

DRAFT MINUTES July 1, 2014

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.

1791 Tullie Circle NE

Atlanta, GA 30329

404-636-8400

TC/TG/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/TRG No. 6.8 Date 2014

TC/TG/TRG TITLE: Geothermal Heat Pump and Energy Recovery Applications

DATE OF MEETING: July 1, 2014 LOCATION: Seattle, WA; Sheraton

Members Present	Year APPTD	MEMBERS ABSENT	Year APPT D	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
(Donald) Cary Smith (Chair)	12-16	Roxanne Scott (Edu)	11-15	Carl Huber (CM)
Chris Gray (VC,WM,H-9)	13-17	Jeremy Fauber	12-16	Keith Swilley (CM)
Steve Kavanaugh	13-17			Mike Filler (CM)
Gary Phetteplace	12-16	(2 Voting, 0 Voting-NQ)		Matt Mitchell (CM)
Dave Dinse (MNQ-V)	12-16			Harrison Skye (CM)
Scott Hackel (S,Hbk-34)	11-15			Mike Green (CM)
Stephen Hamstra	13-17			Pat Goethel (CM)
Jeff Spitler	12-16			Greg Towsley (CM)
Howard Newton	14-18			Michael Kuk (Programs)
Charles Remund	12-16			Robert Koschka
Trey Austin	14-18			Kay Thrasher
Xiaobing Liu	14-18			(11)
Lisa Meline (Standards)	14-18			<u>GUESTS</u>
Ed Lohrenz (MNQ-V)	11-15			Carl Orio
Michel Bernier	14-18			Dennis Koop
(13 Voting; 2 Voting-NQ)				Rashan Revemkar
				Bruce Baccei
				Khalid Nagidi
				Xing Xu
				Todd Vanek
				Steve Hancock
				Tiffany Bates
				Randolph Harding
				Jessica Rhoads
				Terry Proffer
				Spencer Moragoh
				Alan Niles
				Chris Stone
				George Baker
				Ryozo Ooka
				Wonjun Choi
				Jeff Warther
				Robbin Garger-Skeghit
				Zeyu Xiong
				Yixiang Feng
				Ying Zhao
				Jasmin Raymand
				Scott Emery
				(25)

DISTRIBUTION - ALL MEMBERS OF TC/TG/TRG

TAC Chairman: _____ Walter Grondzik

TAC Section Head: _____ Mark Hegberg

ALI/PDC: _____ Hugh McMillan, III

LIAISONS

RAC Research: _____ Stephen Hancock

Chapter Technology Transfer Committee: _____ Maggi Moninski

Special Publications: _____ Francis Mills

Standards: _____ Cyrus Nasser

Handbook: _____ Patrick Marks

MANAGER OF RESEARCH/TECHNICAL SERVICES: _____ Michael Vaughn

MANAGER OF STANDARDS: _____ Stephanie Reiniche



Minutes
Seattle, WA Annual Meeting
Tuesday, 1 July, 2014

MINUTES

Pursuant to an announcement sent to all members, ASHRAE Technical Committee TC 6.8, *Geothermal Heat Pump and Energy Recovery Applications*, met on Tuesday, 1 July 2014 at 3:30 PM in the Colombia Room of the Seattle Sheraton, Seattle, WA. The meeting was held in conjunction with the ASHRAE 2014 Annual Meeting.

I. CALL TO ORDER, WELCOME, INTRODUCTIONS

Chair Cary Smith called the meeting to order at 3:30 PM. The Chair welcomed everyone. Members, guests, and ASHRAE Committee liaisons were requested that they introduce themselves. The Chair made specific introductions of liaisons from NEGPA, NGWA, SMUD, and IGSHPA. The importance of YEA was noted, and a count of 6 YEA members present was made. The Chair requested that the sign-in sheet be filled out completely, and that attendees check their information on the roster sheet and make any changes through ASHRAE's website.

