

MINUTES January 26, 2016
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 2016

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

DATE OF MEETING: January 26, 2016 LOCATION: Orlando, FL

Members Present	Year APPTD	MEMBERS ABSENT	Year APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
(Donald) Cary Smith (Chair)	12-16	Chuck Remund	12-16	<u>Corresponding Members</u>
Chris Gray (VC,H-9)	13-17			Scott Hackel
Dave Dinse (MNQ-V)	12-16	(1 Voting)		Robert Koschka
Steve Kavanaugh	13-17			Keith Swilley
Howard Newton	14-18			Pat Goethel
Xiaobing Liu	14-18			Kay Thrasher
Lisa Meline (Standards)	14-18			Chuck High
Jeremy Fauber	12-16			Dennis Koop
Stephen Hamstra	13-17			Steve Carlson
Michael Kuk	15-19			David Pleasants
Mike Filler	15-19			Piljae Im
Michel Bernier	14-18			Bruce Baccei
Gary Phetteplace	12-16			Signheld Gehlin
Trey Austin	14-18			Hugh O'Donnell
Jeff Spitler	12-16			
(14 Voting; 1 Voting-NQ)				(13)
				<u>Guests</u>
				Brendan Hall
				Patricia Monzo
				Dee Brower
				Chris Stone
				Anuj Mistry
				Stephen Wage
				Richie Mittal
				Dave Haller
				Al Grosskurth
				(9)

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: _____ Maggie Moninski

Special Publications: _____ Francis Mills

Standards: _____ Cyrus Nasserri

Handbook: _____ Patrick Marks

MANAGER OF RESEARCH/TECHNICAL SERVICES: _____ Michael Vaughn

MANAGER OF STANDARDS: _____ Stephanie Reiniche



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, January 26, 2016 at 3:30 PM in Orlando, FL. The meeting was held in conjunction with the ASHRAE 2016 Winter Meeting.

I. CALL TO ORDER, WELCOME, INTRODUCTIONS

Chair Cary Smith called the meeting to order at 3:36 PM. The Chair welcomed everyone. Members, guests, and ASHRAE Committee liaisons were requested that they introduce themselves. The importance of YEA was noted. 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. We will begin to track attendance more carefully, partially because we have voting positions opening up soon and will need to select new voting members.

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 roll call revealed that nine (12) of fifteen (15) Quorum members of the technical committee were present. A quorum was available to conduct committee business.

III. SPECIAL ANNOUNCEMENT

Lisa Meline formally announced that Kirk Mescher has passed away. He is recognized for his work and dedication in the field of geothermal energy and for ASHRAE in general. His family is setting up an award in his honor for those working on innovation. A memorial has been set up to fund this award. Award application will be posted to the website. The first award will be to Region VI, and the St. Louis chapter will be helping set this up. Future awards will be open to all of ASHRAE. Kirk will be missed.

A moment of silence in Kirk's honor followed the announcement.

IV. APPROVAL OF MINUTES

The Secretary distributed copies of the minutes of the June 30, 2015 Annual Meeting in Atlanta, GA and the Chair requested that members review them.

MOTION: Stephen Hamstra moved that the Minutes of the TC 6.08 meeting in June 2015 be accepted as presented, and the motion was seconded by Michael Kuk. The Motion carried and the minutes were approved (12-0-0-CNV).

V. ANNOUNCEMENTS FROM ASHRAE

A. No announcements from ASHRAE

VI. ANNOUNCEMENTS FROM THE CHAIR

A. Chair's breakfast



- a. There is now a Society template for TC webpages. We can post RTARs, presentations, and other materials. People should post relevant ASHRAE Journal articles.
- b. ASHRAE is looking for new ideas for ALI.
- c. New guidelines are out for committee liaisons.
- d. ASHRAE Journal is looking for strong technical articles; we should consider articles from TC 6.8.
- e. There are a set of technical apps on the website, including one for 90.1 ECB.
- f. There is a glossary of terms available on the website.
- g. Professional Development committee
 - i. Steve will continue the course that Kirk taught; slightly edited
 - ii. There is potentially money available for course development; with reimbursement to present the course.

