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**DRAFT**

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. 8.1 DATE February 21, 2018

TC/TG/MTG/TRG TITLE Positive Displacement Compressors

DATE OF MEETING January 23, 2018 LOCATION Chicago, IL

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Dr. Margaret Mathison	2012	Dr. Jason Hugenroth	2014	
Dr. Michael Perevozchikov	2014			
John Neel	2017			
James Douglas	2016			
Dr. Alex Leyderman	2016			
Dr. Georgi Kazachki	2014			
Dr. Christopher Seeton	2016			
Mike Wegenka	2014			
Erik Anderson	2017			
Dr. Craig Bradshaw	2017			
Doug Collings	2017			
Scott MacBain	2017			
<b>DISTRIBUTION: All Members of TC8.1 plus the following:</b>				
TAC Section Head: Dustin Meredith		SH8.1@ashrae.net		
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		

Note: These draft minutes have not been approved and not the official, approved record until approved by the TC.

### **Call to Order - Margaret Mathison**

Margaret Mathison called the meeting to order at on Tuesday January 23, 2018 at 3:32pm. A sign-in sheet was circulated and is included as Attachment 1 to these minutes. Reminder to review the ASHRAE Code of Ethics (<https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>).

All members and visitors present self-introduced.

### **Establishment of a Quorum – Margaret Mathison (in lieu of James Douglas Membership Chair)**

A roll call was taken. Voting members present were Dr. Margaret Mathison, Dr. Michael Perevozchikov, John Neel, Dr. Alex Leyderman, Dr. Christopher Seeton, Mike Wegenka, James Douglas, Erik Anderson, Dr. Craig Bradshaw, Doug Collings, and Scott MacBain. With 11 of 13 voting members present, a quorum was established. Dr. Georgi Kazachki joined later to bring the vote count to 12 of 13 members.

### **Approval of the Long Beach Minutes – Margaret Mathison**

Scott MacBain moved to accept the Long Beach minutes as distributed and Craig Bradshaw seconded the motion. The motion passed unanimously. (10-0-0, CNV).

### **Chair's Report (from TC/TG Section 8 Breakfast Meeting)**

Please see separate attachment “Winter 2018 TC Breakfast Handout.pdf” for additional details

1. CEC has an ongoing issue with presentations not being uploaded for commercialism review before the conference.
2. Program statistics available for Chicago; a total of 106 slots were available.
3. Since the 2016 Annual Meeting in St. Louis, speakers are required to fill out a potential sources bias disclosure document that will note affiliations/ involvement with any organizations with financial or commercial interest in the subject matter to be discussed, in accordance with the ASHRAE code of ethics. This IS REQUIRED to present at an ASHRAE Conference.
4. All Presenters must have their documents in order to have their presentation included in the conference program.
5. The list of Student Paper Award winners are available in the separate attachment.
6. Seminar, Forum, Debate Panel, and Workshop proposals for Houston are due by Friday, February 9th, 2018. Please visit the following site to submit your proposal: <https://ashraem.confex.com/ashraem/s18/cfp.cgi>  
For more information, go to: [www.ashrae.org/houston](http://www.ashrae.org/houston)
7. Seminar, Forum, Debate Panel, and Workshop proposals for Atlanta are due by Friday, August 3rd, 2018. For more information, go to: [www.ashrae.org/atlanta](http://www.ashrae.org/atlanta)
9. ASHRAE has a number of conferences coming up that include papers, and CEC seeks your help in reviewing them.
10. The Historical Committee has announced a call for papers on technologies and topics that occurred between the years 1920 – 2000 for ASHRAE's 125<sup>th</sup> Anniversary. See additional attachment.
11. ASHRAE's topical conferences are focused on a particular aspect of the industry and bring together professionals for networking and professional development.
12. The CLIMA 2019 Congress has announced a call for papers and a call for reviewers.

### **Liaison Reports**

Section 8 Head Dustin Meredith reminds the committee that it can appoint liaison to any standards committee.

**Standards – James Douglas’ Report:**

SPC 23.1-2010R, “*Methods of Testing For Rating the Performance of Positive Displacement Refrigerant Compressors and Condensing Units that Operate at Subcritical Temperatures of the Refrigerant.*” Standard 23.1 has finished the public review process for the independent substantive change (ISC) package, which addressed material inadvertently omitted from the original review draft.

SPC 23.2P, “*Methods of Test for Performance Rating Positive Displacement Refrigerant Compressors That Operate at Supercritical Temperatures of the Refrigerant.*” Scott MacBain is the chair of this committee, which met for the first time in Chicago. New members and guests are always welcomed. One new member is needed and was identified in the TC 8.1 committee meeting. Eventual plan is to harmonize 23.1, 23.2, and Dynamic Compression standard for use with AHRI 1520.