II. QUORUM CHECK

Fifty percent of the voting members of the technical committee, present in person, constitute a quorum for the transaction of business. The Chairman read the list of voting members to confirm that the roster was correct. The roll call revealed that thirteen (13) of fifteen (15) Quorum members of the technical committee were present and two (2) members voting, Non-Quorum present, establishing that a quorum was available to conduct committee business.

III. APPROVAL OF MINUTES

The Secretary distributed copies of the minutes of the January 21, 2014 Winter meeting in New York, NY and the Chair requested that members review them.

MOTION: Stephen Hamstra moved that the Minutes of the TC 6.08 meeting in January 2014 be accepted as presented, and the motion was seconded by Kay Thrasher. The Motion carried and the minutes were approved (15-0-0-CNV).

IV. ANNOUNCEMENTS FROM ASHRAE

- A. Section Head
 - i. Mark Hegberg present; no announcements.
- B. Research
 - i. Steve Hancock will cover his announcements under research

V. ANNOUNCEMENTS FROM THE CHAIR

- A. Cary Smith announced that committee members Dr. Michel Bernier and Dr. Darin Nutter have received recognition from ASHRAE for writing outstanding papers. Cary Smith recognized that committee member Patrick Hughes has been recognized as a Fellow by ASHRAE.
- B. Cary Smith reported on the Chairs' breakfast.
 - a. The ASHRAE Code of Ethics was discussed. The Code is available on the ASHRAE website. As the Code is available on the website, chapters have the option to suspend reading of the code prior to meetings.



MOTION: Stephen Hamstra moved that the TC 6.08 suspend reading of the Code of Ethics prior to all meetings; the motion was seconded by Gary Phetteplace. The Motion carried (14-0-0-CNV).

- b. Letters can be sent to employers describing the benefit of members service to ASHRAE. If members need a letter from ASHRAE, they should talk to Chris Gray, Scott Hackel, or Cary Smith.
- c. Reminder that members can make recommendations for any and all ASHRAE awards from this TC.
- d. A MTG has been formed to address building dampness.
- e. Electronic meetings are in beta testing. TC 6.08 would like to set this up for the next meeting. Kay Thrasher volunteers to set up for Chicago.
- f. It was suggested that members should encourage young engineers to attend these TC meetings.

VI. ACTIVITY (EXTRAORDINARY)
No extraordinary activity.

VII. SUBCOMMITTEE REPORTS

A. Handbook - Scott Hackel/Chris Gray

- a. Geothermal Energy Utilization – subcommittee meeting was held on Sunday, June 29
 - 1. The subcommittee wrapped up discussion that had been had via email regarding a new clause added to the chapter on the renewability of geothermal as a resource. Scott Hackel read the following clause written by the subcommittee during that process, and suggested adding it to the chapter at the end of the RESOURCES section:

Renewability. Geothermal energy for heating and cooling buildings is a renewable resource (see ASHRAE Fundamentals Handbook Chapter 34, Nonrenewable and Renewable Energy Resources). To quantify this source of renewable energy (quantification may be required for renewable portfolio standards, utility programs, etc.), one must measure or calculate the electric or thermal energy that is either generated from, or avoided by, use of the geothermal resource.

Depending on the method used, geothermal energy ultimately comes from a variety of sources, including earth heat and solar energy. Direct-use and higher temperature geothermal resources may be considered renewable, as the heat removed is replaced by natural processes - heat generated deep in the earth and transferred to more shallow depths. The geothermal resource must be carefully managed however, as it can eventually be depleted if used at too high of a rate. Geothermal heat pumps (GHPs) also utilize these sources – albeit in a more complex, indirect fashion – for building heating, cooling, and domestic hot water. Because this method of using geothermal energy does require electricity input, quantification of the renewable portion of GHP operation is to be based on the amount of electric and thermal energy that is avoided by use of GHPs. Attempts at quantifying this avoidance have been made (European Union, 2013), but more work is needed before a more specific methodology can be published here.

MOTION: David Dinse moved that TC 6.08 approve the addition of the renewability clause, read by Scott Hackel, to Chapter 34. The motion was seconded by Stephen Hamstra. The Motion carried (14-0-0-CNV).



