

**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 January 21, 2014

TC/TG/TRG TITLE Positive Displacement Compressors

DATE OF MEETING January 21, 2014 LOCATION New York, NY

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Jim Douglas	2011	David Bergeron	2013	See Attachment 1
Rick Hall	2013	Doug Collings	2012	
Heinz Juergensen	2013	Gene Fields	2013	
Alex Leyderman	2011	Matt Irons	2011	
Alex Lifson	2013	Bob Utter	2013	
Margaret Mathison	2013			
John Tolbert	2012			
Andrew Welch	2013			

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 - Scott MacBain

Scott MacBain called the meeting to order at 3:32 pm on Tuesday January 21, 2014 in Concourse H of the Hilton. 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 – John Tolbert

A roll call was taken. Voting members present were Jim Douglas, Rick Hall, Heinz Juergensen, Alex Leyderman, Alex Lifson, Margaret Mathison, John Tolbert and Andrew Welch. With 8 of 13 voting members present, a quorum was established.

Matt Irons has moved to Europe and has Scott MacBain who will serve as acting chair. Matt will continue as a voting member for another year.

Approval of the Denver Minutes – Scott MacBain

Rick Hall moved to accept the Denver minutes as written and John Tolbert seconded the motion. The motion passed unanimously. (8-0-0-5)

Liaisons

Section Head – Stephen Duda

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

TAC has started an outstanding TC award that will be awarded one year from now at the Chicago meeting. Whereas the Hightower award goes to an individual person, this award will go to one TC per section starting at this meeting and continuing through the Seattle meeting. TCs will be selected using point system based on activity reports, minutes (should be issued within 60 days of meeting), handbook chapters, agendas (should be issued 30 days in advance of the meeting), and working on research. Steve also can award discretionary points based on his impression of operations. Rick and George listed the many accomplishments of the committee that merit this award.

Reminded committee members to follow the ASHRAE Code of Ethics; Rick Hall suggested that a reminder to comply with the code should be added to the beginning of the agenda.

Reminded committee members to update their ASHRAE bios online at least once a year.

TC Chairman's' Breakfast Minutes - Scott MacBain

Scott MacBain did not attend due to transition with Matt.

Standards – Rick Hall

TC 8.1 is the responsible TC 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.” Margaret Mathison is the Chair of this revision committee that held its first meeting in Dallas. Since then, the ASHRAE Standards Committee has confirmed Margaret’s nomination as Chair and has approved the initial slate of proposed members. The committee met on Monday, January 20, 2014, to review proposed changes to the standard and voted to approve a revised title, purpose and scope. New members are always welcomed.

- SPC 23.2P, “Methods of Test For Rating the Performance of Positive Displacement Compressors That Operate at Supercritical Pressures of the Refrigerant.” Scott MacBain, Chair. The public review of this new standard ended on December 23, 2013. Scott MacBain thanked the many members of TC 8.1 who contributed to developing the standard over the 9 year process. Rick Hall thanked Scott for leading the committee.
- Standard 41.9-2011, “Standard Methods for Volatile Refrigerant Mass Flow Measurement Using Calorimeters.” This standard is due for periodic maintenance. SSPC 41, Standard Methods of Measurement, has voted to create a new revision subcommittee to revise this standard and has proposed Michael Perevozchikov to Chair this subcommittee. Some SSPC 41 members have already volunteered to serve on this subcommittee, but additional members are requested. Alex Lifson and Alex Leyderman volunteered to join the committee, and the TC thanked Michael Perevozchikov for volunteering to chair the committee.
- Standard 41.10-2013, “Standard Methods for Refrigerant Mass Flow Measurement Using Flowmeters.” The latest revision of this standard was published in 2013. Shane Angle was the Chair of the revision subcommittee. There will be no activity on this standard until it is due for periodic maintenance in January, 2016.
- Discussion on SPC-179P, Method of Test for Life Testing Positive Displacement Compressors:
 - Alex Leyderman moved for ASHRAE to create a standard with the title “Guidance to reliability testing of positive displacement compressors for air-conditioning and heat pump application” with the attached purpose and scope. He explained that the purpose of the standard would be to establish guidance for maintaining the reliability of compressors without being restrictive of what companies can do with their product, establishing comparatively easy minimum requirements for compressors. This would revive the standard that was closed for testing the reliability of compressors. It will not include refrigeration compressors, but would focus on establishing specific conditions for how to test air-conditioning compressors.
 - Rick Hall provided background for the proposed standard. TC 8.1 proposed a life test/reliability test standard for testing compressors about 10 years ago, which was authorized and became SPC 179. Two years ago, the committee, chaired by Bob Utter, went out for Advisory Public Review. No comments were received from users, but comments were received from industry and AHRI, which represents producers. The committee was so discouraged that they petitioned the ASHRAE Standards Committee to disband, which was confirmed after an ASHRAE Standards Committee member visited TC 8.1 to confirm that no one wanted to continue work. This is essentially the same standard, with slightly refined scope.
 - Alex Leyderman added that many manufacturers have no clue about reliability testing. The government of China is looking to improve quality of manufacturing and may impose very strict requirements that would hurt manufacturers. The proposed standard may provide guidance that eliminates the need for government regulation.
 - Alex Lifson noted that manufacturers are not willing to provide input to this type of standard because this is highly proprietary information they are not willing to disclose.
 - Rupal Choksi asked how the committee would move forward without the support of the manufacturers or AHRI.
 - Mike Wegenka pointed out that the last time around, only consultants who used to work for compressor manufacturers provided input.
 - Alex Lifson added that conducting flooded tests is very difficult.
 - Heinz Juergensen added that when Europe attempted to update standards 10 years ago, they could not find anyone who would disclose how they evaluate parts after testing. Testing is not the difficult part; must evaluate the part after testing.
 - George Kazachki said that the fact that users did not provide comments on the last standard was an omission; committee members did not realize that they could provide comments. He is of the opinion that such a standard would be of benefit to the users.

