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AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.
1791 Tullie Circle, N.E./Atlanta, GA 30329 USA

TC/TG/TRG MINUTES COVER SHEET

(Minutes of TC/TG/TRG Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/TRG No.: TC 1.09

Date: January 30, 2013

TC/TG/TRG TITLE: Electrical Systems

DATE OF MEETING: Tuesday, January 29, 2013

LOCATION: Dallas, Texas

MEMBERS PRESENT	YEAR APPT'D	MEMBERS ABSENT	YEAR APPT'D	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
<p>Voting Members Frank Pucciano John Nix Michael Todd Armin Hauer Larry Markel</p> <p>Corresponding Members Robert Helt Steven Faulkner Steve Rosenstock Marvin Thedford Wayne Frazell</p>		<p>Voting Members John Stoops</p> <p>International Members Mrs Marija S Todorovic</p> <p>Corresponding Members Robert Helton John Richardson Kenneth Luther Russell Tiffany Leo Stambaugh Curtis Crane Ronald Antinori Subhash Brahmavar Robert Crosby Dr Alexander Domijan Dr Chad Dorgan Fred Daughtery Carlos Estrada Charles Foster Norman Fowler Joe Hague Rodney Lewis Joseph Lunsford Janet Lynch John Metzger Wayne Mitchell Chad Dorgan Rex Noble Janice Peterson</p>		<p>Section Head Victor Penar</p> <p>RAC Art Giesler</p> <p>Visitors Ram Narayannamurthy Sally Anne McInerny</p>

		Thomas Piwinski Richard Rundus Colleen Smith Lousi Sulfstede Paul Tanpitukponoje Gary Throckmorton William Warren Charles Foster Janice Peterson William Warren Jr. Kris Findley		
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DISTRIBUTION:

ALL MEMBERS OF TC/TG/TRG (and meeting guests) TAC Section Head: <u>Victor Penar</u> Chapter Tech Transfer: <u>Alexander Weiss</u> Research Liaison: <u>Art Giesler</u> ALI/PDC: <u>Donald Brandt</u> HB Applications: <u>John Pennington</u>	ASHRAE Special Publications: <u>Francis Mills</u> TAC Chairman: <u>William McQuade</u> Standards Liaison: <u>Heather Platt</u> Manager of Standards: <u>Stephanie Reiniche</u> Staff Liaison/Resch./Tech Svcs: <u>Michael Vaughn</u>
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ASHRAE TC/TG/TRG ACTIVITIES SHEET

MEETING DATE: January 29, 2013

TC/TG/TRG NO.: TC 1.09 TC/TG/TRG TITLE: Electrical Systems

CHAIR: Frank Pucciano VICE CHAIR: Larry Markel SECRETARY: Michael Todd

TC/TG/TRG MEETING SCHEDULE

Location – Past 12 Months	Date	Location – Planned Next 12 Months	Date
San Antonio, Texas	6/26/12	Denver, Colorado	6/2013
Dallas, Texas	1/29/13	New York, New York	1/2014

TC/TG/TRG SUBCOMMITTEES

Function	Chair
Standards Research Program Handbook Webmaster	Ken Luther Larry Markel Russell Tiffany Frank Pucciano Steven Faulkner

RESEARCH PROJECTS – CURRENT

Project Title	Contractor	Monitoring Committee	Report Made At Meet
None			

LONG RANGE RESEARCH PLAN

Rank	Title	W/S Written	Approved	To RAC
None				

HANDBOOK RESPONSIBILITIES

Year & Volume	Chapter	Title	No	Deadline	Handbook Liaison
2015 HVAC Applications	Electrical Systems		56	2014	Brian Rock

STANDARD ACTIVITIES – List and Describe Subjects

None

TECHNICAL PAPERS from sponsored research – title, when presented (past 3 years present and planned)

None

TC/TG/TRG SPONSORED SYMPOSIA – title, when presented (past 3 years, present, and planned)

None

TC/TG/TRG SPONSORED SEMINARS – title when presented (past 3 years, present, and planned)

1/10 What Does A large building Operator Need to Know about the SmartGrid while the Grid is Still in School Seminar 15

6/10 Cap & Trade: Impact on buildings and Operating Cost, Co-Sponsor

2/11 Putting Your Meter-And Submeter-To Work For You

6/11 Electric Vehicles and Net Zero Energy Buildings: A Perfect Match or an Odd Couple

TC/TG/TRG SPONSORED FORUMS – title, when presented (past 3 years, present, and planned)

1/10 Will Equipment Protection Requirements for Large Buildings Change as NZEB with PV Increase?