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2. The subcommittee also discussed the next steps for Chapter revision, including adding a brief reference to the new NGDS to the chapter, and getting the chapter sent in to the Handbook chair at ASHRAE.
 3. The subcommittee also discussed, and began brainstorming, possible changes for the next round of Chapter revision. A list was started.
 4. TC 6.08 had some additional ideas for the next round of revision. A liaison to thermal energy storage was suggested, in order to add references to ATES and/or BTES systems. Ed Lohrenz agreed to be a formal liaison.
- b. Energy Recovery – subcommittee meeting was held on Saturday, June 28
1. Plan to have a votable version of the chapter edits by the January meeting in time for the March 2015 deadline for submission of the final chapter.

B. Standards – Lisa Meline

- a. A Uniform Solar Energy Hydronics Code is being developed. Geothermal could be included in this standard. Lisa reached out to NGWA, GEO, IGSHA for input.
- b. Bi-national standard with CSA on vertical closed loop HXs. ASHRAE, CSA, and others are working, through an ANSI process, to revise a standard that CSA already has out in publication. Lisa Meline is representing ASHRAE. All heat exchanger types will be included in the standard.
- c. ANSI/ASHRAE 125 Method of Testing Thermal Energy Meters for Liquid Streams in HVAC Systems was discussed. The responsible TC suggests that it's just hanging around, and not sure what they'll do with it. Created in 1992. On a related note, ASTM 44.25 is working on a standard for metering equipment. May or may not come to fruition.

C. Programs - Michael Kuk - subcommittee meeting was held on Sunday, June 29

- a. *Seattle, July 2014*
 1. Had 9 seminars, 5 conference paper sessions.
 2. Had 14 sessions, 21 conf papers, and 42 total speakers across all sessions. 100% of our seminars were accepted.
 3. Several people came to ASHRAE for the first time just for this track.
 4. The track has been very successful, Jeff Spitler made it happen with help from Lisa, others. The Chair would like to recognize Jeff Spitler, Lisa Meline, and all others who have helped make this a real success. Michael Kuk should also be recognized for his work in making this a success.
- b. *Chicago, January 2015*
 1. We have until Aug. 11 to put in any proposal plans
 - i. Walgreens net zero building – Scott Hackel will chair, co-sponsored with the refrigeration technical committee (via Dan Dettmers)
 - a. We will also tour this facility.
 - ii. Workshop on calculating hydrostatic head and choosing grout – Cary is chairing this.
 - iii. Forum on EPA 111d – Chris is chairing this.
 - iv. Other ideas, possibly for Atlanta:
 - a. DHW from geo (Keith Swilley possible chair)
 - b. State of the art of ventilation in heat pump systems (Xiaobing Liu possible chair)
 - c. Research on ASHRAE HQ performance is coming out; could be a session.



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1. Cary: there are a lot of interesting results on VRF performance, we should consider whether we want this in summer or winter.
2. Topics: 1) power consumption of each system, 2) loads in each system (resulting COPs) 3) more info on GSHP. Will consider for a Chicago session; Jeff Spitler to chair.
2. Conference papers (full) are due July 7 if your abstract is accepted.
3. Tracks planned: systems and equipment, industrial, large buildings, mission critical facilities, energy efficiency, life safety, water efficiency, hospital design and codes.
- c. *Atlanta, June 2015*
 1. Conference paper abstracts due Sept 22, papers due Jan 5.

D. Membership - Gary Phetteplace

- a. Coming off voting membership: Jeff Smith, Michael Kuk, David Pleasants, Bob Koschka, J.P. Singh, Kay Thrasher, Roxanne Scott
- b. Coming on voting membership: Chris Gray, Xiaobing Liu, Lisa Meline, Trey Austin, Michel Bernier, Howard Newton
- c. One additional voting member could still be added. To be discussed for January.

