

**ASHRAE TC 6.9 – Thermal Storage
General Meeting Minutes
Monday, June 24, 2019
4:30 – 6:00 PM
Kansas City Convention Center, Room 2207, Kansas City, MO**

Attendees

Each person introduced themselves and an attendance sheet was distributed.
Attendees included:

Daniel Pyewell	CM	Secretary/ Webmaster
Chris Mincey	CM	Vice Chair
Shwetha Prabhu	PCM	
Mohamed Osman	G	
Mikael Salonvaaramh	PCM	
Scott Shaffer	CM	
John Molnar	CM	
Blake Ellis	VM	
Zidu Ma	G	
Ken Fulk	VM	Standards Subcommittee Chair
John Nix	CM	
Farzin Rad	VM	Handbook Subcommittee Chair
John Dunlap	VM	
Henry Becker	CM	
Paulo Tabares	VM	Research Subcommittee Chair
Michael Deru	CM	
Ivan Thomas	CM	
Steve Rudy	PCM	
Trent Hunt	VM	
John Lau	VM	Chair

Preliminaries

- Meeting called to order at 4:30 PM by Chairperson, John Lau.
- The TC 6.9 Purpose Statement and Code of Ethics Commitment was read by John Lau.
- The agenda and attendance sheet were circulated.
- Voting Member Roll Call – 7 voting members were present:, Farzin Rad, Blake Ellis, Ken Fulk, Jon Dunlap, Paolo Tabares, John Lau, and Trent Hunt. The following voting members were not present: Richard Brooks, Geoff Bares, Mark MacCracken, Guy Frankenfield.
- Based on a total of 7 voting members, a quorum was determined.
- All attendees were given the opportunity to introduce themselves.
- Modifications to the agenda – add new business – Blake mentioned to add MOU between IDEA and ASHRAE.

Approval of Minutes

Atlanta – Winter Meeting 2018. No comments were presented in meeting. Motion to approve made by John Dunlap, seconded by John Nix. 7 voting members approved. The minutes were thus approved.

Announcements by Chair – John Lau

Section 6 Breakfast

- This year's meeting was different, all T.C.s met in 1 big ballroom.
- Some highlights of the meeting were as follows:
 - ASHRAE will send out an email to members with link to arrange a thank you letter sent to employers.
 - Big presentation about embracing change.
 - Seminar proposals are due Aug. 2nd for Orlando.
 - Handouts and statistics were circulated and discussed earlier at the subcommittee meetings
 - Main Topic – T.C. reorganization – will be discussed further in new business.

Liaison Reports

- Section 6 head Dawen Lu – did not attend.
- John Nix attended the Professional Development Group meeting this morning. Development is now being done by either face-to-face seminars, by instructors in a classroom, e-Learning, instructor-led online courses, or with video recorded lessons. In Atlanta, the 3rd presentation on the seminar was conducted by Doug Reindl. Doug has agreed to do an instructor-led seminar where Doug can be contacted during the online seminar.
- Additionally, ASHRAE Will start breaking 3 and 6 hr. courses down to 1 hr. topics. John suggests that the T.C. look at doing a 1 hr. presentation on SPC 150 standard.
- For Standard 90.1, John Dunlap reported that ASHRAE formed a few working groups on ice thermal storage (John Dunlap and Mark McCracken are on committee), on how ice storage impacts energy usage. The committee is trying to figure out a way to plug demand into the equation.

Handbook – Farzin Rad

- Recent updates to the handbook were done by using the ASHRAE portal for revisions. All revisions/ additions were submitted to ASHRAE. A summary of work done and revisions/ updates are as follows:
 - Ken Fulk was lead author, with reviewers: Chris Mincey, Brian Silveti, John Nix, and Daniel Pyewell
 - Structure of Chapter has been changed (revised by John Lau)
 - Results of Research 1607 were included (inserted by Guy Frankenfield)

- Outdated references were removed and unit conversions corrected (by Daniel Pyewell)
- All changes were received on April 17th, 2019 and the final revision was submitted after receiving 9 approval email votes and zero rejecting out of the 11 voting members.
- With Farzin becoming vice-chair of committee, the committee will need to look at appointing someone for the handbook chair by next year. Richard Mullen was suggested, although he was absent from the meeting.

Programs – Chris Mincey Reporting for Richard Brooks

Past programs:

- Seminars presented in Atlanta in January:
 - Chris Mincey chaired Seminar #22 entitled “Building Energy Storage: The Future of the Smart Grid”. Presenters were Mark MacCracken, Guy Frankenfield, and Ram Narayanamurthy. The seminar was well attended, with standing room only available.
 - Eric House chaired Seminar #4 entitled “Thermal Energy Storage in the Cold Chain”. Presenters were Collin Coker and John Lerch.
 - Paulo Tabares chaired Seminar #65 entitled “The Role of Energy Storage for Buildings Integrated with Renewable Energy Systems”. Presenters were Karl Heine, Mohammad Hassan Fathollahzadeh, and Marcel Christians.
 - A 3 hour course on Thermal Energy Storage was conducted on Monday, January 14th, 2019. Doug Reindl was the instructor for the course. The cost of the course was \$139.