JOURNAL PUBLICATIONS – when published (past 3 years, present and planned)

None

Submitted By: Michael Todd
Secretary

ASHRAE TC 1.9 Electrical Systems

Minutes for the Meeting at
Sheraton
Dallas, Texas
Tuesday, January 29, 2013

1. CALL TO ORDER

Introduction of Members and Guests. Technical Committee 1.9 was called to order at 3:38 pm at the Sheraton in Dallas, Texas. Technical Committee Members and guests introduced themselves and briefly described their backgrounds. Absent Members are identified on the cover sheet.

Frank Pucciano reviewed the membership list to determine if a quorum was present. A quorum was present with 5 out of 6 voting members present.

2. APPROVAL OF MINUTES AND REVIEW OF ACTION ITEMS

Chair Frank Pucciano reported the drafted minutes for the San Antonio meeting were sent out via e-mail.

Motion: A motion to approve the San Antonio minutes was given by Larry Markel and a second by Armin Hauer. A vote was taken and minutes from the San Antonio meeting was approved with a 5-0-0 vote.

Report Action Items:

There were no outstanding action items.

3/4. TC MEMBERSHIP and COMMITTEE APPOINTMENTS

Report on changes in voting members. Ram Narayannamurthy agreed to become a voting member effective in July, 2013.

5. CHAIR REPORT: Frank Pucciano

Presented summary of TC Chair meeting including ability to have some virtual attendees at future meetings.

Up and coming meetings: Denver, Colorado June 22 to June 26, 2013

6. SUBCOMMITTEE REPORTS

A. Standards: Ken Luther

B. Research: Larry Markel

Ram Narayannamurthy agreed to assist Larry with research topics.

C. Program: Russell Tiffany

Deadline for Denver submission is Feb 11, 2013. Group felt there is insufficient time to do anything for the Denver conference.

Group discussed ideas for a new seminar on Smart Grids & Smart Metering

What it does (benefits)

What it doesn't do (privacy issues)

Communications

Smart Meter – personal to the end user

Smart Grid – reliability

Possibly split into two seminars

Target Track 4 *Building Information Systems; Integrating Technology for Control, Management, Optimization and Efficiency* for NYC

Frank suggested working towards creating a track on the topic of Energy Security, Smart Grids, Microgrids, Smart Buildings (residential & commercial). Frank to investigate further.

Ram Narayannamurthy asked if TC 1.9 was interested in co-sponsoring a seminar with TC 6.7 on the following topics:

Improving production of renewable energy systems with DC micro grids

Advanced PV systems

Biomass CHP systems

Cold climate solar thermal heating with integral season storage & geothermal

Solar thermal with natural gas, CHP

Motion: A motion was made to co-sponsor the above seminar with TC 6.7 by John Nix with a second by Larry Markel. The motion carried with a vote of 5-0-0.

D. Handbook: Frank Pucciano

Frank handed out an extended outline for expansion. The outline was discussed line by line while assigning tasks to either review or write a paragraph(s) on the topic. The outline with notes is presented below:

**CHAPTER 56
ELECTRICAL CONSIDERATIONS**

INTRODUCTION

SAFETY

PERFORMANCE

PRINCIPLES OF ELECTRICITY

Electric Power Components in Buildings

Electrical Wiring – keep, Steven Faulkner, reference applicable codes

Transformers

What is a transformer?

How does it work?

Transformer Configurations – 3 phase, D-Y, Y-Y, etc., single phase

Transformer Types (dry/oil)

ANSI Voltages – already in there

What are taps and when are they used? – keep, Frank

What are shielded or K rated transformers – keep & review, Marv

Transformer Performance Considerations – keep & review, Marv

Inrush and Excitation Current

Impedance

Isolation

Voltage Regulation

Motor Start Volt Drop Calculations

Emergency and Standby Power Systems – update, Frank

Disconnect Switches

Dual Feed/Automatic Transfer Switches

Standby Generators, UPS, etc.

Panel Boards

Cold load staging

UPS standby losses

Protection Devices – keep & review, Marv

Magnetic Trip Breakers

Shunt Trip Breakers

Surge Protectors

Types

Applications

Wiring Devices – keep & review, Marv

Motor Control and Protection

Motor Starters/Thermal Overloads

Phase Loss Monitors – already in there

Design for Building Electric Systems – Frank to take a stab at it

Transformer Loads

Definitions

Load Estimation Load Calculations

Electrical Equipment Sizing

Electric Measurement and Metering

Special Systems

Voltage Terms

Utilization Equipment Voltage Ratings

Voltage Level Variation Effects

Voltage Selection

POWER QUALITY VARIATIONS

Disturbances

Steady State Variations

Transients

Short Duration Variations

Long Duration Variations

Interruptions/Outages

Harmonic Distortions

Voltage Flicker

Noise
Power Quality Mitigation
MOTOR STARTING EFFECTS
Light Dimming or Voltage Sags
 Types of Lamps, Fixtures, etc. (???) – effect new types of lights (fluorescent, LED, HID), Marv
Motor Starting Methods
ENERGY METERING – Larry & John
ENERGY MEASUREMENT (~~Integrate with ELECTRICAL RATES below~~) – Larry & John
 Power Factor Correction
 Synchronous Condensers
BILLING RATES
Cost-based Rates
Policy-based Rates
Market-based Rates
Diversity
ELECTRICAL CODES
NEC
CSA
UL Listing
CSA Approval
ULC
NAFTA Wiring Standards