E. Research - Xiaobing Liu - subcommittee meeting was held on Sunday, June 29

- a. Steve Hancock from RAC
 1. Closed out 16 awards and awarded 20 new (50% of submitted). \$10.8M being spent.
 2. New RTAR form out. Make sure you're using that.
 3. Need an update on the final report for the SWHP work, and a form filed. Xiaobing Liu will urge them to review the changes that Jeff Spitler has made.
 4. Revision of the blue book. TC and PI need to discuss a new contract end date, or finish the report. Steve said he already got a draft in, so he's looking good to finish by the end of July.
 5. RTAR 1680 on environmental impacts. This was returned; in January it was going to be resubmitted. Steve Hancock hasn't seen it yet. It is suggested to get all RTARs to Steve Hancock before it goes to RAC.
 - i. Cary is now working on a quantification RTAR instead.
 - ii. We should also work with NGWA on what they're interested in (regarding environmental impact), possibly create a new RTAR or combine with the quantification RTAR.
- b. Subcommittee report from Xiaobing Liu
 1. Cary Smith is writing an RTAR on *Guidelines for Avoided Electric Generation/Source Energy Consumption due to Waste Heat Recovery and Heat Pump Technologies*
 - i. Cary Smith will try to finish it and get to Xiaobing Liu, and then float to the whole committee for an email vote prior to a fall submittal. RAC generally meets in the fall as well, and could accept it then.
 2. Other research ideas were discussed:



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- i. Ventilation for heat pump systems. A work statement was written, but was too similar to a different WS. We will wait to see what that WS ends up creating.
 - ii. Xiaobing needs members for his subcommittee meeting. To help develop ideas, develop RTARs / WSs, review documents. He has Bob Koschka, Steve Hamstra, Mike Filler, and Gary Phetteplace. Gary Phetteplace suggests that all current involved members (PMSs, etc.) be put on a list as a potential subcommittee.
 - iii. Xiaobing Liu would like any and all other research ideas sent to him.
- c. Tiffany Bates: RP raised \$2.3M this year; this is the most ever raised.

F. Education and Special Publications/Journal - Roxanne Scott

- a. Blue book. A progress report has been made. A vote on the report is needed so that Steve Kavanaugh can get paid.

G. Webmaster - Chris Gray

- a. The website is in good shape. Chris Gray can no longer do this work due to Vice Chair responsibilities, and wants a volunteer to take over. Mike Filler volunteers.
- b. Michael Kuk suggests that we post info about all the sessions that occurred in Seattle. We aren't allowed to post detailed information. It was suggested that just the titles would be listed. Mike will try to do this.

VIII. LIAISON REPORTS

A. ALI COORDINATOR – David Pleasants

- c. David Pleasants was not present; no report was made.

B. IGSHPA – Lisa Meline

- a. Dr. Bose has retired. Bob Ingersoll is now ED. Bob is working on a strategic plan, called IGSHPA 2.0; it is up for comments.
- b. The new bi-national standard being worked on will likely take over the current IGSHPA document.
- c. Steve Kavanaugh reminded the group that IGSHPA standards are free downloads.

C. NGWA – Cary Smith

- a. Comments have been submitted to CSA Standard 448. Revisions are ongoing (guidelines for vertical closed loops).
- b. Cary Smith is on the government affairs subcommittee; he has had meetings in Washington DC regarding 111(d) and GSHPs and groundwater in general. He has spoken with legislators directly. He also spoke with the EPA committee on 111(d) and discussed GSHP with them, specifically regarding energy savings. There were other government agencies at the table at that meeting as well.

D. RAC – John Shonder

- a. No report.

B. YEA – Chris Gray

- a. No report.

IX. OLD BUSINESS

E. Borehole Standard Committee

- a. Nothing new to report.



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- b. Side note: Thanks for NGWA, IGSHPA, and other organizations for participating in this geothermal track we had in Seattle

X. NEW BUSINESS

- F. DOE is in a rulemaking for minimal efficiency on commercial and industrial pumps (see attached reference document). The industry has created a working group. So far they've developed a terms sheet, which has been pushed to the relevant DOE committee. The sheet included recommendations on types of pumps to be included and sizes (1 hp-200 hp) to be included. The rule will be based on rated efficiency. Will limit sale of inefficient pumps. By January 2015 they may put out a notice of imposed rule. Effective date would be 4 years after the final rule. This same group will attempt to create a label for efficiency. Circulators (<5 hp) were specifically excluded. But circulator manufacturers are in discussion with key stakeholders to discuss the procedures needed to get a rule for circulators as well. They hope to have some type of recommendation for DOE by middle of 2015.

