes compromises during the construction of complex refrigerated facilities.

- **Reducing Refrigeration Costs:** Dennis Heldman of the Scientific Advisory Council (SAC) discussed the concept of running refrigeration systems more during off-peak electricity periods. Though quality declines as temperature increases, with reduced air movement and utilizing a Freeze/Thaw calculator, a balance can be reached of reduced cost versus loss of shelf-life.
- **Avoiding Temperature Fluctuations:** Again this year the use of proprietary thermal storage cells was presented as a way to reduce energy costs by at least 25%. The cells can help facilities load shift to off-peak hours.
- **Review and Update Food Chapters in the ASHRAE Refrigeration Handbook** - SAC with their 16 members who have expertise in specific areas of the food industry, will be willing to review and update the Chapters in the Refrigeration Handbook that pertain to their areas. Dr. Donald Fenton, Kansas State University, (SAC and ASHRAE member) has responsibilities for the next ASHRAE Refrigeration Handbook and is acting as the go-between for SAC member's review of the Chapters.
- **"LEED Green Scorecard for Refrigerated Facilities"**. After 5 years, the USGBC is expected to approve the baseline for energy usage for a refrigerated warehouse that was developed by the ASHRAE/GCCA LEED Green Scorecard Committee.
- **"Consumer Demand for Fresh Food Products"**. The current interest in fresh produce and foods may alter the current frozen/cooler ratios in PRWs. GCCA will be involved in the expo with the United Fresh Produce Association and Food Marketing Institute (FMI) held at McCormick Place in Chicago during June of 2016.
- **"OSHA's Chemical Facility National Emphasis Program (NEP) and PSM"**. The focus of NEP will be on facilities that use ammonia and other hazardous material and those with previous citations or explosions. OSHA will also target facilities with above average injuries, employee complaints or major accidents. PRWs should be ready for inspections and to demonstrate that they follow Best Practices and that their Mechanical integrity must follow Recognized and General Accepted Good Engineering Practices (RAGAGEP) to avoid citations.

Please take the above information and use it as you see fit with the appropriate ASHRAE staff so we can continue to utilize this information while fostering cooperation and sharing between GCCA, the ASHRAE Refrigeration Committee, and Refrigeration Technical Committees. If you would like a further explanation of any of the above items, please contact me. I plan to continue ASHRAE/GCCA Liaison activities at the GCCA Technical Committee Meetings at the end of July.

Regards,

Ron

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### TC Sign-in Sheet

Meeting Info: TC 10.1

Date: June 29, 2015

	Name	Affiliation	E-mail	Member (Voting, Corresponding, or Guest?)	YEA Member? (Yes/No)
1	TOM WOLGAMOT	DC ENGINEERING, INC.	TWOLGAMOT@DCENGINEERING.NET	RESEARCH SUB CHAIR	NO
2	WILLIS "B.II" BRAYMAN	BRAYMAN Insulation Consultants	brayman.bi@att.net	CM	NO
3	Eric Smith	LLAR	eric.smith@llar.org	VM	NO
4	RON VALLORT	RON VALLORT AND ASSOCIATES	RONVALLORT@AOL.COM	VM	NO
5	Bill Ronca	K-Flex USA	bill.ronca@kflexusa.com	Guest	NO
6	Bruce Griffith	Johnson Controls	Bruce.L.Griffith@jci.com	VM	NO
7	Tobey Fowler	Hussmann	tobey.fowler@hussmann.com	Corr.	NO
8	Doug Scott	VACOM TECHNOLOGIES	DSCOTT@VACOMTECH.COM	CM	NO
9	Jim Young	ITW	jyoung@itwinsulation.com	VM	No
10	Levi Haupt	FLUKE	Levi.Haupt@Fluke.com	CM	Y

	Name	Affiliation	E-mail	Member (Voting, Corresponding, or Guest?)	YEA Member? (Yes/No)
11	Todd Jerkel	IRC - UW	todd.jerkel@uisc.edu	✓	
12	WAYNE BORROWMAN	CIMCO	wborrowman@toranont.com	✓	
13	PEGA HRNJAK	U of ILLINOIS, CTS	pega@illinois.edu	guest	
14	Dan Dettmers			CM/Prarr	IA/Smith
15	Don Fenton	KSU	fenton@ksu.edu	VM	No





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### TC Sign-in Sheet

Meeting Info: T10.1

Date: June 29, 2015

	Name	Affiliation	E-mail	Member (Voting, Corresponding, or Guest?)	YEA Member? (Yes/No)
16	Igor Vaisman	Rolls-Royce Corp.	igor.vaisman@rolls-royce.com	CM	<del>No</del>
17	Kent Perkins	Colmac Coil	kent.perkins@colmaccoil.com	CM	✓
18	Richard Love	Masseng University	r.j.love@massey.ac.nz	V	✓
19	Greg Scrivener	Cold Dynamics	greg.scrivener@coldynamics.com	✓	✓
20	John Shonder	US DOE	john.shonder@hq.doe.gov	RL Sec. 10	✓
21	Eric Ramon	MAYERAWA USA	eramon@MAYERAWAUSA.COM	Corresponding M.	NO
22	JOE SANCHEZ	Bitzer	JSANCHEZ@B.tierus.com	Guest	✓
23	Daryl Stauffer	Johnson Controls	daryl.mark.stauffer@jci.com	Guest	✓
24	Chengzhi Tang	Helmer Scientific	ctang@helmerinc.com	CM	✓
25	Doug Reindl	UW/IRC	dreindle@u.wisc.edu	CM	—