



**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. 10.1 DATE 7/14/2019

TC/TG/MTG/TRG TITLE Custom Engineered Refrigeration Systems

DATE OF MEETING 7/14/2019 LOCATION Atlanta, GA

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Doug Scott	2017	Brian Blahey	2017	
Bill Brayman	2016	Kent Anderson	2016	
Adnan Ayub	2018	Jim Caylor	2018	
Jim Young	2017			
Kent Perkins	2017			

**DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:**

TAC Section Head: Jim Tauby	SH1001@ashrae.net Where x is the section number
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.)	See ASHRAE email alias list for needed addresses.
Mike Vaughn, Manager Of Research & Technical Services	MORTS@ashrae.net

T-TAC-TC10.01 CUSTOM ENGINEERED REFRIGERATION SYSTEMS  
Date: Monday January 14, 2019

Perkins, Kent	Chair
Griffith, Bruce	Vice Chair
Jekel, Todd	Secretary
Dettmers, Daniel	Hndbk Subcom Chair
Wolgamot, Tom	Program Subcom Chair
Scott, Douglas	Resrch Subcom Chair
Scrivener, Gregory	Stds Subcom Chair
Hoest, Ryan	Webmaster

The following Voting members were present:

Kent Perkins, Doug Scott, Adnan Ayub, Willis Brayman, James Young

### **Call to order**

Kent Perkins called the meeting to order on Monday January 14, 2019 at 2:17pm. A sign-in sheet circulated. All members and visitors present self-introduced. ASHRAE Code of Ethics was read aloud.

### **Quorum: Meet**

Agenda Minutes (5-0-0) approved with minor corrections.

### **Liaison Report**

Section Head Jim Tauby

From TC/TG Chair's breakfast: Currently, there is 118qty Tech Committees and this will be reduced into 34 committees. The Tech Committees will be renamed to Tech Working Group (TWG) by Winter 2020 meeting. The reduction of TC should improve efficiency and response / approval rates of papers, programs. TWG will be responsible for the old TC responsibilities; The exact process how the TC will be merged, and how TWG officers will be determined at a later day. TWG will need to change how it works in allotted time due to increased committee membership. Also, ASHRAE meeting to restructure meetings to allow more time TWG together.

TC/ TG/ MTG/ TRG Reorganization form needs to be completed. By Summer Meeting, there will be a report how TC 10 committees will be merged.

### **Research**

Dr. Khalifa has retired. Dr. Krishnan Gowri (bim2bem@outlook.com) will be taking over responsibilities going forward.

Chair Breakfast: ASHRAE Service Award given

Feb 8<sup>th</sup>: Seminar proposal deadline for Kansas City Summer Conference meeting

Technical Committee newly formed: TC 2.10 Resilience and Security

No refrigeration track in Kansas City; Refrigeration track in Orlando

For conference paper, abstract due on March 18, 2019

### **Refrigerant Committee**

Scott Fisher / Nick Shockley new contacts going forward.

Review of Handbook chapters

- Complete checklist aka review of chapters 2019
- Heather Kennedy (Handbook Editor) is pushing for a refrigeration handbook rewrite. Also, *Guide for Sustainability Refrigeration Facilities and Refrigeration Systems* needs to be incorporated to updates.
- Currently, Handbook make-up is lacking commercial and food chain refrigeration; The TC needs to find experts on these subjects for future inclusion.
- "Ammonia as Refrigerant" (ASHRAE Position Documentation) is up for review in June 2019; There is discussion within the Refrigeration Committee if this document should it be keep a separate document or included in overall refrigerant position document.

- TC10.1 position's is the Ammonia position document should be keep separate due to the depth of the ammonia position document;
- "Ammonia as Refrigerant" was approved in Feb 2017 and will expires in Feb 2020; The position document has to be approved in June meeting 2019 (Kansas City);
- Should involve other TC 10 subcommittees to strength the request to keep as a separate document.
- In Jan 2018, an "Ammonia as Refrigerant" Position Document committee was formed;
- Chair should draft a letter to Refrigeration Committee and to be involved in ammonia position paper review.
- Should reforming the Ammonia Refrigerant Position sub-committee to submit feedback to Refrigerant Committee for value as a separate document from main refrigerant position paper.
  - Motion: Doug Scott; 2<sup>nd</sup> by Jim Young; Approved (5-0-0)
- Charged with tracking refrigerant updates
  - Spreadsheet of programs
- TC reorganization (Chair meeting)

### Committee Reports

Handbook, Dan Dettmers

Changes should be done via access via ASHRAE Handbook author portal, (<https://www.ashrae.org/technical-resources/authoring-tools/authoring-portal>)

The TC should focus on the following three chapters within the next year.