VII. SUBCOMMITTEE REPORTS

A. Handbook - Scott Hackel/Chris Gray

- a. Geothermal - Scott Hackel
 - i. Harrison Skye will be taking over as Chair of Chapter 34 subcommittee. A conference call will be set up prior to the June Annual meeting.
 - ii. Steve wants to remove some of the cost information that he put in to Ch 34.
 - iii. Chuck High will write more material on GX.
 - iv. The question was raised whether there were constraints on chapter length. No, we are able to add whatever we want within reason.
- b. Heat Recovery – Chris Gray
 - i. We are actively seeking volunteers to take this chair position.
 - ii. Mike Filler volunteered and was named Handbook chair.

B. Standards – Lisa Meline – subcommittee meeting was held January 26

- a. See Lisa's subcommittee report in the appendix
- b. There was a successful seminar on new standards
- c. The new Binational standard is now updated
- d. Method of test for GX
 - i. The subcommittee working on a method of test for GX met Sunday
 - ii. Making it consistent with relevant AHRI standards
 - iii. Will have one more web meeting.
 - iv. Will present something to SPC in St. Louis.
- e. IATMO
 - i. Uniform solar and hydronics code
 - ii. Lisa could use additional eyes on this code
 - iii. She is trying to coordinate with IGSHPA on review and standards consistency
 - iv. She needs comments back first part of April

C. Programs - Michael Kuk - subcommittee meeting was held on January 24

- a. Atlanta – we had 2 seminars. The one on GSHP VRF was the most attended at the conference
- b. Orlando – we had two seminars, and there were 2 conference paper sessions on geo
- c. St. Louis – eight tracks
 - i. Deadline is Feb 8 for seminars
 - ii. Scott Hackel will submit one idea on deep bores
 - iii. Xiaobing Liu will consider a forum, and may also consider getting a speaker to follow our TC meeting, focusing on the clean power plan



Minutes
Atlanta, GA Annual Meeting
Tuesday, 26 January 2016

1. Mark Ames, the DC rep for ASHRAE, should be consulted on such a speaker. Cary can talk to him
 2. Chris Gray: are there are any utilities that think geo is renewable
 3. John Shonder might be good with his perspective at the federal level
 4. Doug Daugherty is another option
 5. CA would be an important viewpoint to have here; Cary will talk with Bruce Baccei offline about that
 6. Cary and Chris will take the next steps with this idea
- iv. Cary: Does anyone want to do one on integrating geo with renewables for the NZEB track?
- v. Carl Huber had some ideas – would be cosponsored by another committee
1. Wireless monitoring
 2. Alternative refrigerants
 3. Capacity of variable cap HPs
 4. Wi-fi connected heat pumps
 5. Vapor-injected geo HPs
- d. Las Vegas
- i. There is a track on the water-energy nexus; Cary will work on a seminar for this
 - ii. Scott Hackel: We could consider geopiles for a future seminar
- a. Changes to program processes:
- i. ASHRAE will waive fees for 5 outside speakers
- b. TC 6.8 recognizes that students presented some good research at this conference

D. Research - Xiaobing Liu - subcommittee meeting was held January 24

- a. RAC is calling for more applied research
 - i. ASHRAE has \$6M in research reserve; they only need to keep \$4M in that pool; plenty of money available
- b. Subcommittee meeting
 - i. RP1385
 1. Development of design tools. PI submitted final draft in April 2014; not yet approved. PI is trying to collect more data in the area that the committee was not satisfied with. Will send a summary of what he's found to the PMS soon. Then the project can be considered finished.
- c. WS for MTG – Guidelines for Avoided Source Energy Consumption from Waste Heat Recovery and Heat Pumps
 - i. Have had the statement reviewed by several people
 - ii. Will send the next version to the rest of the MTG
- d. New ideas
 - i. Evaluate new GHX designs – controlled tests
 - Steve: How to test borehole resistance, has been done
 - Need a method of test
 - Signhild: Such a project at Swedish University
 - Bruce: UC Davis has the Honda house with geo helix w/ integrated comfort
 1. Harvey: projects can be longer, but we need to consider how long these projects can sometimes drag out – long projects don't improve odds for future acceptance
 2. Steve, Lisa, and Harvey will help with this idea



- ii. Performance impacts of long term temperature impacts
 - Some questions after Steve's study
 - Overwhelming demand for the results of this study
 - Standing column should be done too
 - Steve, Steve, Scott, Dennis to work on this
- iii. Issues with borehole depth

E. Membership - Gary Phetteplace

- a. The following members will roll off in summer 2016: Kirk, Cary, Gary, David, Jeremy, Dr. Remund, Dr. Spitler
- b. The following will roll on: Scott, Bruce Baccei, Ed, Bill, Christian Paraskevagos, Kay, Shaojie
- c. Cary has heard back from all but Christian; if he doesn't hear back we will have one less voting member.

