

**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 1.9 DATE: July 8,2002

TC/TG/TRG TITLE: Electrical Systems

DATE OF MEETING: June 25, 2002 LOCATION: Honolulu, HI

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Hal Lunsford	2001	Alexander Domijan	1999	Raj Kapoor
Wayne Frazell	2000	Russell Tiffany	1999	Hamid Toliyat
Lawrence Markel	2002	Sally Hooks	2000	Mark Modena
Robert Helt	2002	Leo Stambaugh	1999	
Kenneth Luther	2000	Michael Kuk	2000	
Kirk Bond	1999	Rex Noble	2000	
Colleen Smith	2002			
Sally McInerny	2001			

DISTRIBUTION:

ALL MEMBERS OF THE TC/TG/TRG MEMBERS OF THE TC/TG/TRG MEMBERS OF THE TC/TG/TRG

TAC COMMITTEE CHAIRPERSON: Edward B. Gut

TAC SECTION HEAD: Mark Modera

LIAISONS:

RAC RESEARCH LIAISON: Bodh R. Subherwal

STANDARDS: Kenneth Clark

PROGRAM: Charles Coward

HANDBOOK: Kenneth Cooper

JOURNAL/INSIGHTS LIAISON:

STAFF RESEARCH: Bill Seaton

STAFF STANDARDS: Claire Ramspeck

STAFF TECHNICAL SERVICES: Martin Weiland

ADDITIONAL DISTRIBUTION: All corresponding members and guests.

ASHRAE TC/TG/TRG ACTIVITIES SHEET

DATE: July 8, 2002

TC/TG/TRG NO.: TC 1.9 TC/TG/TRG TITLE: Electrical Systems

CHAIRMAN: J. Hal Lunsford VICE CHAIRMAN: Wayne Frazell SECRETARY: Michael Kuk

TC/TG/TRG MEETING SCHEDULE			
Location-Past 12 Months	Date	Location-Planned Next 12 Months	Date
Cincinnati	6/2001	Chicago	1/2003
Atlantic City	1/2002		
TC/TG/TRG SUBCOMMITTEES			
Function		Chairman	
Standards Research Program Handbook Webmaster		Ken Luther Larry Markel Wayne Frazell (new) Colleen Smith Sally McInerny (new)	
RESEARCH PROJECTS-CURRENT			
Project Title	Contractor	Monitoring Comm. Chpt.	Report Made At Meeting
URP-1078 Early Detection of Insulation Degradation in Low Voltage Motors	Sally McInerny	Alex Domijan Marvin Thedford Russell Tiffany	Complete
LONG RANGE RESEARCH PLAN			
Rank Title	W/S Written	Apprv.	To R&T
1.			
2.			
3.			

NOTE: THIS SHEET IS AVAILABLE ON DISK (WORDPERFECT 5.1/WORD 6.0) FROM ASHRAE HEADQUARTERS. (OVER PLEASE)

HANDBOOK RESPONSIBILITIES				
Year & Volume	Chapter Title	No.	Deadline	Handbook Subcommittee Liaison
2004 Systems	Electrical Systems	New	5/2002	Ken Cooper
STANDARDS ACTIVITIES-List and Describe Subjects				
Joint Review of IEEE Project 519, "Draft Recommended Practices and Requirements for Harmonic Control in Power Systems." Cognizant TC for Lighting and Power Subpanel of Standard 90.1 Appointed two representatives to represent ASHRAE on the National Electrical Code Making Panels 11 and 20 Cognizant committee for canvas ballot of the ANSI 0943A Standard for Safety for Leakage Current Protection Devices				
TECHNICAL PAPERS from Sponsored Research-Title, when presented (past 3 yrs. present & planned)				
TC/TG Sponsored Symposia-Title, when presented (past 3 yrs. present & planned)				
2/00 Current Aspects of Distributed Technology (co-sponsored w/TC 9.5)				
TC/TG Sponsored Seminars-Title when present (past 3 yrs. present & planned)				
1/99 Metering Technologies for the Next Generation of Energy providers 2/00 Dealing with Deregulation: What Will Happen to Power Quality (co-sponsored w/TC 8.11) 6/01 Internet Hotels/Data Centers: Opportunities and Challenges of the new Economy 6/02 Buying Electricity in a "Deregulated" Market				
TC/TG Sponsored Forums-Title, when presented (past 3 yrs. present & planned)				
6/99 Deregulation and Its Effect on Power Factor (co-sponsored w/TC 8.11) 2/00 Are State Regulatory Constraints on Developing Co-generation and District Energy 1/01 Are We Robbing "Peter Transformer" to Pay "Paul Motor"? 6/01 What Is ASHRAE's Design Role in Times of More Frequent Power Interruptions?				
JOURNAL PUBLICATIONS, when published (past 3 yrs. present & planned)				