Current programs:

- No programs were sponsored by the T.C. for the Summer Conference
- The proposed seminar submitted on SPC 150 was not accepted by CEC. The seminar will be resubmitted again for Orlando. Details as follows:
 - Entitled “Method of Testing the Performance of Cool Storage Systems – Standard 150”, with Chris Mincey as Chair and John Nix and Ken Fulk as speakers

Future programs:

- For Orlando, proposals are due by August 2nd.
- Orlando Presentation suggested, title: “Increasing the Resiliency and Efficiency of Florida District Energy Systems” under Track 2 “Systems and Equipment”. Chris Mincey and John Nix moved to approve the proposal, and Ken Fulk seconded. All 7 members voted in favor, which was approved unanimously.

- As John indicated in his liaison report, the 3 hr. courses are being broke up into hourly courses, which may lend itself to a SPC 150 presentation for Track 8 “Standards, Guidelines, and Codes”. Chris Mincey is happy to chair this presentation, with Ken Fulk and John Nix presenting. It was suggested to possibly add a 3rd presenter, either Lucas Hyman or Chuck Dorgan. The presentation will focus on how to apply the Standard in the real world. Motion to approve the presentation was made by Chris Mincey, and seconded by John Dunlap. The presentation was unanimously approved by the 7 voting members present.
 - For Austin:
 - Track 5 Grid-Interactive Efficient Built Environment – Submit “Building Energy Storage: The Future of the Smart Grid” again since the last seminar in Atlanta attracted a large audience (more than 300 attendees). One idea was to incorporate Amy Van Asselt’s presentation.
 - Track 6 Residential Buildings - Charles Upshaw, James Haile for Residential Building Applications. Also, Xiaobing Liu of Oakridge National Laboratory and Paul Stephis could present on chilled water with phase change material.

Future Tour Sites: Bill Clock is contact regarding future tours

Austin – possibility of UT Austin (with prime contacts of Juan Ontiveros and Burns and McDonnell), and Austin Energy District Cooling System with ice storage.

Phoenix – Northwind Phoenix – District Cooling with ice storage.

Additional programs/ etc:

- For the History of TES abstract: John Nix thinks they are through putting the information together, and have met deadline for submittal, are just awaiting for publishing through ASHRAE.

Standards – Ken Fulk

SPC-150 update:

- Got through process to get standard SPC 150 published, and it is now in the bookstore. John Dunlap recognized Ken Fulk for his effort on the standard. Since the revised standard is now published, there is really not much to do until the standard is reaffirmed in 5 yrs. The next course of action will be to take a vote to disband the standard subcommittee for 5 yrs.
- Guideline 150 – Ken sent out the proposed title, purpose, and scope to a handful of people and ASHRAE. Generally, feedback was that it looked good. Suggestions include adding IDEA, and changing to “Guideline for Testing”. Standards have asked Ken to attend PPIS standard meeting tomorrow morning (to ask questions). Plan to have guideline committee membership together by July 31st, in which there will then be a vote to approve the membership in October. There is an emphasized goal of keeping balance on the committee (proposed 5 initial members on form). Ken has proposed that Guy Frankenfield be chair, whom has responded and accepted the position. T.C. needs to take a vote to approve Guideline 150. Ken Fulk moved to approve the title, purpose and scope, which was seconded by Trent Hunt. Approved unanimously by the 7 present voting members.

Standards update:

- SPC-94.2 – thought withdrawn but ASHRAE continues to show this as an active standard on sale in the online Book Store. It was noted that Mike Fuller did previously send out a letter ballot, in which John Nix had responded to it. It sounds like the vote just needs to be put into the right hands. Ken Fulk will contact ASHRAE staff and Mike Fuller about status of how to close this out.
- ANSI AHRI 900 – replacement for 94 series. It is now about 5 yrs. old. Ken suspects that an update may be coming up. Ken will follow up with AHRI about the update.
- ASME TES-2-200X – Haven't done anything, but sometime this fall, ASME will start this initiative up (currently soliciting for members). ASME is looking at chilled water, ice, and really anything related to thermal storage. ASME wants to know who may be available from T.C. 6.9 to work with them. It is titled "Safety Standard for TES". Ken will stay in contact with them and help, as needed. If there is a need for a liaison, that will be requested from the T.C.