F. Education and Special Publications/Journal - Roxanne Scott

- a. No report given.

G. Webmaster - Mike Filler

- a. See notes already made above on website changes.
- b. Dennis Koop will be taking over as webmaster.

VIII. LIAISON REPORTS

A. ALI COORDINATOR – David Pleasants

- a. No report.

B. IGSHPA – Lisa Meline

- a. Three sections are being revised in the IGSHPA standards: water quality, antifreeze, and GX
 - i. Already in the bi-national standard, so these will be transferred to the standard and then the IGSHPA standard will sunset. Will still be a 2016 IGSHPA standard, for now.
- b. IGSHPA 2.0 will be reaching out to states now, to interface with local groups on advocacy.
 - i. Should lead to better communications.
- c. New course framework being rolled out.
- d. Quality control is something they are working on.
 - i. Sending first people into ANSI training so that their programs can be vetted through that process.
- e. Memorandum of understanding between IGSHPA and NGWA. Cary and Lisa to work on a working relationship with ASHRAE.
- f. Jeff: Next IGSHPA conference is in 2017. Will be a research track this time, with peer-reviewed papers. TC 6.8 members should think about submitting.

C. NGWA – Cary Smith

- a. Active in closed loop industry. Wants to integrate more technical stuff in their training. Keep hydrogeologists informed and educated on geo.

D. RAC

- a. No report.



Minutes
Atlanta, GA Annual Meeting
Tuesday, 26 January 2016

E. IATMO – Lisa Meline

- a. When there's a code revision that's poorly written we need to notice it, review, and improve. IATMO may not be the best code for your state; review it and make suggestions to your state.

IX. OLD BUSINESS

X. NEW BUSINESS

A. FAQ

1. A process is needed to review the FAQ. Chris, Lisa, Kay, and Dave Dinse volunteer to review them and provide answers.

XI. ADJOURN

- A. MOTION to adjourn the meeting. Stephen Hamstra moved, Gary Phetteplace seconded. Motion carried (12-0-0-CNV). Meeting adjourned at 4:18.**

Eleven pages of attachments follow:

1. Committee Assignments
2. Program Subcommittee Report
3. Research Subcommittee Report
4. Handbook Subcommittee Report
5. Standards Subcommittee Report
6. SPC 194 Subcommittee Report
7. ASHRAE Meeting Report
8. Post-meeting activity, votes, etc.



Committee Assignments (2016)

Programs:

M. Kuk (chair)
L. Meline
C. Smith
K. Thrasher
F. Pucciano
J. Spitler

Research

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

Handbook Ch. 9:

C. Gray (chair)
C. Paraskevacos
E. Lohrenz
M. Filler
F. Pucciano
G. Phetteplace
C. Haynes

Handbook Ch. 34:

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



TC 6.8 Subcommittee Report: Programs

Subcommittee Chair: Michael Kuk

Date: Sunday, June 24, 2016

Minutes from the subcommittee meeting can be found below.

1) Atlanta Meeting: We had one seminar, and one co-sponsored seminar:

- a. Seminar 34: Field performance of VRF, GSHP, and GS-VRF Systems: "The living lab results are in". Speakers Spittler, Gray, Liu. Packed house.
 - b. Seminar 42 (co-sponsored with TC 6.07) "GSHP and Solar Together". Speakers: Cary Smith, Gaylen Atkinson. Great seminar as well.
- #### 2) Orlando Meeting: We had two sponsored seminars this meeting and one conference paper session (Session 13 with 5 papers) on the topics of GHP. There were also 1 other talk related to geothermal heat pumps (seminar 61).
- a. Seminar 2 (Track 7: The great Debate): Centralized vs. Distributed Geothermal Heat Pump Applications (Sunday)
 1. Happy GHP Marriages: Building Types and GHP Loop Options: *Steve Kavanaugh, Ph.D.*
 2. When Should Centralized GHP Systems Be Considered? *Stephen Hamstra, P.E., HBDP, Member,*
 - b. Seminar 30 (Track 5): New Bi-National GLHE/GSHP Standards and Translating GLHE Standards to Code: Good, Bad or Really Ugly? (Monday)
 1. Ground Source Heat Pumps Get Bi-National Attention! *Lisa Meline, P.E.*
 2. Conflicting Codes and Standards: What Happens Now? *Cary Smith, Member, Sound Geothermal Corp.,*

