

**TC 9.9 Meeting Minutes**  
Monday June 28 2010  
Albuquerque, NM, USA

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

TC/TG/TRG NO: **TC 9.9**      Date: **June 28, 2010**      Location: **Albuquerque, USA**

**TC/TG/TRG TITLE: Mission Critical Facilities, Technology Spaces and  
Electronic Equipment**

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***General Meeting on June 28th - Call to order***

Chairman, Fred Stack called the meeting to order at 2:15 p.m.

***Attendees***

<b>Name</b>	
Andrew Baxter	Jon Fitch
Ant Giesler	Jonathan Spreeman
Bill Tschudi	Kevin Quapp
Cheng-Xian Lin	Kishor Khankari
Chris Muller	Mark Bender
Craig Crader	Mark Crawford
Dave Schaaf	Mike Patterson
David Meadows	Mike Scofield
David Quirk	Nemat Lotfi
Don Beaty	Nick Gangemi
Don Guan	PJ Singh
Doug McLellan	Rhonda Johnson
Ecton English	Rick Pavlak
Fred Stack	Robin Steinbrecher
Geoff Lawler	Roger Schmidt
Gerald Wyatt	Sang Lee
Greg Jeffers	Scott Wilson
Herb Villa	Terry Rogers
Jack Glass	Tom Davidson
Jeff Stein	Vali Sorell

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***Albuquerque Meeting Review***

Roll call of voting members established a quorum was present (10 of 14 present). Fred Stack reviewed the agenda for the meeting, officer positions, voting members and changes to the roster.

No change to posted minutes.

***Roster/ Voting Member Changes***

7 members will be rolling off and 7 new members will be joining as voting members July 1, 2010.

***The Green Grid Update – PUE***

Mike Patterson gave an overview of The Green Grid and relationship to TC 9.9. Update on TGG current work groups and white papers in progress was given. Mike also spoke on the PUE cross-industry working group and how TGG has better links into the IT industry than ASHRAE.

Mike reviewed the development of PUE and the various versions that developed over time DOE and EPA convened a Working Group to refine a single definition – The new version has 4 variations depending on how close to the IT load the measurement is taken ( get chart from the paper)

The new definition uses a Source energy Conversion factor to adjust for non-electric purchased energy i.e. industrial chilled water or natural gas for cooling

EPA have incorporated the PUE measurement into the Energy Star rating for data centers TC 9.9 is on record through a vote in Orlando that it would pursue PUE as an ASHRAE standard and is waiting for a response from Green Grid, the owner of the term It is thought that GG is still considering whether to use ASHRAE or another body and if a standard is required

***Handbook***

Doug reviewed the schedule for revising Chapter 17 in Applications.

The revised language for Chapter 17 was reviewed and change last night. It was decided to allow voting members to review it once more on the Website and an email vote will be requested next week.

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**Website**

Eckton English demonstrated the new version of the TC9.9 website  
The new version is available for review from the existing site 'development'

**TC 9.9 Programs**

Vali Sorell reviewed the various types of presentations and lead time and review process.

Review of upcoming meetings:

- Theme for Las Vegas (June 2010): “Zero Energy Design”
- Theme for Montreal (January 2011): “Net-Zero Design”
- Las Vegas:
  - April 9, 2010: Conference paper abstracts due
  - April 9, 2010: Full Technical papers due
  - May 7, 2010: Author notification of abstract acceptance for conference papers
  - June 4, 2010: Web site opens for Seminar and Forum Program proposals
  - August 6, 2010: Draft Conference papers due
  - August 6, 2010: Seminar and Forum program proposals due
  - September 10, 2010: Technical paper reviews complete
  - September 10, 2010: Conference paper reviews complete
  - September 13, 2010: Final Technical papers due
  - October 8, 2010: Final Conference papers due
  - December 10, 2010: Upload of PPTs begin
  - Jan 14, 2011: All PPTs due online
  - Jan 29, 2011: Speaker’s lounge opens

There is no published schedule for the Montreal conference yet.

LV only Seminars can be done and Forums:

**FORUMS:**

1. Failure Analysis and risk management – Baxter \_\_\_\_
2. Effects of RoHS Regulations – Scott \_\_\_\_ PJ Singh,

**SEMINAR:**

1. Codes and Standards for Data Centers – Quirk - -- Chair: Craig Crader, w/ J Stein (energy), M Patterson (EU Code of Conduct), R Johnson (TIA and others), D Mclelan (LEED)
2. Liquid Cooling – F Stack chair, Schmidt, Quirk
3. O&M best practice for data centers – H Villa chair, T Rogers,

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4. Net Zero - Mike Patterson / - EU Code of conduct and John Bean (Montreal)
  5. Brand new innovative technologies – Conference paper – Fred Stack (Montreal)
  6. Terry Roger will be submitting a paper (Montreal)

Rick Pavlak – Agreed to Chair a seminar or Forum

#### ***Research Subcommittee Report***

Robin Steinbrecher, reviewed the TC 9.9 Research status.

1499 – was approved to go out for bids

1619 - Gaseous Contamination

1487 – Co-sponsor with 4.10 develop compact model of a rack.

1387 - Co-sponsor with 6.9 Thermal Storage

ASHRAE funding for 2010 has been committed.

1.7 to 2.2 MM available in 2011

Co-Funded project are more favorable.

#### ***DOE/ASHRAE Data Center Training Report***

Nick Gangemi - 7 presentations given, 2 more are planned, no more planned after that  
It was suggested that Utilities may be interested in hosting the training and can be contacted through EEI

#### ***Green Grid Discussion***

Don Beaty lead a discussion about the relationship between ASHRAE TC 9.9 and the Green Grid. He showed the latest book, Real-Time Energy Consumption Measurements in Data Centers, which was a collaboration between TC9.9 and the Green Grid. Mike Patterson, Intel, will make a presentation to the Green Grid about ASHRAE as part of a session of partners with the Green Grid.

Fred Stack discussed a suggestion by the Green Grid about whether ASHRAE would make a standard of the concept of PUE measurement. It is expected this would involve methods of measurement, prediction for Greenfield sites. Members offered comments encouraging adoption of PUE into ASHRAE. Some suggested that the process could be similar to Std 183 for Peak Heating and Cooling Load determination. Fred Stack asked for, and received a consensus to tell the Green Grid we would consider taking PUE to an ASHRAE standard. Discussion continued about the effort required compared to other pressing issues such as updating the Trend Chart.

#### ***SPC-127 Review and Update***

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Fred Stack covered the status of SPC 127.

Issues to be addressed will include row-based cooling, change the term SCOP, update rating set point

### ***ASHRAE 90.1 Panel Discussion***

Rick Pavlak gave an update on the status of 90.1 2010 Standard

Data centers will be included along with other industries for the first time

Don Beaty went through a theoretical case study to show the Committee how 90.1 may affect data centers

### ***Publications- Economizer Book Update***

Three books are in process and should be ready by the Winter meeting

Power Trends, Economizers, and Green Tips

ASHRAE Journal articles March and October

Need path for updating the existing books

Green Grid could be a conduit for marketing books, using the newsletter or a mini bookstore at an event

ASHRAE offers discounts to companies purchasing quantities of books and will put logos on the cover

### ***Meeting Adjourned***

The Meeting was adjourned at 7:30 p.m.

**Jonathan Spreeman** – TC 9.9 Secretary