

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS, INC.
1791 Tullie Circle, N.E./Atlanta, GA 30329
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TC/TG/TRG MINUTES COVER SHEET**

(Minutes of all TC/TG/TRG Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/TRG NO 8.1 DATE June 26, 2013

TC/TG/TRG TITLE Positive Displacement Compressors

DATE OF MEETING June 25, 2013 LOCATION Denver, CO

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Matt Irons	2011	Bob Utter	2009	See Attachment 1
Jim Douglas	2011	Ward Wells	2009	
Alex Leyderman	2011	Jason Hugenroth	2009	
John Tolbert	2011	Juergen Suess (IM)	2009	
Georgi Kazachki	2009	Rainer Grosse-Kracht(IM)	2009	
Doug Collings	2012	Curt Slayton	2009	
Scott MacBain	2010			
Mike Wegenka	2008			
Bruce Griffith	2009			
Scott MacBain	2009			

DISTRIBUTION

TC:	All members of TC8.1
TAC Section Head:	Stephen Duda
TAC Chair:	William McQuade
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	David Yasher– Section 8 Research Liaison Michael Patton – Systems Handbook Chair Rick Larson – Standards Jim Tauby – SPLS liaison Francis Mills – Special Pubs Keith Reihl – Technology Transfer Committee
Manager Of Standards Manager Of Research & Technical Services	Stephanie Reiniche Mike Vaughn

Note: "These draft minutes have not been approved and are not the official, approved record until approved by this committee."

Call To Order - Matt Irons

Matt Irons called the meeting to order at 3:37 pm on Tuesday June 25, 2013 in Plaza Court 5 of the Sheraton. Margaret Mathison served as secretary for this meeting. A sign-in sheet was circulated and is included as Attachment 1 to these minutes.

Establishment of a Quorum – Matt Irons

A roll call was taken. Voting members present were Doug Collings, Jim Douglas, Bruce Griffith, Matt Irons, Georgi Kazachki, Alex Leyderman, Scott MacBain, John Tolbert, and Mike Wegenka. With 9 of 13 voting members present, a quorum was established.

Approval of the San Antonio Minutes – Matt Irons

Rick Hall moved to accept the Dallas minutes as written and Mike Wegenka seconded the motion. The motion passed unanimously. (8-0-0, 5 absent and the Chair not voting)

Liaisons

Section Head – Stephen Duda

E-mail Sh8@ashrae.net with any questions for the section head.

Has read minutes and agenda and seems committee is doing well.

New roster will take effect July 1st. Steve noted that there is a new electronic form to fill out for the roster. John needs a copy of this new Excel file.

TC Chairman's' Breakfast Minutes - Matt Irons

- Roster does not change until July 1st.
- Everyone should go online to update their list of activities, which are used for the award calculation. Some TCs have an award chairperson who learns this process; we may want to consider adding this position. Asked for volunteers to take this position. Will consider at next meeting.
- TAC presentation template is still available for TC members; 20-30 minutes, somewhat customizable. Giving a presentation on TCs at chapter meetings earns points.
- Online bios are being enhanced. Must specify interests (government, academic, etc.). Important for chairs and committee members in order to determine balance.
- Lots of discussion on teleconferences (Electronic and Present) for TCs. Still in beta testing, 8.12 has tried. Must request 30 days in advance. Projector and equipment is provided; individuals are not allowed to bring their own projectors, must be provided by hotel. Must provide justification for requesting E&P meetings.
- Looking for volunteers for society technical programs, society meetings. E-mail Tony Giomani.
- Options for TC subcommittee meeting teleconferences are still available. Some TCs are holding subcommittee meetings well in advance of event to get ahead.
- Code Of Ethics is included in Attachment 2.
- List of other conferences and workshops in Attachment 3.

Standards – Rick Hall

TC 8.1 is the responsible for five separate standards.