Standard 41.9-2010, “*Standard Methods for Refrigerant Mass Flow Measurement Using Calorimeters.*” The first publication public review draft has been prepared and SSPC 41 voted to approve the draft for public review.

Standard 41.10-2013, “*Standard Methods for Refrigerant Mass Flow Measurement Using Flowmeters.*” John Neel is the chair of this revision committee and revision work is progressing. New members and guests are always welcomed. The committee has identified an issue with how oil flow measurement is made in specific cases and is working to make updates.

**Other standards that affect the TC 8.01 committee:**

Standard 41.1-2013, “*Standard Methods of Temperature Measurement.*” The committee has made updates and is planning to vote for PPR in Houston.

Standard 41.4-2013, “*Standard Methods for Measurement of Proportion of Lubricant in Liquid Refrigerant.*” Committee is reviewing procedures.

Standard 41.7-2013, “*Standard Methods for Gas Flow Measurement.*” The standard was re-affirmed.

**Program - Erik Anderson**

TC 8.1 sponsored Chicago Seminar 8: “*Impact of Regulatory and Market Trends on Compressor and System Design*”

Discussion on scheduling of seminars and interaction within tracks or committee meetings

TC 6.8 seeking a co-sponsorship for Houston program “*Control in Heat Recovery Chillers to Meet Energy Codes*”. Craig Bradshaw made a motion to co-sponsor, seconded by Michael Perevozchikov and the motion passed 11-0-0 CNV.

Proposal for Houston program “*Positive Displacement Compressors – Back to Basics*” to be chaired by Rick Heiden with speakers Craig Bradshaw, David Halbrooks, and Connor Hayes. Craig Bradshaw made a motion to sponsor this seminar, seconded by Scott MacBain, and the motion passed 10-0-1 CNV.

Alex Leyderman proposed a seminar “*Compressors for Economized Systems*”, but no motion was made.

Proposal for Houston program “*Leveraging Compressor Methods of Test for Research and Development*” to be chaired by Craig Bradshaw. Scott MacBain made a motion to sponsor this seminar, seconded by Doug Collings, and the motion passed 11-0-0 CNV.

The Refrigeration Committee is seeking co-sponsorship for Houston program “*Recent Advances in Solid State Cooling Technologies*”. Georgi Kazachki made a motion to co-sponsor, seconded by Chris Seeton, and the motion passed 11-0-0 CNV.

Chris Seeton shared discussions he has had with CEC requesting more support for a Refrigeration Track at the Winter Meeting and support of a mini-track for equipment and fluids.

**Research Subcommittee – Craig Bradshaw (Chair)**

Research Chairs Breakfast Report

Increase in frequency for RTAR and WS submission deadlines (MMAD)

Added a March 15th deadline

March, May, August, December

Conducted the first PMS training via webinar, Nov 1st with 88 attendees

Another training planned for Spring 2018

Additional reminders:

WS authors can bid on TRPs

Unsuccessful bidders CANNOT serve on PMS

PMS CANNOT change the scope of a project alone, they need TC and RAC approval

WS must include a list of people to serve on PES

PMS members are appointed by TC chair, there is no formal appointment procedure/form  
and all changes are conducted within the TC

Full votes of sponsoring and co-sponsoring TCs on RTAR and WS submission forms

Conditionally approved RTARs must acknowledge how conditions were cleared

Be sure to include milestones in WS

Proposal Updates:

2 RTARs considered, 2 accepted with comments

2 WSs considered, both returned

Voted to release all outstanding TRPs for bid (11 currently, possibly 4 more on Wednesday)

40 IRG pre-proposals considered, 6 solicited to submit full proposal

17 applications for NIA, were unable to review at this meeting

RTAR 1893 authored by Rick Heiden for “*Development of Method of Test for Motor Component Thermal Conductivity*” (sponsored by TC 8.2 and co-sponsored by TC 8.1 and TC 1.11) was accepted and is moving to Work Statement. The details will be distributed for a letter ballot vote.

TC 3.4 sponsored research proposal on “*Foamability Properties of LGWP Refrigerant and Oil Mixtures*” has undergone changes to the Work Statement. Craig Bradshaw made a motion to confirm co-sponsorship, Scott MacBain seconded, and the motion passed 11-0-0 CNV.

Discussion to develop a new RTAR for development of methods of test for in-situ oil circulation rate. Alex Leyderman volunteered to draft RTAR.

Members of Standards Committee 41.10, “*Standard Methods for Refrigerant Mass Flow Measurement Using Flowmeters*” plan to develop an RTAR to quantify the impact of oil carryover on flow measurement error. Craig Bradshaw and Connor Hayes to develop an RTAR with review by Chris Seeton and John Neel.

Please bring any suggestions for new RTARs or improvements to the RTAR process to Craig Bradshaw.

If you have ideas or an interest in the research subcommittee, please contact Craig Bradshaw or attend the subcommittee meeting in future meetings.