3) Recent rejected sessions:

- a. (Chicago) Workshop: Calculating Hydrostatic head/ selection of grout materials: Chair: Cary Smith
- b. (Chicago) Forum: EPA 111D (Carbon Reduction) "What impact will this act have on energy efficient design?" Chair: Chris Gray
- c. (Atlanta): How to design ultra-deep boreholes –avoiding pipe collapse (Submitted by Cary)

4) Next Meeting Location(s)

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

Winter 2017- Las Vegas: Jan 28-Feb 1, 2017

Key next Dates:

1/4/16: Website opened for seminar, forum, and workshop proposals.

2/8/16: Seminar, Forum, and Workshop proposals due.

2/15/16: Revised Conference Papers/ Final Technical Papers due.

3/14/16: (Las Vegas) Conference Paper Abstracts due.

4/18/16: (Las Vegas) Full technical papers due.

7/6/16: (Las Vegas) Papers will be due

Orlando Conference Tracks

Track 1: Systems and Equipment

Track 2: Fundamentals and Applications

Track 3: Design Build

Track 4: International Design

Track 5: Standards, Guidelines and Codes

Track 6: Cutting-Edge Technologies

Track 7: The Great Debate

Track 8: Modern Residential Systems

St. Louis Tracks (red text = potential tracks for TC)

Track 1: Advances in Refrigeration Systems and Alternative Refrigerants

Track 2: Research Summit.

Track 3: Fundamentals and Applications

Track 4: HVAC Systems and Equipment

Track 5: Smart Building Systems/Remote Monitoring and Diagnostics.

Track 6: Indoor Environment: Health, Comfort, Productivity

Track 7: Professional Skills Beyond Engineering

Track 8: Renewable Energy Systems and Net Zero Buildings

5) PLANNED SUBMISSIONS FOR ST. LOUIS

- a. Conference Paper: Design criteria for PV/GSHP (paper) (Zheng oneil- U of Alabama) (apparently was submitted, but rejected)
- b. Scott to try and get a speaker, and work with Cary to take another shot at doing the talk on "calculating hydrostatic head" (Deep Bore).
- c. Zio Bing working on speaker for our TC and/or Forum titled "How Low of Price can we go?"
- d. Re-try Forum or seminar related to EPA 111D (Cary Leading with support of Xio Bing, Chris Gray). Looking to tie in to Track 8: (Renewable Energy Systems and Net Zero Buildings). Idea of getting speaker from "GEO", John Shonder from FEMP, reach out to Mark Ames ASHRAE Mngr of Govt Affairs



- e. Carl Huber gave several ideas for talks. Don't think we have enough to fill a whole seminar, so I will have to reach out to other TC's to see if they would be willing to co-sponsor, or take on Carls Talks).
- f. Carl Huber is proposing several seminars: 1) alternative refrigerants (track 1) (seminar or maybe symposium paper) (possible co-sponsorship with TC 8.1 or 8.11) 2) Benefits of "variable capacity" geo heat pumps (Track 4) (possible co-sponsorship with TC 8.1 or 8.11) 3) Benefits of "wifi" connected geothermal heat pumps with remote monitoring and data logging capability (Track 5) (possible co-sponsor with TC 7.5) 4) Design and Benefits of "vapor injected" geothermal heat pumps. (possible co-sponsorship with TC 8.1)
- g. Talked about Track 8: Renewable Energy Systems and Net Zero Buildings, but couldn't finalize a topic, or potential speakers.

6) Las Vegas Tracks

Track 1: Fundamentals and Applications
Track 2: HVAC&R Systems and Equipment
Track 3: Water-Energy Nexus
Track 4: Commercial and Industrial IAQ

Track 5: Mission Critical Design and Operation
Track 6: Effects of Climate Change on HVAC&R
Track 7: Energy Efficient Industrial Buildings
Track 8: Building Operation and Performance

7) PLANNED SUBMISSIONS FOR LAS VEGAS:

1) Water-Energy Nexus: Cary will work on speakers 2) Scott tossed out an idea on geo-piles (Urban geothermal applications)

8) Changes, new News:

- a. Starting in St. Louis, process in place for inviting speakers to have their speaker fees waived. (heard that this may be up to 5 people)
- b. Starting in St. Louis, speakers will be asked to fill out a potential sources bias disclosures document that will note an affiliation/involvement with any organizations with financial or commercial interest in the subject matter to be discussed.