- 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.” At Dallas, TC 8.01 voted to revise this standard, and the resulting revision committee held its first meeting on Monday (June 24th) to begin work. The committee did not discuss the Work Plan, but began to review proposed revisions. Margaret Mathison is the Chair of this committee, but the ASHRAE Standards Committee has not yet confirmed Margaret’s nomination or the remaining slate of members. New members are always welcomed.
- SPC 23.2P, “Methods of Test For Performance Rating Positive Displacement Refrigerant Compressors That Operate at Supercritical Temperatures of the Refrigerant.” Scott MacBain, Chair. Progress continues on this new standard which will be like Standard 23.1 except that it will cover compressors and compressor units that operate at supercritical pressures of the refrigerant. The committee did not have quorum at this meeting, so they reviewed changes made since January for code mandatory language. A letter ballot will be sent out in the next week to vote to submit a Publication Public Review draft to the ASHRAE Standards Committee. The Standards Actions list serve can be used to follow its status.
- Standard 41.9-2010, “Standard Methods for Volatile Refrigerant Mass Flow Measurement Using Calorimeters.” The latest revision of this standard was published in 2011. This standard will come up for periodic maintenance at the Winter Meeting in New York (January, 2014). There is no activity at this time. The standard must be revised every 3 years to maintain ANSI accreditation. SSPC 41 will form a new revision subcommittee to complete the revision of the 2011 edition. They will ask for members to serve on the committee in NYC.
- Standard 41.10-2013, “Standard Methods for Refrigerant Mass Flow Measurement Using Flowmeters.” The latest revision of this standard has been approved for publication. Shane Angle was the Chair of the revision committee.
- Discussion on SPC-179P, Method of Test for Life Testing Positive Displacement Compressors:
 - Alex Leyderman expressed concern about absence of regulations for compressor quality and supports taking initiative to find reasonable solution for minimum requirements. He suggested that the TC establish a framework for a committee that will develop rules for minimum performance under air conditioning or heat pump conditions (excluding compressors for refrigeration), a time period for testing, and a start-stop test.
 - Rick Hall mentioned that standards committee 179P was authorized for MOT for life test of compressors following a seminar which asked whether there should be a compressor life test standard. Bob Utter chaired the committee, which continued for around 10 years but voted to discontinue their efforts at the last meeting due to a lack of forward progress. A liaison from Standards visited TC 8.1 at the last meeting to ask whether this was acceptable, and the committee decided the standard was not needed.
 - Alex Lifson suggested that the committee review the comments summarizing why SPC 179 was disbanded at the next meeting.
 - Rick Hall commented that since SPC 179P was dissolved, the TC will need to submit a TPS (title, purpose scope) to start a new SPC. However, Georgi Kazachki pointed out that it would not be successful if the committee still feels the same way. Must have 2/3 vote to establish SPC and chair.
 - Alex Leyderman will prepare the TPS and send it to Rick and those who were involved in 179P (Bob Utter and Curt Slayton are no longer involved in ASHRAE). Needs to request letter ballot for TC to vote on motion for ASHRAE Standards Committee to form SPC.
 - Alex Lifson asked that comments from previous 179P be included with e-mail to provide background. Matt Irons said that compressor manufacturers were against the standard. Mike Wegenka pointed out that no users could be recruited to the committee.

- Rick pointed out that anyone is welcome to bring ideas for standard to this TC and explain why it is important. Requires 2/3 vote to approve any Standards Action.
- Goergi Kazachki expressed support for everything that Alex Leyderman said.

Program - Erik Anderson

- Curt Slayton is no longer involved in ASHRAE but volunteered Erik Anderson to serve as program chair. Erik has attended training and learned about program subcommittee chairs.
- The deadline for paper abstracts for Seattle is Sept 23rd. Erik is glad to help anyone interested in submitting a paper through the process. He also asked for program or paper ideas.
- Georgi Kazachki reminded everyone that TC 8.1 was co-sponsoring seminar 46, Wednesday at 11:00.
- Georgi also proposed a seminar co-sponsored by 3.1 and 10.7: “Refrigerants for today, tomorrow and beyond.” It will probably be a two part seminar because he already has 5-6 presentations lined up and has not yet extended any invitations to Europeans, who are likely to attend the NYC meeting. The idea came about because Piotr Domanski wanted to present a summary of papers from the NIST conference last year, which was disrupted by hurricane Sandy. Any individuals interested in speaking should send a title, brief abstract (100-200 words) and brief bio to Georgi (kozachki@comcast.net) by July 15th. The deadline for seminar proposal submission is August 12th. He already has a presentation on ammonia and also will have presentation on cost effectiveness of CO₂. He is equally accepting of presentations for and against alternative refrigerants. Georgi moved to co-sponsor the seminar, John Tolbert seconded, and the committee voted 8-0-0, chair not voting.
- Two AREP presentations are being offered at the Denver conference.
- Matt Irons reminded everyone that conference papers are a good option for getting TC 8.1 on the map. Send ideas for seminar topics to Erik.
- ASHRAE has given and will continue to give priority to published papers and reduce the number of seminars. Dates have passed to submit papers for NYC, but Seattle is still an option.
- Georgi Kazachki suggested that NYC seminars can evolve into papers for Seattle.
- Matt reminded everyone that it also is possible to present to the TC.