- 4. Liquid Overfeed Systems (needs minor re-writes)
- 5. Component Balancing in Refrigeration Systems. This chapter needs major write; Doug Scott will spearhead but is looking for assistance to complete. Ron Vallort and Adnan Ayub have volunteer to assist.
- 13. Secondary Coolants in Refrigeration Systems.

### Research

1634 - *Guide for Sustainability Refrigeration Facilities and Refrigeration Systems*; In the bookstore, No promotion of 1634; Need to find other channels of the promotion, IAR2-2014

No new research topics; Need RTAR before moving forward; Several ideas were presented at last meeting;

- Mechanical insulation in high humidity occurrence
- Method of testing of product temperature; (Energy efficiency and food safety); Do govt regulators have a standard method for temperature testing of specific food products?
  - May require different testing method due to the large variety of products
  - Would need to apply to frozen and chilled products
 Richard Love / Ray Cole have volunteer to work on the RTAR for program.
- Defrost Loads
  - Demand Defrost saving method. How to determine when to initial and termination defrost cycles for energy considerations;
    - Frost regimes (type of ice built up); This method has been done in the past but research could be updated
      - Efficiency: How much heat goes into melting ice?
    - Possible design guide to defrost with CO2 systems
    - Pulse hot gas defrost
    - Research in Hydrophobic coatings to reduce defrost built up. Coatings were not realistic due to real world experience and heat transfer will vary.

- Doug. Scott will review other TC10 subcommittee research on defrost topics to confirm interest within other TC10 subcommittees.
      - Evaporator position for capture moisture room loads.
- 1871-RTAR, *Hygrothermal Modeling of Below Ambient Pipe Insulation Systems in Both Buildings and Refrigeration*; TC1.8 / TC 10.3 (Co-Sponsor): RTAR approved with comments; Insulation sealing with metal jackets joints if there should or should not be sealed
- Liquid Vapor Separation topic: Focus on the droplet size with CFD model; Doug Scott will need to find the original work statement. Also confirm with Todd Jekel on topic.
- 1569; Completed (report and paper); TC10.3 has done a letter ballot and accepted.

#### **Standards**

- STD 15: 2L refrigerant for Appx D and H; safety rules for 2019 version included; Amendment A: Ammonia was removed from scope of STD 15
- Rewrite for public review for basic organization of standard
- STD 34; still working on a few new refrigerant applications

#### **Program**

- Atlanta 2019 - Conference Papers: 11am Wed (Richard Love- Condenser control and defrost loads)
- Kansas City has no refrigerant track; Possible tracks to use for program
  - Systems & Equipment in the Built Environment
  - Fundamentals and Applications
  - Optimization in HVAC&R
  - Commissioning New & Existing Buildings:
  - Occupant Health & Safety
- Need review suggestions in how to build interest to traditional refrigerants. Also, there is a lack of basic understanding how to evaluate blends refrigerant selections from an complete system viewpoint. Any evaluation should include a comparison with blend refrigerants to pure refrigerants such NH3 or CO2.

#### Possible ideas:

- Greg Scrivener (Cooling and Determine Cooling Loads in Greenhouse)
- (Orlando) A2L ventilation requirements with industrial installation and new STD 15 requirements
- (Orlando) R507 systems conversion to another solution

Reject of program: Need more

Webmaster – Eric Smith will updated online rosters.

Membership – Kent Perkins will be chair (Kansas City Summer 2019)

Chair: Bruce Griffith (Orlando, Winter 2020)

Vice Chair:

Rooster will be updated after meeting.

Old Business: None

New Business: None

Adjournment: Motion passed (5-0-0)  
Next Meeting Kansas City