XI. TECHNICAL DISCUSSION

- G. EPA Rule 111d (Clean Air Act rule on existing sources) and the potential impact on TC 6.8 efforts
 - a. EPA rule 111(d) is being changed by the Clean Air Plan; this plan allows states to reduce carbon – generated by power plants – to specific targets. 30% carbon reduction nationwide by 2030. They are allowing each state to do this in a variety of ways, including energy efficiency. The way it is structured, there may be a new market (credits) for energy savings. This could be beneficial to the GSHP industry. EU has dealt with this already, and put out a guideline for doing this; they developed climate-specific quantification.
 - b. All EPA can do is provide guidance at this point: renewables, heat rate improvement, efficiency, carbon sequestration are all options available to states. This could lead to utility programs, finance processes, and other ideas. Monetization and aggregation may occur. Many of these initiatives will require engineers to do calculations to quantify improvement.
 - c. We need to start measuring and analyzing more, with this end in mind.
 - d. Is this important, at ASHRAE's level? Committee members generally agreed it was. Suggestion made to consider this at a high level, with quantification potentially benefitting many other types of protocols and processes (not just 111(d)).
 - e. Ideas suggested:
 - 1. Handbook language suggests that 'avoided generation' is what needs to be quantified.
 - 2. Use 90.1 Appendix G
 - 3. Use Energy Star
 - 4. Just look at the renewable aspect: make a comparison of boilers and towers to a borefield
 - f. Cary Smith to write an RTAR based on his understanding of the committee's best ideas, and the committee will react.
 - g. The committee agreed that we do not want to deal with CO₂ specifically, at this committee's level.

XI. ADJOURN

- 1. **MOTION by Jeff Spitler to adjourn the meeting; Gary Phetteplace seconded. Motion carried (15-0-0-CV).**



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Eleven pages of attachments follow:

1. Committee Assignments as of July 1, 2014
2. Email vote ratifying acceptance of 1674-RP deliverable
3. Email vote approving RTAR on quantification of avoided energy
4. Program Subcommittee Report
5. Research Subcommittee Report
6. Handbook Subcommittee Report
7. Standards Subcommittee Report
8. Update on DOE Efficiency Standards for Pumps
9. ASHRAE Meeting Report
10. Post-meeting activity, votes, etc.



Attachments
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Committee Assignments (2014-2015)

Chairs listed in ()

Programs:

M. Kuk (chair)
L. Meline
C. Smith
D. Pleasants
B. Koschka
K. Thrasher
S. Hackel

Research:

X. Liu (chair)
G. Phetteplace
D. Dinse
S. Hackel
B. Koschka
C. Remund
S. Hamstra
M. Filler

Handbook Ch. 9:

C. Gray (chair)
C. Paraskevagos
C. Smith
D. Pleasants
E. Lohrenz
M. Filler
F. Pucciano
G. Phetteplace

Handbook Ch. 34:

S. Hackel (chair)
M. Kuk
J. Fauber
M. Bernier
A. Chiasson
M. Green
X. Liu
L. Meline
K. Rafferty
K. Mescher
C. Smith



Email vote ratifying acceptance of 1674-RP deliverable

Facilitated by Cary Smith, Chair

First email, requesting a vote

Date: August 15, 2014

All,

Please see below. We must vote to ratify the PMS Committee's final acceptance of 1674-RP so that we can move the project up the chain.

Please respond with a Yea, Nay, or Abstain.

If your vote is nay or an abstention, I will need a reason for my report to ASHRAE.

Thank you again

Cary

Cary Smith CGD CEM CEA
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Last email, summarizing the vote

Date: August 23, 2014

All,

I have all of the votes in from the Blue Book Vote: The motion passes. 11-0-3-1 CNV

11 - Yea

0 - Nay

1- Vote - no response.