New York Meeting – January 18-22, 2014

- Conference Site Live: June 3, 2013
- Web Site Opens for Seminar and Forum proposals – June 3, 2013
- Final Conference Papers Submitted for Review – July 3, 2013
- Technical Papers final review due August 12, 2013
- New York Seminar and Forum Session Proposals are due August 12, 2013
- All presentation files (PPT) due online – January 3, 2013
- Conference Website: <http://www.ashrae.org/newyork/>

Seattle Meeting - June 28-July 2, 2014

- Conference Paper Abstracts due September 23, 2013
- Technical Papers Due for Review – September 23, 2013
- Acceptance/Reject Notifications issued for Conf. paper abstracts – Oct. 7, 2013
- Conference Site Live: January 6, 2014
- Web Site Opens for Seminar and Forum proposals – January 6, 2014
- Final Conference Papers Submitted for Review – January 9, 2014
- Seattle Seminar and Forum Session Proposals are due February 13, 2014
- Technical Papers final review due February 25, 2014
- All presentation files (PPT) due online – June 2, 2014
- Conference Website: <http://www.ashrae.org/seattle/>

Research – Matt Irons

- There were no new approvals to report.
- Work Statement for 1642 “Improved Compressor Performance Modeling for Use in System Simulation Programs” is still tabled due to work at AHRI and concerns about the proposed approach. The work statement was stopped by RAC.
- Matt pointed out that TC 8.11 has a lot of research activity.
- RTAR 1628: Some changes were made to include R32 and R1234ZE and the RTAR was approved. The work statement is in the writing phase and still needs to go to RAC.
- Matt asked if TC 8.1 is still uninterested in Mark Adams’ research on “oil concentration of field installed liquid chillers with flooded-type evaporators.” Georgi Kazachki pointed out that the topic is a stretch for TC 8.1 since the compressor is only the sufferer. However, John Tolbert and Alex Lifson countered that the compressor is responsible for oil circulation. In response to a question from Georgi, Matt explained that co-sponsorship would involve funding the work, and Bruce Griffith added that it also would involve providing a member for the PES. It was concluded that TC 8.1 still not interested in participating.
- Matt Irons attended the research committee breakfast, where it was reported that RAC only evaluated 5 RTARs for Denver (a low number) and 2 work statements. Because it takes 1-3 years to get projects moving, RAC is very concerned that there will be a lack of projects even though funding is available. Send any research ideas to Matt Irons; he wants to help TC 8.1’s research regain momentum.
- Matt Irons and Michael Perevozchikov held a research subcommittee meeting on Monday. It was noted that the TC 8.1 research subcommittee meeting conflicts with 10.7 (commercial refrigeration) and SPC 23.1 meetings.
- ASHRAE is instituting a new software-based RTAR submission process to limit errors. It also limits the number of words to encourage people to get to the point. People felt that the RTARs were going too far and skipping a step to the work statement.
- Matt encouraged anyone interested in serving as research subcommittee chair to contact him.