- Rick added that there had to have been a 2/3 vote to close the standards, so the previous discussion on the vote being close was incorrect. When the standards committee reviews the application for a new standard, this will be considered.
- George noted that users have the right to expect a society like ASHRAE to protect them from faulty compressors.
- Heinz recommended that, if we really want to write a standard, the scope should be narrowed even further because air conditioning and heat pump applications include most compressors.
- Jim Douglas asked for confirmation that this would be a minimum standard.
- George recommended that consultants and universities be recruited to develop the MOT.
- The TC voted on the motion to create a standard with the title “Guidance to reliability testing of positive displacement compressors for air-conditioning and heat pump application” as follows: Rick Hall—no, Heinz Juergensen—no, Alex Leyderman—yes, Alex Lieson—no, John Tolbert—no, Jim Douglas—no, Margaret Mathison—no, Drew Welch—no. (1-7-0-5)
- George argued that current voting members represent compressor manufacturers, but others argued that committee is balanced.

Program - Erik Anderson

- Seminar deadline is Feb. 13 for annual conference in Seattle
- George Kazachki announced that TC's 10.7 (refrigeration) and 3.1 (refrigerants) will be co-sponsoring a seminar on “application of the new refrigeration commissioning guide for efficiency and profit” at the Seattle meeting. He proposed that TC 8.1 co-sponsor the seminar and contribute a presentation. Drew Welch moved to co-sponsor the seminar; Jim Douglas seconded. Motion passed (7-0-0-6, Rick Hall had to leave meeting).
- Conference paper deadline is March 24 for 2015 winter conference in Chicago; tracks have been set.
- New for Seattle will be workshops submitted by the TCs. The workshops will have a one hour time slot for debate between individuals on hot topics.
- Erik has information on the numbers of papers that were submitted and expected for those who are interested.
- Scott MacBain asked for volunteers interested in chairing a seminar sponsored by 8.1.
 - Chris Seeton asked how long it has been since TC 8.1 sponsored a “back to basics” seminar.
 - After discussion, Drew Welch moved to submit seminar titled “Energy efficiency of novel and conventional compressors using low-GWP refrigerants” for the Chicago meeting with Craig Bradshaw as chair. Margaret seconded and committee voted 7-0-0-6 in favor. Potential speakers include Craig, Joshua Hughes, Margaret Mathison, and Reinhard Radermacher (recommended by Michael Perevozchikov)
- Talk to Erik Anderson if interested in putting together any additional seminars.

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/>

Chicago Meeting – January 24-28, 2015

- Conference paper abstracts due March 24, 2014
- Conference paper accept/reject notifications – April 7, 2014
- Technical papers due April 14, 2014
- Web site opens for seminar, forum and paper proposals – June 2, 2014
- Final conference papers due July 7, 2014
- Seminar, forum and workshop proposals due August 11, 2014
- Technical papers due August 18, 2014
- Conference Website: <http://www.ashrae.org/chicago/>

Research – Michael Perevozchikov

- Michael Perevozchikov attended the research committee breakfast, where it was reported that ASHRAE currently has total of 62 active research projects with a value of \$10.8 million.
- Most common reasons for returning RTARs: not appropriate for ASHRAE, budget not in line with work to be completed, and lack of references.
- Georgi Kazachki suggested a research project on method for testing compressor reliability; Alex Leyderman will put together proposal to investigate whether standard is actually needed
 - Alex Leyderman will lead development of work statement with goal to have something to vote on at the next meeting.
 - Georgi suggested looking into the wording of work statement prepared by TC 3.1 to clarify flammability MOT for A2L refrigerants.
- New Investigator Awards: 13 nominated, up from 7 last year.
- New RTAR submittal forms to be used are on ASHRAE website.
- Work statements must include description of how conditions were met.
- Peter Demansk gave a presentation on how to choose a contractor if the TC sponsors a project. Michael has a copy of the slides if anyone is interested.