TC 6.8 Subcommittee Report: Research

Subcommittee Chair: Xiaobing Liu

Date: Sunday, January 24, 2016

Minutes from the subcommittee meeting can be found below.

1. Update from RAC at research chair breakfast meeting

- Current ASHRAE research strategic plan is extended from 2015 to 2018.
- RAC calls for more Applied Research
- Request for research reserve funds (~ 6M)
- Evaluate concept of allocating (reserved?) research fund for post project processing that will produce tools, presentations, etc.
- WS format is modified again!
- AHRI roadmap for 2L (Flammable Refrigerants Research Initiative). Transition to low-GWP refrigerants→Safe use of flammable refrigerants→research (\$4.6M at initial phase)
- Honors and Awards?

2. Update on 1385-RP (Development of Design Tools for Surface Water Heat Pump Systems)

- PI is collecting more available surface water temperature data to fulfill the work statement for Task 1 "Locate and survey geological information sources for surface water temperatures and historical level fluctuations of surface water bodies. Develop an easy-to-use data base for finding water temperatures and levels for potential SWHP sites."
- PI will compile the information of AVAILABLE surface water temperature sources and give a brief assessment of the available data. It will be submitted to PMS for review. PMS will give a recommendation to full TC on whether accept the final draft with the above additional information
- PI was suggested to explore the possibility of applying for the reserved research fund from ASHRAE to collect more available surface water temperature data

3. Update on MTG (Guidelines for Avoided Source Energy Consumption Due to Waste Heat Recovery and Heat Pump)

- Formed a MTG after last ASHRAE meeting at Atlanta
- Developed draft work statement and have revised it several times based on inputs from with MTG. Will try to finalize it based on following inputs collected from the 1st face-to-face meeting of the MTG and submit it by the next RAC review cycle (May 15, 2016)
 - Focus on developing a procedure that can be adopted by stakeholders for determining energy savings and the renewable energy component of the Waste Heat Recovery and Heat Pump applications
 - Needed specify data collection requirement, validate the data and procedure
 - Need inputs from other members of MTG to describe challenges for properly evaluating energy savings achieved by Waste Heat Recovery and Heat Pump applications



- Will quantify site energy savings (can be converted to source energy, emissions), energy cost savings, and renewable energy component
4. DOE geo vision study (whether invite Arlene Anderson to TC?)→ What's the technical and economical potential of GHP applications in the US and the resulting impacts?
- Need following inputs
 - Cost model of various GSHP systems for different applications. Is there any scale of economy for large GSHP systems?
 - Resource assessment (ground thermal properties, available groundwater, surface water)
 - Are the previously defined barriers different now?
 - How to reduce the cost of GSHP systems?
 - How many energy can be saved? How many water can be used? How to evaluate these benefits?
 - How to improve the performance of GSHP system?
 - What is needed to support the growth of GHP and realize its potential
5. New Research Needs and Ideas
- Evaluate new GHX designs and develop a method to evaluate performance of new GHXs (Howard Newton, Lisa Meline, Stephen Hamstra, and Xiaobing Liu will work on the RTAR)
 - Study the long term performance of various types of GSHP systems (Scott Hackel, Steve kavanaugh, Stephen Hamstra, and John will work on this RTAR).
 - Study the impacts of deeper boreholes. How deep borehole can go? (will discuss next meeting)



TC 6.8 Subcommittee Report: Handbook Chapter 34

Subcommittee Chair: Scott Hackel

Date: January 24, 2016

Minutes from the subcommittee meeting can be found in the attachment below.

- New chair nominated
 - Harrison Skye, researcher at NIST, will be the new chair of the Chapter 34 subcommittee
 - He will begin with a meeting held via conference call before the June meeting
- Several changes have been suggested in the past few years
- As with the past, we will put these up for an initial vote by the subcommittee to determine what to focus on. We'll send that out following this meeting.
- Timeline:
 - July 1, 2016 Start Year 2: The lead author/reviser and others revise the chapter.
 - July 1, 2017 Start Year 3: The nearly-complete draft is reviewed by all members of the subcommittee, and then all members of the TC.
 - June 2018 – Need to submit revised chapter to handbook editor
 - So we will attempt to have the chapter completed and get the vote in January 2018.