3 - Abstentions

First abstention: " Committee member did not have opportunity to review the final report but, given overwhelming support of the rest of the committee for approving the vote of the PMSC, the committee member did not wish to hold up project completion or publication of the revised edition."

Second abstention: "I respect the judgement and the decision of the PMS committee. However, the full TC did not have access to the manuscript and I can't judge something I have not seen.

Third abstention: This was actually a yea vote but it is from the principal involved with the PMS Project.

Regards,

Cary

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Email vote approving RTAR on quantification of avoided energy

Facilitated by Cary Smith, Chair

First email, requesting a vote

Date: August 14, 2014

All,

Enclosed is a copy of the RTAR we discussed at Summer meeting. This needs to get to the Committee before Friday (tomorrow). At Xiobing's suggestion, I am calling for an e-mail vote. According to the rules and the RTAR Form, I need a short reason for a negative or abstention vote. Please see page 1 of the RTAR.

I ask that all votes be back ASAP.

Please copy the full committee so that the vote is completely open. In this case, as Chair, I will vote "YEA"

Regards,

Cary

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Last email, summarizing the vote

Date: August 23, 2014

Thank you all for getting the vote back so quickly. The result is below.

Scott,

For the record. The motion carries to accept the RTAR and send it to the Research Committee. 15-0-0-1 CV. 15 - yea, 0 nay, 0 Abstain, 1 Ballot not returned.

The RTAR could go on the website but please include this in Post-minutes as a carry-over from the Summer meeting.

Thank you,

Cary

FYI I am now moving on to send another item out, 1674-RP has finished.

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TC 6.8 Subcommittee Report: Programs

Subcommittee Chair: Michael Kuk

Date: Sunday, June 29, 2014

TC 6.8 PROGRAMS MEETING AGENDA

TC 6.8 Geothermal Heat Pump and Energy Recovery

SEATTLE, WA

Programs Subcommittee: Sunday 5:40-6:10: Sheraton Hotel: Ravenna

Programs Committee

Michael Kuk (Chair)	mkuk@cerxsolution.com	630-631-9483 (cell)
Cary Smith	dcsmith@soundgt.com	801-942-6100
Lisa Meline	lisa@meline.com	916-366-3458
Kay Thrasher	kay@townsend-engineering.com	423-855-1184
Robert Koscka	rkoschka@aol.com	317-283-6766
Frank Pucciano	Frank.pucciano@sa-bot6.net	404-216-5191
Jeff Spitler	spitler@okstate.edu	405-744-5900

- Large Buildings: Mission Critical Facilities and Applications
- Energy Efficiency
- Life Safety
- Design of Energy and Water efficient Systems
- Hospital Design and Codes

Atlanta 2015 Annual Conference Update

The conference will take place June 27 – July 1, 2015 in Atlanta, Georgia. Currently, a call for papers is open for the conference, including the Research Summit.

September 22, 2014 – Conference Paper abstracts and complete Technical Papers due

January 5, 2015 – Conference Papers due

To submit a program proposal and for more information about the conference and tracks, go to www.ashrae.org/Atlanta.

Atlanta Conference Tracks

- Systems and Equipment
- Fundamentals and Applications
- Research Summit
- Refrigeration
- Building Operation, Maintenance and Optimization/Commissioning
- Indoor Air Quality
- Modeling throughout the Building Life Cycle
- High Performance Buildings
- Moving Advanced Energy Design Guidance to the Mainstream

1) **Seattle GHP Track**

- 8 Seminars
- 3 Conference Papers
- 2 Technical Papers
- 1 Special Session

Special thanks to Lisa Meline and Jeff Spitler for their hard work on helping make this happen.

2) **Next Meeting Location(s)**

Future Winter and Annual Conferences

Winter 2015 – Chicago, Illinois; Jan. 24 – 28

Annual 2015 – Atlanta, Georgia; June 27 – July 1

Winter 2016 – Orlando, Florida; Jan. 23-27

Annual 2016 – St. Louis, Missouri; June 25-29

The conference is off to a strong start as some 100 conference paper abstracts were accepted and authors were invited to submit conference papers.