John Pennington – Handbook Liaison

Discussion on next round of Chapter Additions

E. Membership: Larry Markel

Larry proposed to write a one page TC 1.9 summary to help generate interest in this TC. He also proposed to present it at the next YEA mixer event in Denver. Frank agreed it would also be a good thing to post on our TC website.

F. Professional Development Committee (PDC Coordinator): John Nix

TC 1.9 needs to update their course on electricity rates and their applications. This could be another way to recruit new members to this TC. Target audience would be facility managers, contractors, building owners, and designers. John Nix and Steven Faulkner agreed to start with an outline of the course and submit a proposal for the update.

7. WEB SITE: Steven Faulkner

Steven reported the website is mostly up to date and the last two TC meeting minutes need posted to the website.

8. LIASION REPORTS

Section Head: ASHRAE has approved the use of teleconference for TC meetings starting at the Denver conference. Vic reminded the TC it is allowed to have an international voting member that doesn't count against the quorum and a new domestic voting member is also allowed that doesn't count against the quorum.

Lastly, he announced that ASHRAE will sponsor an ethics seminar at every future conference and will qualify for PDH credits.

RAC: ASHRAE is planning to update the society's strategic plan and feel free to solicit your comments and ideas to ASHRAE leadership. RTAR coversheet forms are in process of being updated with the addition of hyperlinks. RAC is working to streamline the approval process by first looking at the research topic, knowledge, and budget. It is also a good idea to get your liaison involved as "slam dunk" research topics may be permitted to go straight to defining the work statement. ASHRAE is no longer allowing the use of the word "guidelines" in all ASHRAE publications. There is also roughly \$1.5M of un-allocated research funds within ASHRAE so Art encouraged the TC to apply for research projects.

9. OLD BUSINESS

None.

10. NEW BUSINESS

Armin Hauer asked TC 1.9 to co-sponsor with TC 1.11 the generation of a new ASHRAE standard to write and maintain the method of test (MOT) of AHRI 1210/1211 standard titled *2011 Standard for Performance Rating of Variable Frequency Drives*.

Motion: A motion for TC 1.9 to co-sponsor with TC 1.11 the generation of a new ASHRAE standard to write and maintain the method of test (MOT) of AHRI 1210/1211 standard was given by Armin Hauer and a second by Larry Markel. A vote was taken and the motion was approved with a 5-0-0 vote.

The group had an important and positive discussion on the ASHRAE Code of Ethics and about the technical plenary session at the Dallas conference. Frank read aloud the ASHRAE Code of Ethics listed below.

ASHRAE Code Of Ethics

(Approved by ASHRAE Board of Directors January 31, 2007)

As members of ASHRAE, we pledge to act with honesty, fairness, courtesy, competence, integrity and respect for others in our conduct.

Efforts of the Society, its members, and its bodies shall be directed at all times to enhancing the public health, safety and welfare.

Members and organized bodies of the Society shall be good stewards of the world's resources including energy, natural, human and financial resources.

Our products and services shall be offered only in areas where our competence and expertise can satisfy the public need.

We shall act with care and competence in all activities, using and developing up-to-date knowledge and skills.

We shall avoid real or perceived conflicts of interest whenever possible, and disclose them to affected parties when they do exist.

The confidentiality of business affairs, proprietary information, intellectual property, procedures, and restricted Society discussions and materials shall be respected.

Each member is expected and encouraged to be committed to the code of ethics of his or her own professional or trade association in their nation and area of work.

Activities crossing national and cultural boundaries shall respect the ethical codes of the seat of the principal activity.

Frank thanked everyone for coming to the meeting.

11. ANNOUNCEMENT OF NEXT MEETING

Chairman Frank Pucciano announced that the next meeting would be held in Denver, Colorado in June 2013 at the same time on Tuesday.

12. ADJOURNMENT

Larry Markel made a motion to adjourn with a second from Michael Todd. Motion carried 5-0-0.

Respectfully Submitted,
Michael Todd
Secretary, TC 1.09