Submitted By: Lawrence Markel

ASHRAE Technical Committee 1.9
Electrical Systems

Minutes of Meeting
June 25, 2002
Honolulu, HI

1) Call to Order 3:40 PM by Chairman Hal Lunsford. Special thanks were given to Colleen Smith, who agreed to be in virtual attendance by telephone. This enabled the TC to have a quorum, even though some other TC members present in Honolulu did not attend because they were busy HOOKING fish or sunning themselves on a SANDBAUGH on the beach.

2) Motions:

A motion was made to accept the minutes of Atlantic City. The motion was approved by unanimous vote.

3) Action Items (From this Meeting)

- 1) Sally McInerny to confirm that Research project RP-1078 has been fully paid out and the final report accepted by ASHRAE.
- 2) Larry Markel to provide Chairman Lunsford with a proposed TC research plan and a list of short-term topics to address “extreme events” that the TC can review before the next meeting. These will be discussed and voted on in Chicago.
- 3) Sally McInerny will post presentations from the Seminar on the TC Website, for those speakers who give their permission to do so.
- 4) Raj Kapoor will be added as a corresponding member.
- 5) Hal Lunsford will review and correct the TC roster.

4) Introductions

At the beginning attendees of the meeting introduced themselves and signed the attendance sheet. A quorum was established thanks to Colleen.

5) Chairman’s Report – Hal Lunsford

Every TC should have a liaison with ASHRAE Learning Institute – Sally McInerny volunteered for this.

95% of this meeting’s programs were submitted on-line (including our Seminar). Manuscript Central will be activated in August, and this will enable on-line submittal and blind review of papers. August 9 is the deadline for program submissions for Chicago.

Research – 1) ASHRAE is low on funds. Justification of work statements will be very important – supporting statements on why the research is important to our industry. Research will rank the proposed work statements based on these justifications. 2) TAC is looking for research topics that will address long-term needs of our industry. 3) All TCs were asked to identify short-term research to address emergency situations (e.g., terrorism) that could attract co-funding for ASHRAE research.

The TC discussed possible research topics for emergency situations. Raj Kapoor said TC 5.6 and TC 9.12 (Tall Buildings) had discussed topics such as pressurization of multistory buildings, prioritization of HVAC systems in an emergency situation (e.g., in response to outages, you need ventilation but can do without cooling for a short period, so run the ventilator but not the compressor), changing design guides for building HVAC systems so that, for example, air intakes are located 10 – 20 feet above ground (instead of at ground level) or roof-top air intakes are located back from the roof's edge. Hal said that at the TC chairs' meeting it was proposed that a TG be established on combating terrorism. Topics brought up by TC 1.9 included;

- Prioritizing electrical loads when limited back-up power is available.
- Designing “hardened” HVAC systems robust enough to weather frequency and voltage excursions when the facility is powered by back-up generators (that aren't too good at load following) and is islanded from the grid.
- How can fuel cells be better used as a back-up power source.
- HVAC requirements during an extreme event and electrical needs for those requirements.
- How do the HVAC electrical requirements influence various types of generation (especially distributed generation).
- What variations in electrical supply can the HVAC system expect to see (and withstand) while running on emergency power.
- What Guidelines need to be created for HVAC designers and manufacturers to aid in this effort.