June 2 – August 11 – Program Proposals Accepted online

July 7, 2014 – Conference Papers due

To submit a program proposal and for more information about the conference, tracks and timelines, please go to www.ashrae.org/Chicago.

Chicago Conference Tracks

- Systems and Equipment
- Fundamentals and Applications
- Industrial Facilities

Seminars (2-3 presenters in Power Point Format)

Forum: Off the record discussions to promote free exchange of ideas. There are no papers attached to the forum.

Workshops: Enable technical committees to provide a series of short presentations on a topic requiring specific expertise. These short presentations are provided with an increased emphasis on audience participation and training.



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Technical Papers

Technical papers are presented by authors at ASHRAE Winter and Annual conference and then published in ASHRAE Transactions. Technical papers can be up to 30 pages.

Conference Papers

Conference papers are shorter than technical papers, undergo a less stringent review and can be prepared closer to the conferences. Conference papers can be a maximum of 8 pages

- 3) **Seminar/Workshop/Forum ideas voted and approved for submission to Chicago meeting.**

- a. **Seminar:** Walgreens Net Zero Building (Evanston IL). **Chair: Scott Hackel**
- b. **Workshop:** Calculating Hydrostatic head/ selection of grout materials: **Chair: Cary Smith**
- c. **Forum:** EPA 111D (Carbon Reduction) "What impact will this act have on energy efficient design?" **Chair: Chris Gray**

- 4) **Atlanta:** No seminars/Forums/Workshops in que.
- 5) **Call for new committee members:** No volunteers.
- 6) **Adjourn**



TC 6.8 Subcommittee Report: Research

Subcommittee Chair: Xiaobing Liu

Date: Sunday, June 29, 2014

1. Gary Phetteplace, a member of the PMS, reported the status of the Surface Water Heat Pump (SWHP) research project. The PI of this project, Jeff Spitler, has submitted his response to the comments from the PMS on his final report of this project in about a week ago. The PMS has not got any chance to discuss his responses yet due to the unavailability of other two members of the PMS (Andrew Chiasson and Im Piljae). Xiaobing Liu, the research chair of TC 6.8, will send an email to the PMS to ask for their recommendation on the final report of the SWHP project.
2. Cary Smith discussed a draft RTAR for developing guidelines for quantifying avoided generation capacity and waste energy recovery from the renewable components of heat pump technology. Attendees of the meeting expressed their opinions on this RTAR. The consensus is that it is important to have a guideline to quantify the benefits achievable by GSHP systems, which can be adopted by states when they develop a plan to satisfy the proposed EPA rule 111 (d), or used by utilities to develop incentive programs for GSHP. Although there are some existing guidelines for evaluating energy savings of various energy efficiency measures, there is not any guideline existing to satisfy the above needs. Xiaobing will work with Cary Smith to further develop the RTAR and submit it to RAC.
3. Xiaobing asked the committee whether it is necessary to revitalize the work statement on ventilation air system for distributed heat pump systems since his recent data mining work indicates that there are some confusions and issues in the ventilation air system design and control, which resulted in poor indoor thermal comfort and/or high energy consumption. Chris mentioned that ASHRAE is developing a guideline for DOAS system, which may address some of the design issues for the ventilation air system. A few other attendees argued that the DOAS may have some unique impacts on the GSHP system, such as the heat balance of the ground loop, and some further study is needed to optimize the DOAS or other ventilation options for GSHP systems. Cary suggest to have a seminar in Chicago to discuss the practices and issues of ventilation air system in the applications of GSHP.



