



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. 8.1 DATE August 29, 2018

TC/TG/MTG/TRG TITLE Positive Displacement Compressors

DATE OF MEETING June 26, 2018 LOCATION Houston, TX

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	Dr. Georgi Kazachki	2014	
John Neel	2017	Mike Wegenka	2014	
James Douglas	2016			
Dr. Alex Leyderman	2016			
Dr. Christopher Seeton	2016			
Erik Anderson	2017			
Dr. Craig Bradshaw	2017			
Doug Collings	2017			
Scott MacBain	2017			

**DISTRIBUTION: All Members of TC8.1 plus the following:**

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, June 26, 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. Christopher Seeton, James Douglas, Erik Anderson, Dr. Craig Bradshaw, Doug Collings, and Scott MacBain. With 9 of 13 voting members present, a quorum was established. Dr. Alex Leyderman joined later to bring the vote count to 10 of 13 members.

### **Approval of the Chicago Minutes – Margaret Mathison**

Craig Bradshaw moved to accept the minutes as distributed and Chris Seeton seconded the motion. The motion passed unanimously. (8-0-0-4, CNV).

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

- Nominations for Hightower and Service to ASHRAE Research Awards due September 1
- Reminder that ASHRAE letterhead cannot be used without vote by TC
- The Historical Committee is soliciting articles, papers, and program sessions for the 125<sup>th</sup> anniversary of ASHRAE. Abstracts and outlines are due December 7; contact Chris Preyor ([cpeyor@ashrae.org](mailto:cpeyor@ashrae.org)) for more information.
- Reminder that TC e-mail aliases are listed on the ASHRAE website for TCs ([www.ashrae.org/TCs](http://www.ashrae.org/TCs))
- TAC recently updated the slides for TC members to explain the benefits of TCs to local ASHRAE chapters
- CEC (Conferences and Expositions Committee) has requested future meeting program track suggestions (submit to Tony Giometti, [Giometti@ashrae.org](mailto:Giometti@ashrae.org)) and volunteers willing to serve as technical session chairs and reviewers (e-mail [Michael.Perevozchikov@Emerson.com](mailto:Michael.Perevozchikov@Emerson.com))

### **Liaison Reports**

Section 8 Head Dustin Meredith thanked Margret for her service as Chair.

### **Standards – James Douglas**

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.

Rick Hall presented a proposal to form a new standard 23.3 which has the goal to merge 23.1 and 23.2 into a single document because the standards are now harmonized. The committee voted 9-0-0-4 to form the new standard with a committee chaired by Scott MacBain. Michael Perevozchikov, John Neel, Orkan Kurtulus, Craig Bradshaw, Margaret Mathison, Justin Prosser, Alex Lifson and Rick Hall also volunteered to serve on the committee.

It was noted that TC 8.2 voted to create a new standard based on 23.1 and 23.2 for dynamic compressors to be used with AHRI 1520.

Subcommittee 41.9, Standard Methods for Refrigerant Mass Flow Measurement Using Calorimeters – M. Perevozchikov. There were no public review comments during the first 41.9 Publication Public Review (March 16, 2018 to April 30, 2018) so ASHRAE staff will proceed with the publication of 41.9-2018. Michael has approved the galley proofs.

Subcommittee 41.10, Standard Methods for Refrigerant Mass Flow Measurement Using Flowmeters – J. Neel. The 41.10-2013 revision subcommittee met to review the latest working draft on Tuesday, June 26th, from 8:00 AM to 10:00 AM in room 342 on the 3rd floor of the Hilton. A lot of progress was made at the meeting and action items were assigned. New members and guests are always welcomed. The standard is on track for PPR in the 2019 Fall.

Other standards that affect the TC 8.01 committee due to the formation of SSPC41 (combining the independent standards that were covered by TC1.1, TC1.2, and TC8.1):

Subcommittee 41.1, Standard Methods of Temperature Measurement – E. Anderson  
41.1-2013 revision subcommittee met to review the latest working draft on Tuesday, June 26, from 10:00 AM to noon in room 342 on the 3rd floor of the Hilton.  
Draft is progressing and an ADHOC Committee will be formed to help with some of the sections of the standard.

Subcommittee 41.2, Standard Methods of Air Velocity and Airflow Measurement – T. Beck  
ASHRAE published the 41.2-2018 standard. This is a major accomplishment – the previous version was published in 1989 and the new version includes air velocity measurements in addition to airflow measurements. The standard was available on the shelf at the bookstore.

Subcommittee 41.3, Standard Methods for Pressure Measurement – D. Collings  
41.3-2014R revision subcommittee met earlier today and reviewed the latest working draft. Progress was made through the normative section. Adam Mikealson—will be doing the Uncertainty Example section. Discussion was held to determine what the uncertainty examples should be shown. It was decided that one simple and one with data acquisition would be shown. Standard is on track for completion in 2020.

Subcommittee 41.4, Standard Methods for Measurement of Proportion for Lubricant in Liquid Refrigerant – J. Douglas  
41.4-2015R revision subcommittee met to review the latest working draft on Monday, June 25, from 4:15 to 6:15 PM in room 342 on the 3rd floor of the Hilton. We are dealing with issues of safety and sampling hardware complexity in the sampling process. New members and guests are always welcomed.

Subcommittee 41.6, Standard Methods for Humidity Measurement – M. Shows  
41.6-2014R revision subcommittee met to review the latest working draft on Monday, June 25th, from 10:00 AM to noon in room 342 on the 3rd floor of the Hilton. Committee is making good progress. New members and guests are always welcomed.

Subcommittee 41.7, Standard Methods for Gas Flow Measurement – J. Scott  
41.7-2015 (RA 2018) has been reaffirmed.