Handbook - Matt Irons

- Chapter 37, “Compressors” needs to be improved by March 2014, but Alex strongly recommends preparing in advance. He suggested that several sections need to be enhanced and solicited the following individuals to help in this work:
 - Capacity modulation (mechanical and electrical—variable frequency, two-speed), with schematics and pictures, John Tolbert (mechanical), Juergen Suess
 - Over- and under-compression theory and design for mitigation, Alex Lifson and Michael Perevozchikov
 - Performance (rating tables) for all compressors, new samples for recip, scrolls, rotary, screws
 - Update all illustrations, Matt Irons (scroll), John Tolbert (recip)
 - Vapor and liquid (oil or refrig) injection design modification, how it works, Michael Perevozchikov
 - Effect of Mach number
 - Motor controller, effect on bearings, etc. (just a few paragraphs), John Tolbert
 - Noise and vibration at low speed due to insufficient oil pressure
 - Bruce Griffith mentioned he is currently working on Ch. 2 in Refrigeration and the entire screw section is being redone. He will send this work to Alex Leyderman.
- Chapter 42, “Liquid Chilling Systems.” John Tolbert promised material on tandems—schematics and description of how they work. The material can discuss recips or scrolls. Scott MacBain volunteered to provide material on scroll liquid chilling systems. Bob Utter will also contribute.

- Alex would like to receive material for the handbooks before NYC if possible, or by March 2014. Matt Irons suggested holding a subcommittee meeting in NYC to limit the amount of discussion in TC 8.1. At that time, the structure of the chapter can be discussed, as it cannot increase in size.
- Georgi Kazachki asked who should address TXVs not working with digital scrolls due to the valve's longer time constant relative to the compressor. Alex Leyderman and John Tolbert suggested that this is a system issue, not a compressor issue.
- Alex Leyderman asked for comments on what needs to be added. Georgi asked for additions on tandem and trio compressors.
- Matt Irons added that Chapter 8, 'Equipment and System Dehydrating, Charging, and Testing,' was voted on and passed.

Membership – John Tolbert

- John Tolbert reports we are doing well on membership. We will have 12-14 voting members over the next four years. The worst year is the coming year, when we will be down to 9 voting members since Georgi Kazachki, Mike Wegenka, Ward Wells, Jason Hugenroth, Bruce Griffith, Curt Slayton, Rainer Grosse-Kracht are all rolling off. He solicited requests for new corresponding members or provisional corresponding members.
- Georgi Kazachki asked to continue as a voting member but this is only possible in an emergency situation.

Website - Drew Welch

- Drew Welch has posted the agenda for this meeting and the draft of Dallas meeting minutes. The website is current. It was noted that the website of TC 3.1 has received praise and may provide ideas for additional updates.

Old Business – Matt Irons

- No old business was re-introduced.

New Business - Matt Irons

- No new business was introduced.

Motion to Adjourn - Matt Irons

- With no further business before the TC, Jim Douglas moved to adjourn. Scott MacBain seconded and the motion passed (8-0-0, Chair not voting)

Attachment 1 ATTENDANCE LIST

TC 8.1 Attendance List – Dallas

Name	Company	Status
Matt Irons	Emerson Climate Technologies	Chair/VM
Mike Wegenka	Trane	VM
John Tolbert	Bristol Compressor	Membership/VM
Scott MacBain	Carrier UTC	Program/VM
Rick Hall	Hall Consultants, LLC	Standards/CM
Jim Douglas	Imagineering and More	VM
Bruce Griffith	Johnson Controls	VM
Georgi Kazachki	DRS-ESI/Cryotherm	VM
Doug Collings	Tecumseh Products Company	VM
Margaret Mathison	Marquette University	CM/ New Secrty
Steve Spletzer	Arkema	CM
Andrew Welch	Johnson Controls	CM/Webmaster
Satheesh Kulankara	Johnson Controls	CM
Erik Anderson	Anderson Engineering	CM
Eddie Rodriguez	Daikin McQuay	CM
Justin Prosser	AHRI	Guest
Rupal Choksi	AHRI	CM
Alex Leyderman	Fairchild Controls	VM/Handbook
Alex Lifson	Carrier Corp	CM
John Scott	Natural Resources Canada	CM
Paul Flanigan	Carrier	Guest
William Dietrich	Daikin McQuay	Guest
Derek Kultgen	CPI Engineering	Guest
Michael Perevozchikov	Emerson Climate Tech.	Guest
Kyle Larson	VaCom Technologies	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.