TC 6.8 Subcommittee Report: Standards

Subcommittee Chair: Lisa Meline

Date: January 26, 2016

Minutes from the subcommittee meeting can be found below.

Subcommittee Members:

Bob Brown

Mike Green

Steve Hamstra

Joe Parsons

Cary Smith

BSR/CSA C448 Bi-national standard for the Design and installation of ground source heat pumps for commercial and residential buildings

Collaborative effort between CSA, ASHRAE, IGSHPA, NGWA and GEO. The following is the recent announcement about its publication:

Binational Standard for Ground Source Heat Pumps Is Now Published

A binational standard for the design and installation of ground source pump systems for commercial and residential buildings has now been published by CSA Group, a leading American National Standards Institute- and Standards Council of Canada-accredited developer of standards, codes, guidelines, and personnel certification programs.

There are a number of related GSHP standards, guidelines, and best practices available, but stakeholders identified the need for standardization through a neutral third party accredited process for the design and installation of ground source heat pump systems as a priority.

ANSI/CSA C448-2016 has been developed by subject-matter-experts from across North America with a vision to harmonize the differences between existing resources, simplify referencing in regulations and contracts, incorporate the latest advancements, clarify compliance using standards language, and provide credibility through an accredited neutral standards development process. CSA Group's binational committee members included leaders from industry trade and professional associations—including NGWA— as well as utilities, drillers, installers, manufacturers, regulators, designers/engineers, and researchers /academia.

With a performance-based approach, the best practices and requirement from equipment and material selection to commissioning and decommissioning is now included in the standard.

To learn more about ANSI/CSA C448-2016, contact Muktha Tumkur at muktha.tumkur@csagroup.org, or visit the CSA Group website at <http://shop.csa.ca/>.

ASTM E4415 – Installation, Testing, Commissioning, and Maintenance of Closed Loop, Ground Source Geothermal Heat Exchanger.

No progress to report on this standard.



2015 Uniform Solar Energy and Hydronics Code (IAPMO)

The 2015 USEHC has been published and several organizations are working together to review current Code language for proposed changes. A united front is requested between IGSHPA and ASHRAE to propose these changes and work through the 3-year code review cycle for the 2018 update.

Existing language with proposed changes has been emailed to TC6.8 voting members for review. All comments from the TC are due April 4, 2016 so that they can be correlated, compared, and submitted to IAMPO on April 5, 2016. The following is the **USEHC Code Development Timeline for 2018 Code Cycle**

April 5, 2016 Call for Proposals

July 1, 2016 Deadline for Submission of Proposals

September 22, 2016 Distribution of Proposals to Committees (ROP) Monograph

October 25-26, 2016 Technical Committee Meetings

November 15, 2016 Initial Ballot to Technical Committee

December 2, 2016 Receipt of Initial Ballots and Circulation of Comments

December 16, 2016 Final Closing Date for Ballots and Includes Receipt of Vote Changes
Based on Re-Circulated Comments

February 21, 2017 Distribution of *Report on Proposals (ROP)*

March 21, 2017 Call for Comments

June 20, 2017 Deadline for Submission of Comments

September 22, 2017 Distribution of Comments to Committees (ROC Monograph)

October 24-25, 2017 Technical Committee Meetings

November 15, 2017 Initial Ballots to Technical Committees

November 21, 2017 Receipt of Initial Ballots and Circulation of Comments

December 4, 2017 Final closing date for ballots, including receipt of vote
changes based on re-circulated comments

March 26, 2018 Distribution of *Report on Comments (ROC)*

June 15, 2018 Deadline for Notification of Intent to File Written Petition
to the Executive Committee

July 23-24, 2018 Executive Committee Meet to Address Petitions

Meeting minutes from ASHRAE SPC 194 are attached to this report.



ASHRAE SPC 194 Report
Method of Test for DX GSHPs Subcommittee Meeting

Subcommittee Chair: Joe Parsons

Date: January 24, 2016

Minutes from the subcommittee meeting can be found below.