Subcommittee 41.8, Standard Methods for Liquid Flow Measurement – J. Scott  
41.8-2016 will be due for periodic maintenance in January 2019.

Subcommittee 41.11, Standard Methods for Power Measurement – M. Todd  
41.11-2014R revision subcommittee met to review the latest working draft on Monday, June 25th, from 2:15 to 4:15 PM. Many action items were assigned to update some of the graphics and examples. New members and guests are always welcomed.

A potential proposal for new standard was proposed at the SSPC41 meeting – Jim Lutz drafted a proposed Title, Purpose, and Scope for 41.13P, Standard Methods for Fuel Heating Value Measurements, that like 41.11, would rely heavily on referenced documents. At present, Jim needs a few more individuals to volunteer to serve on this committee. The SSPC41 voted to establish this new standard.

### **Program - Erik Anderson**

TC 8.01 program committee met last Sunday night, June 24, 2018. We had a good discussion regarding those seminars that TC 8.01 was sponsoring at the Houston conference. Seminars for future conferences were discussed and planned.

TC 8.01 sponsored 2 seminars at the conference in Houston. One seminar was chaired by Rick Heiden, Positive Displacement Compressors – Back to Basics. The other seminar was chaired by Craig Bradshaw, Leveraging Compressor Methods of Test for Research and Development. Both seminars were reportedly a great success and well attended.

Justin Prosser proposed a seminar for the Atlanta winter meeting. The seminar is based on a white paper titled Tolerances and Uncertainties in Performance Data of Refrigerant Compressors. We voted to co-sponsor this seminar with TC 8.02.

Joe Sanchez committed to bring a proposal for a seminar to the winter meeting in Atlanta for a seminar in Kansas City. He stated he would have a title and speakers for the seminar.

Discussions were had and it was voted to co-sponsor 2 seminars with TC 10.07 for Atlanta.

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

Update from Research Chair Breakfast

- 3 RTARs considered (1 accepted, 1 conditional accept, 1 reject)
- 3 WSs considered (all conditional accept)
- 1 IRG proposal approved
- 25 Grant-in-Aid awards given, due March 1
- Special awards awarded
  - Service to ASHRAE award
  - Homer Adams
  - New Investigator Award
- Asking to develop a "Plain English Abstract" with new WSs
- Deadline for winter meeting this year, December 3rd

- Peter Armstrong is new research liaison for section 8

Update on WS 1793:

Title: “Development of method of test for motor component thermal conductivity”

Sponsorship: 8.2 (sponsor), 8.1 (co-sponsor), 1.11 (co-sponsor)

Lead Author: Rick Heiden

Note: TC 8.1 voted to support this RTAR in Atlanta 2015, will plan to vote on WS via letter ballot soon after Chicago meeting

- RAC did not like that there was not enough third-party support for the project, Rick Heiden does not have the time to solicit additional support. Would need someone to take up the primary role.
- Rick will bring it up to TC 8.2 to solicit additional support

WS 2 Update

Title: “Foamability properties of LGWP Refrigerant and Oil Mixtures”

Sponsorship: 3.4 (sponsor), 8.1 (co-sponsor)

Lead Author: Chris Seeton

Note: TC 8.1 voted to support this WS in Long Beach 2017, 6-0-0

Re-voted to co-sponsor updated WS in Chicago 11-0-0; no update, currently

### **Handbook – Alex Leyderman (Chair)**

Updates are in process for 2020 Equipment and Systems

The committee is asked to submit any comments on chapter changes to Alex

- Chapter 38 (Compressors) will be sent out to the TC8.1 for comments and approval in September 2018 (expanded section on over- and under-compression; additional schematic for economizing cycle and some theory of operation; possibly some additional information on latest oil/ refrigerant mixtures and their impact on compressor operation; need some help on this, if possible)
  - TC will be asked to vote on chapter by letter ballot in Q4
- Chapter 43 (Liquid-Chilling Systems) will be sent out to TC8.1 for comments and approval in October 2018. (Additional section from Scott McBain that was not included in the last publication)
  - TC will be asked to vote on chapter by letter ballot in February of 2019

### **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 for a total of 12 voting members 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 Doug Collings 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 Craig Bradshaw, seconded by Doug Collings.

**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
Alex Leyderman	Triumph Group	Handbook/VM
Erik Anderson	Anderson Engineering	Programs/VM
Craig Bradshaw	Oklahoma State University	Research/VM
Jim Douglas	Imagineering and More	Membership Standards/VM
Doug Collings	Tecumseh Products	VM
Scott MacBain	Carrier	VM
John Neel	Johnson Controls	VM
Chris Seeton	Shrieve	VM
Stefan Elbel	University of Illinois	PCM
Rick Heiden	Trane	PCM
Walter Mecozzi	ClimaCool	PCM
Justin Prosser	AHRI	PCM
Sage Tomlinson	CPI	PCM
David Ziviani	Purdue University	PCM
David Halbrooks	Purdue University	CM
Dwayne Johnson	Trane	CM
Alex Lifson	Carrier	CM
Joe Sanchez	Bitzer	CM
John Scott	Natural Resources Canada	CM
Dustin Meredith		Section 8 Head
Miguel Boscan	Bitzer US	Guest
Andrew Brownell	Carrier	Guest
Neil Bulger	Integral Group	Guest
Robert Chevasco	Shrieve	Guest
Richard Doran	Primalec	Guest
Rick Hall	Hall Consultants	Guest
Heidi Lodge	Shrieve	Guest
Billy Rhinehart	ABB	Guest
Detlef Westphalen	Navigant	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.