**Handbook – Alex Leyderman (Chair)**

All of the handbook chapters are current.

Please begin gathering updated information (charts, sketches/pictures, performance information, etc.) for the next revision of the positive displacement compressors chapter. All subsections will require updates based on new development/research. Volunteers were needed for the following topics, primarily for chapter on Positive Displacement Compressors:

Over- and under-compression by Alex Leyderman

Valve losses by Scott MacBain

Compressors with economizer ports by Michael Perevozchikov and Margaret Mathison

Typical design features of reciprocating compressors (Table 1) revised for new/alternative refrigerants

Updating performance curves for new refrigerants by Scott MacBain

- Fig. 10 Capacity and Power-Input Curves
- Fig. 14 Performance Curves for Typical Rolling-Piston Compressor
- Fig. 28 Typical Open-Compressor Performance

Help revise the section on scroll chillers for the liquid-chilling systems chapter (chapter 43)

Orkan Kurtulus has volunteered to serve as Vice Chair of Handbook

**Membership – Jim Douglas (Chair)**

We have 13 voting members at the time of this meeting.

We will add Rick Heiden from Trane, Eric Berg from Lennox, and Joe Sanchez from Bitzer to the voting member list in the next cycle.

The following changes will be made to committee officers in the next cycle. Michael Perevozchikov to Chair, Craig Bradshaw to Vice Chair, Rick Heiden to Secretary, and Connor Hayes to Webmaster.

**Website – Greg Chilcote (Webmaster)**

The website is up to date for minutes and agenda.

**Old Business – Margaret Mathison**

None.

**New Business - Margaret Mathison**

None.

**Motion to Adjourn**

Motion to adjourn by Mike Wegenka.

**Attachment 1 ATTENDANCE LIST**

TC 8.1 Attendance List – Chicago

Name	Company	Status
Margaret Mathison	Iowa State University	Chair/VM
Michael Perevozchikov	Emerson	Vice Chair/VM
Drew Welch	Johnson Controls	Secretary
Craig Bradshaw	Oklahoma State University	Research/VM
Greg Chilcote	Trane	Webmaster/CM
Jim Douglas	Imagineering and More	Membership Standards/VM
Alex Leyderman	Triumph Group	Handbook/VM
Erik Anderson	Anderson Engineering	Programs/VM
Georgi Kazachki	Dayton Phoenix Group	VM
Chris Seeton	Shrieve	VM
Mike Wegenka	Trane	VM
Doug Collings	Tecumseh Products	VM
Scott MacBain	Carrier	VM
John Neel	Johnson Controls	VM
Dustin Meredith		Section 8 Head
Eric Berg	Lennox	CM
Matt Cambio	Ingersoll Rand	CM
David Halbrooks	Purdue University	CM
Joe Sanchez	Bitzer	CM
Heinz Juergensen	Bitzer	CM
Stefan Elbel	University of Illinois	PCM
Dwayne Johnson	Trane	CM
Rick Heiden	Trane	PCM
Josh Hughes	Chemous	PCM
Orkan Kurtulus	Purdue University	PCM
Jun Pyo Lee	Carrier	PCM
Justin Prosser	AHRI	CM
David Ziviani	Purdue University	PCM
Jerry David Edwards	Bristol Compressors International	CM
Wengqian Liu	Lennox	CM
Joe Sanchez	Bitzer US, INC	CM
Conor Hayes	Trane	Guest
Vishal Sharma	ORNL	CM
David Rockwell	Carrier	Guest
Amit Vaidya	Carrier	Guest
Josh Lajoie	Carrier	Guest
Wayne Beagle	Bitzer	Guest
Sage Tomlinson	CPI	Guest
Jacob Grosher	Emerson	Guest
Robert Chevasco	Shrieve	Guest
Alberto Scala	Trane	Guest
Walter Mecozzi	ClimaCool	Guest

## **Attachment 2: Code Of Ethics**

### **ASHRAE Code of Ethics**

(Approved by ASHRAE Board of Directors January 31, 2007)

As members of ASHRAE, we pledge to act with honesty, fairness, courtesy, competence, integrity and respect for others in our conduct.

Efforts of the Society, its members, and its bodies shall be directed at all times to enhancing the public health, safety and welfare.

Members and organized bodies of the Society shall be good stewards of the world's resources including energy, natural, human and financial resources

Our products and services shall be offered only in areas where our competence and expertise can satisfy the public need.

We shall act with care and competence in all activities, using and developing up to date knowledge and skills.

We shall avoid real or perceived conflicts of interest whenever possible, and disclose them to affected parties when they do exist.

The confidentiality of business affairs, proprietary information, intellectual property, procedures, and restricted Society discussions and materials shall be respected.

Each member is expected and encouraged to be committed to the code of ethics of his or her own professional or trade association in their nation and area of work.

Activities crossing national and cultural boundaries shall respect the ethical codes of the seat of the principal activity.