The meeting was called to order at 1:12 PM by Joe Parsons (Chair)

Members in attendance:

- Joe Parsons (Chair) – voting
- Bill Murphey (Vice Chair) – voting
- Chuck High (Secretary) – voting
- Chris Lesnor – voting

Guests in attendance:

- Stephen Wage (Intertek)
- Jack Zarour (ASHRAE SPLC)

4 out of 5 voting members were present, therefore a quorum was met.

This was the first official meeting of SPC 194 and there were no minutes from a previous meeting.

The proposed revised Std. 194 was presented and reviewed by the committee. Additional revisions were made during the meeting by the committee.

Assignments are: (1) Bill Murphey to proof SI to I-P conversion factors, and (2) Chuck High will incorporate all revisions into the ASHRAE document format.

The plan is to distribute the proposed revised Standard 194 to the committee members for web meeting review. Following this, after final revisions, the document will be presented for review and approval by SPC 194 at the St. Louis Meeting in June, 2016.

There was no new business.

The next meeting is scheduled for Sunday, June 26 @ 1:00PM in St. Louis.

The meeting was adjourned at 3:20 PM.

Respectfully Submitted,
Chuck High - Secretary



Attachments
Atlanta, GA Summer Meeting
Tuesday 26 January 2016

TC/TG/TRG Activity Feedback Form

Please provide feedback on your TC/TG/TRG activities and return this form by **Tuesday night 9:00 pm** to your Section Head by email or drop off a printed copy in the Section Head's mailbox folder outside the ASHRAE Headquarters Room.

Include activities performed since the last TC meeting (e.g. any letter ballots, submissions to RAC, award nominations, etc.)

PLEASE DO NOT LEAVE NUMERIC CELLS EMPTY. ENTER 0 IN CELLS IF THERE IS NO COUNT.

TC#	6.08	Committee Name:	Geothermal Heat Pump and Energy Recovery Applications		
		Chair:	Cary Smith		

Meeting was Held (City)	Chicago	(Day)	Tuesday	(Date)	1/26/2016
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Membership	Quorum Established (Yes/No)		YES
	Number Present	Remote Participants	Total on Committee Roster
Voting Members (excluding Non-Quorum Members)	12	0	15
Non-Quorum Members	1	0	1
Corresponding Members	18	0	111
Provisional Members	0	0	8
Visitors/Guests	6	0	n/a
All members/guests who are ALSO YEA members	13	0	n/a

Handbook Responsibilities		Standards Responsibilities	
Total Number of Chapters	2	Total Number of Standards	0
# Chapters voted out this meeting	0	# Standards recommended	0

Special Publications (last six months)	1	Title:	Design of Commercial Geothermal Heat Pump Systems (Blue Book)
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Program Activities (For This Meeting)										
Total # of Forums			Total # of Seminars			Total # of Paper Sessions			Other Presentations	
Submitted*	Sponsor	Co-sponsor	Submitted*	Sponsor	Co-Sponsor	Submitted*	Sponsor	Co-Sponsor	TC Research Results	Other Papers**
0	0	0	1	1	1	2	0	0	0	0

Current Research Activities (active)		TC Management	
# of new/revised RTARs submitted	0	Minutes completed on time?	YES
# of other active RTARs	0	Agenda distributed on time?	YES
# of Work Statements submitted	0	Did Chair attend training?	YES
# of other active Work Statements	1	Did Vice Chair attend?	YES
# of active TRPs	0	Did Program Chair attend training?	YES
# of active RPs	1	Did Handbook Chair attend training?	YES
Problems getting RTAR/WS approved?	NO	Did Research Chair attend breakfast?	YES

Other Technical Activities		Award Nominations (last six months)	
# FAQs updated this meeting	0	# of Distinguished Service Nominations	0
# New members added to roster	2	# of Exceptional Service Nominations	0
		# of Other Nominations: Hightower, Research, Fellow, etc	0
		Specify Award :	

Any Concerns or requests for the Technical Activities Committee? (Please type in Space Below)

* For submitted sessions, include only sessions which your TC initiated and submitted FOR this meeting.
** Papers from TC in sessions not sponsored by TC



Post-meeting activity, votes, etc.

Note from Chris Gray, Handbook Ch. 9 Subcommittee Chair

The final draft [of the chapter] was sent to me for approval on 2/2/16. There were no major questions or edits that required the attention of the greater subcommittee. Minor edits were made and the final copy was accepted by staff on 2/2/16.