Handbook - Alex Leyderman

- Handbook subcommittee met on Monday and had a good review of what needs to be done.
- Discussed elements of Chapter 37, “Compressors,” and Chapter 42, “Liquid Chilling Systems,” which require updates and significant modifications by 2015. The following items must be addressed:
 - Incorporation of animation (video) and color pictures. Based on Alex’s conversation with Mark Owen (editor), the hard copy of the Handbook will be as it is today: black and white. The CD version can incorporate color and some animation (compatibility). The Website version (requires special subscription) can incorporate any format, and animation is actually welcome.
 - Add some paragraphs on digital scroll (Michael Perevozchikov). Add some updated information on recips (John Tolbert).
 - In the variable speed controller section, add the statement that selection of the controller should be based on the maximum operating current, and reference the corresponding Chapter in the Handbook.
 - Add some new and revise existing information about the speed effect on lubrication.
 - Remove performance curves for each compressor type and replace with generic performance curves (Alex Leyderman, Hermann Renz, Bitzer)
 - Update the pictures for the screw compressor (maybe add animation) (Bitzer) and the recip (John Tolbert). Review and maybe update the scroll (Michael Perevozchikov)
 - Add a brief paragraph on multi-winding motor (John Tolbert).
 - Add section on over-and under- compression.
 - Add short section on vapor and liquid injection (No cycle theory, just general concept).

- Add section on compressor operation without oil sump.
- Add description and pictures for duplex compressor systems (John Tolbert and Matt Irons)
- Add scroll liquid-chilling system (Scott Macbain, Matt Irons).
- Also looking for volunteers with information about the effect of Mach number and suction and discharge pulsations (need practical information about effect on compressor and system)
- In addition to soliciting help with the previous items, Alex encourages everybody to look at the compressor chapter and send comments
 - Would like to collect most of the information by March
- Alex will get permission to distribute copies of the chapters to the TC

Membership – John Tolbert

- John Tolbert asked about the process for what needs to be done with Matt. Scott will e-mail Matt to find out if he is abdicating as chair and staying on as a voting member. Generally, we are doing well in membership (staying within the limit of 6 – 18 members). The TC currently has slightly over 30 corresponding members. He solicited requests for new corresponding members or provisional corresponding members. The roster update goes in tonight. Next year George Kazachki, Mike Wegenka, Jason Hugenroth, and Rainer Grosse-Kracht come back on as VMs; Ward Wells will be a permanent CM; Scott MacBain will remain a CM unless he becomes chair.
- A table showing the schedule for voting members to roll on and off of the committee is included as Attachment 2.

Website - Drew Welch

- Drew Welch has posted the draft of the Denver meeting minutes. The website is current.

Old Business – Scott MacBain

- No old business was re-introduced.

New Business - Scott MacBain

- No new business was introduced.

Motion to Adjourn - Scott MacBain

- With no further business before the TC, Jim Douglas moved to adjourn. John Tolbert seconded and the motion passed (7-0-0-6).

Attachment 2: Voting Members for TC 8.01 as of February 2014

		FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
Matt Irons		XX	XX	XX				
Scott MacBain	Chair/Programs	XX	XX		XX	XX	XX	XX
Margaret Mathison	Secretary			XX	XX	XX	XX	
Rick Hall	Standards Chair	XX		XX	XX	XX	XX	
Alex Leyderman	Handbook Chair	XX	XX	XX	XX		XX	XX
John Tolbert	Membership	XX	XX	XX				
Bob Utter		XX	XX	XX	perm cm			
Georgi Kazachki		XX	XX		XX	XX	XX	XX
David Bergeron		XX		XX	XX	XX	XX	
Mike Wegenka		XX	XX		XX	XX	XX	XX
Jason Hugenroth		XX	XX		XX	XX	XX	XX
Ward Wells		XX	XX	perm cm				
Bruce Griffith		XX	XX					XX
Alex Lifson				XX				
Jim Douglas		XX	XX	XX	XX		XX	XX
Doug Collings			XX	XX	XX	XX		XX
Curt Slayton		XX	XX	perm cm				
Andrew Welch	Webmaster			XX	XX	XX	XX	
Gene Fields							XX	
Michael Perevozchikov	Program Chair				XX	XX	XX	XX
Total Voting Members (Except Intl. Members)		14	13	11	12	10	12	9
		FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
		past	past	Now	Slated	Projected	Projected	Projected
				Thru 6-14	Starts 7-14			
International Members								
Heinz Jergensen		XX	XX		XX	XX	XX	XX
Rainer Grosse-Kracht				XX				
Total International Members (Non-Quorum)		1	1	1	1	1	1	1
Total Voting + Intl. Members		15	14	12	13	11	13	10

Attachment 3: 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.