TC 6.8 Subcommittee Report: Handbook (A-34)

Subcommittee Chair: Scott Hackel

Date: Sunday, June 29, 2014

- Renewability of geo
 - o Read the final renewability clause that was agreed to
 - o 5-0 vote to approve the clause
 - o Finalize committee discussion
- Chapter revision status, next steps
 - o Resend the chapter to Ed Lohrenz
- NGDS reference
 - o Consider including a one sentence reference to NGDS in the chapter (ASHRAE suggestion): *The US Department of Energy has created a database of geothermal system data (including ground resource data) for practitioners to share data on installations (NGDS, 2014).*
 - o 5-0 vote to do so
 - o Xioabing will look into how to add information to the NGDS
- Discuss future work for Ch. 34 revision
 - o Ideas were brainstormed for potential inclusion in the next round of Chapter revision
 - Carl Orio's submission from last summer (maintenance and design of standing columns)
 - Jeff Spitler's SWHP work – wants to wait until its approved to discuss
 - Electrolysis and water chemistry for open loop – Carl Orio
 - Water usage of cooling towers – benefit of dry towers from water saving (wet vs dry, EFLH, etc.) – Steve Hamstra and Bob K
 - Multisource applications – sewer, CHP, heat recovery
 - New silica grouts



TC 6.8 Subcommittee Report: Standards

Subcommittee Chair: Lisa Meline

Date: Sunday, June 29, 2014

Currently two standards are being monitored by the subcommittee which consists of Cary Smith, Kirk Mescher, Bob Brown and Lisa Meline.

IAPMO Uniform Solar Energy & Hydronics Code. The previous solar code was expanded to include PV and Geothermal Systems (including both open and closed loop heat exchangers). Public comments were due June 20, 2014. NGWA and CaliforniaGeo submitted comments. Meline serves on the Technical Committee and provided comments on behalf of herself, ASHRAE and IGSHPA.

CSA C448 - Bi-national Standard for the Design / Installation of Ground Source Heat Pumps is currently being drafted. It is a joint undertaking by Canada and the USA to modify the existing CSA C448 standards so that it can be used by both countries. The current standards is being formatted to separate the system design from the ground heat exchanger installation standards so that the US stakeholders may continue to reference ASHRAE Standards with an ANSI Ground Heat Exchanger Standard. Current ASHRAE members who also serve on the CSA Committee include Kirk Mescher, Vice-Chair, Lisa Meline, Carl Orio, Ed Lorenz, and Jeff Spitler.

The subcommittee agreed to look at *Method of Testing – Thermal Energy Meters for Liquid Streams in HVAC System, Standard 125-1992 (RA 2011)* which has been identified as a standard which may need to be revised or discontinued.

Meline asked for additional volunteers (voting members, corresponding members or stakeholders in the geothermal heat pump technology) to participate in the peer review and public comment of the CSA C448.3 Vertical Ground Heat Exchangers. Please contact her direction at lisa@meline.com



Attachments
Seattle, WA Annual Meeting
Tuesday, 1 July, 2014

Update on DOE Efficiency Standards for Pumps
See attached Power Point file



140627 90.1
UPDATE - DOE Efficie



Post-meeting activity, votes, etc.

RP 1674

The PMS (Bill Murphy) sent the following to the TC:

The TC 6.8 PMS for 1674-RP has voted unanimously to accept the final document from Dr. Steve Kavanaugh and Kevin Rafferty as having completed the objectives of the project. The contractors will still have some interfacing to do with the publishing side of ASHRAE to get the document into print. I am attaching the report on the PMS vote for your records. Please initiate any actions that may be required for any TC approval so they can wrap up the project. Please let me know if you need anything further from the PMS. Thanks.

The Chair (Cary Smith) moves to ratify the PMS Committee's final acceptance of 1674-RP so that we can move the project up the chain.

The motion passes. 11-0-3-1 CNV.

RTAR Waste Heat Recovery

The Chair (Cary Smith) moves to accept the RTAR as written on 8/15/14 and send it to the Research Committee.

The motion passes. 15-0-0-1 CV. 1 ballot not returned.

Standard 194 Meeting

We received a request from Joe Parsons that The Standard 194 be permitted to reopen the process for update/changes. This requires a vote of the full committee.

Lisa Meline moves (and Jeremy Fauber seconds) to let the committee meet and that Joe Parsons would Chair that committee; he would like to have everything set up for Chicago.

The motion passes. 10-0-0-5-CNV.