

**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 TC 9.9 DATE 6/26/2009

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

DATE OF MEETING 6/22/2009 LOCATION Louisville, KY

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
David Moss	06	Chris Malone	06	
Magnus Herrlin	09	Chris Kurkjian	09	
Richard Pavlak	08	Jack Glass	09	
Vali Sorell	09	Jeff Rutt	09	
Mark Hydeman	09	John Groenewold	06	
		Mike Patterson	06	
		Tom Davidson	08	
See next page		Tim McCann	06	

DISTRIBUTION

<i>All Members of TC/TG/TRG plus the following:</i>	
TAC Section Head: Van Baxter	
TAC Chair: Don Brundage	
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	
Manager Of Standards	Stephanie C Reiniche
Manager Of Research & Technical Services	Mike Vaughn

These draft minutes have not been approved and are not the official, approved record until approved by this committee.

Attendees con't

The first page shows attendance of Voting Members – We did not have a Quorum

New Voting members as of July 1, 2009	
Present	Absent
David Quirk Terry Rodgers Doug McLean Roger Schmidt	Mukesh Khattar

Corresponding Members Present	Absent not shown
Scott Cherry Nemat Lotfi Geoff Lawler Nick Gangemi John Bean Mike Schofield Andy Baxter Mehrdad Gholamalipour Don Beaty Devih Rauss Frank Lembo Bill Tschudi Wade Conlan Joe Prisco Bob Sullivan Nick des Champs David Miller Austin Demetriou Craig Crader Jeff Trower Greg Jeffers Ecton English Izuh Obinelo Robin Steinbrecher David Copeland Jonathan Spreeman Rhonda Johnson Shlomo Novotny Kathryn Whitenack Bob Blough Kishor Khankari	

Roster Voting Member Role Call

- Quorum not present 5/8/1 (Present / Absent / Chair)
- Roster status of voting members rolling off and new voting members rolling on was explained and identified

SPC 127 Activities

Confirmed discussion from 5/23 Conference Call. The 90.1 Mechanical subcommittee has requested we petition to reopen the Standard 127 for the following purposes:

1. Change the name of "SCOP" to a new acronym since this term is already used in 90.1
2. Create a Testing / Rating process similar to iEER and iCOP for the type of equipment covered by standard 127, deleting the current ASCOP rating
3. Created a Test / Rating process for the new technologies now being deployed in Computer and Data Processing Rooms such as In-the-row products and enclosed cabinet cooling.

The following membership was proposed for this committee (Requires approval of the SSPL (Note it was later discovered this membership and scope of effort requires a vote of the TC 9.9 voting members. Since we had no quorum a letter ballot was sent after the meeting

- Fred Stack (chair), T Rodgers, G Lawler, J Trower, J Bean, M Khattar, G Jeffers, D Quirk

Handbook subcommittee report by Doug McLellan

- TTD by July 1, 2010
 - Submit chapter to TC for review
 - TC approves chapter
 - Send chapter to HBV Comm liaison
- Some proposed changes that Doug suggested:
 - Economizer section is only a few lines. Suggested an update of at least one page. Content should come from published ASHRAE Journal articles, transaction papers and Economizer book currently in process. Needs to include all types of economizers
 - PUE/DCiE definition and write-up. Suggest this content will be a derivative of the Measurements book currently in process

Research subcommittee report by Robin Steinbrecher

- Reviewed priorities shown below. Those in red were those deemed most important by those present during the working group meeting Sunday evening.

Energy consumption effects driven by the thermal guidelines (Humidity and inlet temp.)

- **expansion of the thermal guidelines – energy consumption impact**
- reliability impact of expanding the RH/room temp – recommended and allowed

1. Cooling proof of concepts

- **Adaptation of data centers for multi-mode cooling – liquid, air, multiphase**
 - **Removing barriers to liquid cooling**
- **Rating methods, free cooling techniques, metrics for comparison**
- Optimal cooling implementations for ITE equipment based on power saving
- RAS impacts of various cooling implementations at data center level
- Optimal integration of data center cooling with ITE cooling

2. Uniformity/specification in real-time data reporting between ITE and data center management

- **Metrics – (true) inlet air temperature, flow rate, total heat load, etc.**
- **Standardized protocols for data reporting**
- Power saving modes for ITE and integration with data center management
- Optimization of data center cooling parameters for power-saving ITE operation – flow and inlet temperatures, workload
- Algorithms for managing varying ITE demand

3. Airflow Management

- **Practical achievements for fan to server flow ratios**
- **Influences of aisle containment**
- Blank-off plates and containment of cable penetrations
- Selection of floor diffusers

4. Integration of telecom equipment within a data center

- Considerations for side-to-side-cooled ITE
- Mixed front-to-back/top and side-to-side equipment

5. Matching of ΔT 's between ITE and cooling equipment in common configurations

- Avoiding hot spots when shutting off cooling units

6. Ride-through when losing a chiller – guidelines and sizing for typical configurations

7. Guideline for floor diffusers for cold aisles

- Placement of cold aisle diffusers and optimization using adjustable diffusers

Deadline for submitting RTAR is 12/15.