Attachment 3: Upcoming Workshops and Conferences:

- ECOS 2013**, July 16-19, 2013 - Guilin, China. Endorsed by ASHRAE. Contact ecos2013-china@iet.cn or <http://tinyurl.com/d6s3gnk>.
- **CIAR XX**, July 22-23, 2013 - Cartagena, Colombia. Endorsed by ASHRAE. Contact ciar2013@acaire.org or <http://tinyurl.com/CIAR2013>.
 - **IBPSA 2013 (13th International Conference of the International Building Performance Simulation Association)**, Aug. 25-30, 2013 - Chambéry, France. Endorsed by ASHRAE. Contact: <http://www.bs2013.fr/>
 - **AHR Expo-Mexico 2013**, Sep. 23-25, 2013 – Mexico City, Mexico. Endorsed by ASHRAE. Contact www.ahrepomex.com/eng
 - **5th International Conference – Solar Air Conditioning**, Sep. 25-27, 2013 - Black Forest, Bad Krozingen, Germany. Endorsed by ASHRAE. Contact: <http://solaircon.com/>
 - **7th CLIMAMED Mediterranean Congress of Climatization**, Oct. 3-4, 2013 - Istanbul. Endorsed by ASHRAE. Contact 90 3124194571, ttmd@ttmd.org.tr, or www.climamed.org.
 - **ICEBO (13th Annual International Conference for Enhanced Building Operations)** Oct. 8-11, 2013 Montreal, QB, Canada. Contact <http://ietc.tamu.edu/home> or <http://icebo.tamu.edu/home>
 - **IAQ 2013: Environmental Health in Low Energy Buildings**, Oct. 15-18, 2013 Vancouver, BC, Canada. Contact ASHRAE at 800-527-4723, ext. 1158, IAQ2013@ashrae.org, or www.ashrae.org/IAQ2013.
 - **iMechE BIM Seminars: Manufacturing with BIM: Ensuring Cost-Effective Integration**, Oct. 17, 2013 Manchester, UK. Contact: <http://events.imeche.org/>
 - **The 12th Asia Pacific Conference on the Built Environment**, Nov. 5-7, 2013 Shangri-la Hotel Makati, Manila, Philippines. Contact: <https://www.ashrae.org/membership--conferences/conferences/ashrae-endorsedevents/2013/12th-asia-pacific-conference-on-the-built-environment>
 - **iMechE BIM Seminars: Manufacturing with BIM: Ensuring Cost-Effective Integration**, Nov. 7, 2013 London, UK. Contact: <http://events.imeche.org/>
 - **1st International Conference on Energy and Indoor Environment for Hot Climates**, February 24-26, 2014, Doha, Qatar. Contact: www.iea-hpc2014.org or <http://ashraem.confex.com/ashraem/ihc14/cfp.cgi>
 - **49th AiCARR International Conference of 2014**, February 26-28, 2014, Rome, Italy. Contact: <https://www.ashrae.org/membership--conferences/conferences/ashraeendorsedevents/2014/49th-edition-of-aicarr-international-conference-of-2014>
 - **2014 International Sorption heat Pump Conference (ISHPC2014)**, Mar. 31 – Apr. 3, 2014, College Park, MD, USA. Contact: <http://www.ceee.umd.edu/events/ISHPC2014/>
 - **2014 ASHRAE High Performance Buildings Conference – San Francisco, CA USA**
 - **2014 ASHRAE/IBPSA-USA Joint Building Simulation Conference – Atlanta, GA USA Sep. 10-12**
 - **Efficient, High Performance Buildings for Developing Economies —** April 24 - 25, 2014 - Manila, Philippines Conference Paper Abstracts due July 12, 2013. <http://ashraem.confex.com/ashraem/dev14/cfp.cgi>
 - **11th International Energy Agency (IEA) – Heat Pump Conference**, May 12-16, 2014, Montreal, Canada. Contact: www.iea-hpc2014.org. See attached call for papers pamphlet. Paper Abstracts due date extended to June 30 and if someone needs more time that will be ok too.