Larry Markel prepared a “think piece” of this discussion for Chairman Lunsford to submit to Research. This will be circulated to the TC for comment and discussed in Chicago.

6) Subcommittee Reports

Research

Sally McInerney believes RP-1078 has been fully paid out, and the final report accepted by ASHRAE. The associated technical papers have been accepted and presented at this meeting. She will double-check on this and report at the Chicago meeting.

Larry Markel is working on a list of research topics for TC 1.9. This will be e-mailed to the TC before the Chicago meeting, and can be discussed and voted on in Chicago.

Standards

Ken Luther reported that Standards will have a ListServe available. Members can sign up to be notified of any new developments on standards they are interested in – update, out for review, results of review, etc.

TC 9.1 (Large Buildings) and TC 6.1 (Pumps) have a new GPC 22 out on instrumentation and testing of water-to-water chiller plants (look at power in vs. power out). The GPC addresses what instrumentation is needed and where it should go.

Guideline 14 (Measurement & Verification) will be voted on by the Board tomorrow.

Programs

Larry Markel reported that the Seminar “Purchasing Electricity in a ‘Deregulated’ Market” was quite successful. We had a full room and very interesting speakers. We received 37 comment forms – almost all had “4’s” and “5’s” for the speakers’ ratings. Specific comments were:

- Very useful
- All slides should be on TC’s Website
- DBEDT [the Hawaii presentation] was excellent
- Put a glossary of terms on the TC Website
- The time-dependent pricing presented by the TXU speaker is more common than he stated. Also, the Pennsylvania experiences presented are not representative of most of the de-regulated market.

One comment sheet proposed that our *Handbook* chapter “address the issues that impact HVAC design & operation:”

- Use of input reactance, output reactance & filters to attenuate harmonics created by VFDs.
- Selecting energy efficient motors with consideration of torque, slip, load, efficiency, & power factor.
- Calculating the energy savings yielded by the replacement of standard efficiency motors with premium efficiency motors in constant speed & variable speed applications with consideration of slip.
- Calculating the energy use and costs associated with transformers with consideration of core losses, line losses, %Z, X/R, etc.
- Calculating electricity cost savings with due consideration of the electricity rate structure with consideration of demand charges, energy charges, load factor, ratchet clauses, riders, etc.

Wayne Frazell agreed to be the new Program Subcommittee Chair.

Other program ideas that came from a forum sponsored by TC 1.9 in Atlantic City that we wish to carry forth are:

1. Micro Grids, Back to the Future
2. The role of utilities in distributed generation
3. The true cost of power interruptions
4. Voltage reductions and how they affect systems

We discussed the possibility of sponsoring or co-sponsoring a forum on research to address “extreme situations.” There will probably be others on this topic in Chicago.

Handbook

Our *Handbook* chapter has been completed and submitted to ASHRAE. There were no major comments or corrections to our chapter. TC6.2 (District energy) sent its chapter to our TC for comment – specifically did we want to add anything on electrical issues associated with District Energy/Co-generation systems? Our TC had no comments or changes to TC 6.2’s chapter (the electrical issues are probably best handled by other chapters, such as “Co-

Generation Systems – Chapter 7.”)

Honors and Awards

No report.

Webmaster

ASHRAE will host TC Websites (for those TCs wishing to have their site at ASHRAE.org) beginning in October. Sally McNerny agreed to be the TC’s new Webmaster.

6) Old Business

The scope of the TC will be discussed in Chicago, when we have more members present.

7) New Business

Ken Luther noted that about 90% of ASHRAE members have e-mail addresses. Should ASHRAE consider a program where a company can donate slightly old computers to ASHRAE for use by members/students without computers? It was brought up that even if a member has a computer, the member still needs (and must pay for) internet access. It was suggested that such donations may be more appropriately made to the local chapter, for use by students, than to ASHRAE HQ.

The roster will be reviewed and corrected by TC Chair, Hal Lunsford.

8) Membership

Raj Kapoor will become a corresponding member.

9) Adjournment at approximately 5:05 PM by Chairman Lunsford.