DOE Save Energy Now Data Center Awareness Training Program

- Bill Tschudi presented status
- Training slides at approx 90%, but still needs some massaging. To be reviewed at Tuesday workshop
- One-day training
 - Gov Energy – Providence Aug 2009
 - Labs 21 Conference – Indianapolis Sep 2009
 - Data Center Journal – Atlanta, October 2009
 - NYSERDA, Albany, NY Sept 2009
 - NYSERDA, NYC, Nov 2009
 - 7x24 Exchange, western US, Nov 2009
 - SC09 – NEEA, Portland, OR, Nov 2009
- Trainers
 - DOE (LBNL and subs) and ASHRAE to present
 - Several potential ASHRAE volunteers have been identified. Requested each to notify Bill or Jack Glass of how many sessions they are willing to present in a year
 - Trainers need to be indentified for near terms sessions
 - Longer term trainer qualification criteria being developed
- How will it work?
 - DOE sub will
 - Coordinate and arrange training session
 - Arrange for ASHRAE book
 - Arrange for trainers from list provided by ASHRAE
 - Handle logistics with host including fees
 - Assist Host in advertising the event
 - ASHRAE will
 - Manage all content
 - Provide handout materials
 - Provide one book
 - Refresh training materials as necessary
 - Who will train the trainers?
 - Discussion ideas were shared regarding the trainer certification program.

1. How to qualification for presentation skills?
2. How to insure consistency in the message delivered?

- Ideas shared included: Use training webinars, Use a buddy system to train and qualify new trainers, Heavy use of note section in ppt presentations, reference source of content for additional training.

90.1 Response

- Drake Erbe, Chair of 90.1 Mechanical Sub-Committee (MSC) presentation
 - Addendum BU in ASHRAE Std 90.1 Final results and mech subcommittee commitments
 - Addendum BU was voted for Public Review with minor edits and clarification
 - The MSC committed to the following:
 - Only fluid economizers will be required until 2014 when the research on air contamination and humidity issues are expected to be completed. This will be clarified in the user's manual to educate the user on the issue.
 - A statement will be added to exempt water economizers in zones where cooling towers are not to be used due to local regulations.
 - Agreed to rewrite economizers to separate and clarify the air and water economizers. This will be picked up by the economizer working group but they will review the final proposal with the TC working group.
 - Agreed to have a packaged air handler ICOP rating and to also modify the fan power requirements for free discharge applications through the fan power working group.
 - For the economizer working group, will also clarify the low humidity override applications with a low dewpoint switch override
 - Regarding the sunset clause there was a mixed opinion regarding the addition of the 2014 sunset clause. Proposal was to remove the clause and add it to the forward and the letter to the TC. Additionally, the commitment was made to include the verbiage and justification of Jan 2014 in the User's manual. The User manual sectin needs to be written by the TC 9.9 working group.

Programs Subcommittee report presented by Vali sorell

- 8 year history was presented. Specific content will be added to our website
 - Technical Papers 51
 - Conference Papers New
 - Seminars 54
 - Forums 2
 - Orlando

Deadlines and content for future events were discussed as well as some changes as to how Programs will be administered

1. There is a new type of Paper – the Conference Paper. Details are
 - The abstract undergoes review by the TC for acceptance / rejection
 - Papers due 3 months after notification of acceptance.
 - Paper undergoes a single-blind review by two reviewers minimum
 - Maximum of 8 single spaced pages. Paper is submitted in “final” form using a template
2. Seminars and Forums will no longer be selected by the TC prioritization process. They will be chosen by how well they fit in the theme of the track chairs. The track chairs and grid can be found at
 - Orlando: <http://conferenceprogram.ashrae.bis/Orlando/orlandosessions.php>
 - Albuquerque: www.ashrae.org/newmexico (link effective July 1, 2009)
3. The deadlines are:

	Orlando Jan 23 -27, 2010	Albuquerque June 26-30, 2010	Las Vegas Jan 29 – Feb 2, 2011
Transactions	3 Sections 9 Papers Total	Sept 25, 2009 Complete	Feb 2010 Complete
Conference Papers 3 month Complete	X	Sept 25, 2009 Abstract	Feb 2010 Abstract
Seminars	July 10, 2009	Feb 10, 2009	July 2010
Forum	July 10, 2009	Feb 10, 2009	July 2010

- Special Publications
 - White paper “Gaseous and Particulate Contamination Limits for Data Centers” has been authored by the 16 IT OEMs we work with for the Trends Book and the Operating Envelope recommendation documents. A draft of this will be a free download from the TC9.9 website. Please review and send comments to Fred Stack. The TC 9.9 voting members will consider your comments and vote for publication in the next 3 weeks.
 - Four other special publications were mentioned as not yet ready for review, but we anticipate publication in 2010. They are the Measurements book (joint effort with the Green Grid), the Green Tips, A 2nd edition of the Thermal Trends book and a book on Economizers