Research –Paulo Cesar Tabares Velasco

Status Update:

- Paulo attended an informative breakfast this morning. In summary, publication request will follow different protocol – PTAR for publication (instead of RTAR), and will be submitted to MORTs and the publication committee. ASHRAE had realized that publications should not follow the same procedure for RTARs. Additional notes from the breakfast are as follows:
 - New Research Plan is currently being outlined
 - Research awarded at an average of \$1.5 million a year. Average size of project was around \$130k, and lasts 6 months. Typical projects range from \$50k to \$100k, with average of \$7k per month being spent, per project.
- Currently for T.C. 6.9, there is nothing in works as far as Work Statements/ RTARs. Paulo needs help here. Three new ideas were discussed and suggested (see Paulo's handout for additional details):
 - #5 Potential Cost Savings Map for Cool Storage. John Nix mentioned there has been some work done in this area.
 - Model Predictive Control for TES. #2 (Residential Precooling and Modeling Predictive Control) will be subsection of #3 (MPC for TES). Amy Van Asselt and John Molnar would like to help with this effort.
 - Chris Mincey suggested evaluating different CHW diffuser designs with CFD to compare one technology versus the others. This idea is captured to be put in agenda for next meeting to discuss further.
 - Paulo would like to have 2-3 RTARs to vote on by next meeting.
 - Trent Hunt suggested support for Guideline 36 (T.C. 1.4) Standard Control Sequences for High Performance Systems. They are currently being tasked to develop standard control sequences, which could use help from the Thermal Storage Committee.

Long Range Planning/Website – John Lau/Daniel Pyewell

- John noted that the T.C. roster is visible on the website, and is being kept up-to-date.
- Daniel has been keeping our website up-to-date.
- Daniel mentioned recent issue with different browsers viewing T.C. Rosters, and that IT should have fixed it, but wants everyone to be aware in case it happens again.
- Guy Frankenfield attended an Energy Storage Integration Council (ESIC/ EPRI) in Phoenix. EPRI is working on modelling software tool (STORAGEVET, python-based modelling system) to compare economic benefits of different storage technologies. Guy Frankenfield is recommending that the T.C. get involved with this development. The recommendation is to form a small team to attend their meetings and provide data. If interested in volunteering, please contact Guy or the TC Chair.
- John got email from Beth Tomlinson – ASHRAE TC 2.5, Global Climate Change, is in the process of developing a new Fundamentals chapter on climate change. . Our T.C. may be interested in their work, and Beth recommends we provide a liaison (John Nix is interested, and will touch base with Beth). This will become a new Chapter in handbook on Climate Change.

Honors and Awards – Blake Ellis

- Several T.C. members that received awards:
 - - Don Bahnfleth Environmental Health Award – given to Bill Banfleth
 - Crosby Field Award – Highest Rated Paper – given to Amy Van Asselt, Doug Reindel, and Gregory Nellis
 - Distinguished Service Award – given to John Molnar.
 - Exceptional Service Award – given to John Nix.
- Blake indicated that updating ASHRAE bio/profile is important as it is reviewed with any award submission. Blake encouraged everyone to keep their bios updated.
- Hightower award – nominations to be submitted by Sept. 1st (from TC Chair to TC section head). This award is given to people about services the last four years on technical activities.
- Other awards - Dec. 1st deadline for:
 - ASHRAE Hall of Fame (need to be deceased)
 - Pioneers of the Industry
 - F. Paul Anderson Award (highest award possible)
 - Fellow Nominations
 - Distinguished Public Service
 - Honorary Member

- Distinguished 50-year Member
- Other awards – Dec. 15th Deadline for:
 - Homer Addams Award – recognizes a graduate student who has been engaged in an ASHRAE research project at a university that has graduate programs in the areas of heating, ventilation and air conditioning, and has achieved a high standard of performance in this work.

Old Business

- T.C. reorganization – from last meeting, it was a big shock. At this conference chair breakfast, it was indicated that merging T.C.s are still on the table, but for members not to get hung up on them. John read a letter on some items that TAC and section heads are considering. The soonest implementation for any items will be by Austin of next summer.

New Business

- Building our New Energy Future Workshop (Guy attended). Mark MacCracken will hopefully give us an update on this in the next meeting.
- Voting Members – rolling off – Ken Fulk, Blake Ellis, and John Lau.
- Chris Mincey will be rolling on as Chair, with Farzin as Vice-chair. Will be looking at a new handbook Chair by next meeting.
- Rolling on as Voting Members are Daniel Pyewell, John Nix, Chris Mincey, and Henry Becker.
- IDEA and ASHRAE have signed a Memorandum of Understanding to collaborate more closely and coordinate conferences, publications, etc. Blake was asked to be Liaison between ASHRAE and IDEA and Blake will be putting together a work plan for this, which will cover coordination of conferences (eliminate overlap), as well as publications.
- Ken Fulk thanked the outgoing chair, John Lau, for his efforts.

Adjourn

- Motion by Blake Ellis to adjourn, which was unanimously approved. Meeting adjourned at 5:42 p.m.