

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.
 1791 Tullie Circle, N.E./Atlanta, GA 30329
 404-636-8400

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.: T.C. 6.7 DATE: May 20, 2007
 TC/TG/TRG TITLE: Solar Energy Utilization
 DATE OF MEETING: January 30, 2007 LOCATION: Dallas, TX

MEMBERS PRESENT	YEAR APPTD*	MEMBERS ABSENT	YEAR APPTD*	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Mark Hertel (Chair, Handbook)	03	Cenk Yavuzturk (Program)	04	Sam Borgeson
John Brown	04	Christian Vachon	05	Don Colliver
Andrew Chiasson (Sec)	05	Gaylen Atkinson	CM	Michael Largent
Brian Dougherty (Std)	06	Robert Aresty	CM	E.J. Lee
Andrew Lowenstein	05	Erv Bales	CM	Tony Kerzmann
Janice Means	05	Billy Black	CM	Larry Markel (RAC)
Marija Todorovic (Int'l)	03	Norman Buckley	CM	Cindy Regnier
Charles Cromer	CM	Alan Chalifoux	CM	Roger Schmidt
Costas Balaras	CM	Brad Collins	CM	
Kamel Haddad	CM	Kevin Cross	CM	
Henry Healey	CM	Peter Ellis	CM	
Sanford Klein	CM	William Fleming	CM	
Tim Merrigan (VC/Research)	CM	Robert Foster	CM	
Svein Morner (Web)	CM	David Gerlach	CM	
		John Gladstone	CM	
		D.Y. Goswami	CM	
		Cory Hasiak	CM	
		Richard Hayter	CM	
		Hugh Henderson	CM	
		Bion Howard	CM	
		Jim Huggins	CM	
		Alfred Lutz	CM	
		Fariborz Mahjouri	CM	
		Alfi Helmy Malek (Int'l)	CM	
		David Menicucci	CM	
		Stanley Mumma	CM	
		Joe O'Gallagher	CM	
		Richard O'Neil	CM	
		Henry. Peebles	CM	
		Tony Pierce	CM	
		Andrew Price	CM	
		Agami Reddy	CM	
		Earl Rush	CM	
		David Schieman	CM	
		Harvey Stenger	CM	
		Meli Stylianou	CM	
		Dean Tompkins	CM	
		Robert Turner	CM	
		Christian Vachon	CM	
		Michael Wassmer	CM	
		Bede Wellford	CM	
		Maurice Wildin	CM	
		Byard Wood	CM	
		Paul Zeigler	CM	

*Starting month as a voting member is July of the year shown.

DISTRIBUTION

ALL MEMBERS OF TC/TG/TRG

TAC CHAIR: E. Groll/P. Graef

TAC SECTION HEAD: B. I. Kilkis/D. Brundage

LIAISONS:

Program: J.H. Nix /L. Jackins

ALI: J. DeBullet

Handbook: D. Meredith / D. Fitts

RAC: L. Markel

Standards: J. Kohler

TEGA: J. W. Gartner

Special Pubs: L. Fisher

MANAGER OF RESEARCH AND TECHNICAL SERVICES: M. R. Vaughn

MANAGER OF STANDARDS: C. B. Ramspeck



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MEETING MINUTES ASHRAE TC 6.7 – SOLAR ENERGY UTILIZATION Winter Meeting – January 30, 2007 Dallas, Texas

I. CALL TO ORDER, MEETING AGENDA, AND MEETING MINUTES

Meeting called to order at 13:15 by Chair Mark Hertel. A quorum was achieved with seven of nine voting members in attendance. In addition to the chair, voting members present were: John Brown, Andrew Chiasson, Brian Dougherty, Andy Lowenstein, Janice Means, and Marija Todorovic (international member). Absent members were: Christian Vachon, and Cenk Yavuzturk. (See Sections 2.2.3 and 5.1 of the *ASHRAE Manual of Procedures for Technical Committees, Task Groups, and Technical Resource Groups* for quorum requirements.)

Brian Dougherty moved and Tim Merrigan seconded to accept the minutes from the Summer 2006 meeting in Quebec City.

II. LIAISON REPORTS FROM OTHER COMMITTEES

ALI (Henry Healey). Henry Healey reported on the short course entitled “*Successful Solar Applications*” given at this meeting in Dallas. The short course had attendance levels exceeding 50, with attendees having a good mix of backgrounds. Henry will attempt to give the short course again at the Winter 2008 meeting in New York City.

TAC (Birol Kilkis): No Report.

RAC (Larry Markel): Larry Markel was present at this TC meeting. Tim Merrigan inquired about the possibility of TC 6.7 getting involved in aiding States in the development of Renewable Portfolio Standards. Larry Markel suggested this might largely be a data-gathering project that might require subcontractor help, but could be considered as a research project. Larry Markel also stated that publication funds are down, while research funds are up. Mark Hertel stated that current design manuals are out of print, and inquired if it would be appropriate to submit an RTAR to update publications. Larry Markel suggested relating it to the design guides since readers will need to know where to go for details. Steve Comstock should be consulted about publications. Finally, Larry Markel commented on RP 1428 “*The Direct Regeneration of Desiccants with Solar Energy*”, which was returned to the TC for “looking too ambitious”.

Handbook (Dave Meredith, Applications; Doug Fitts, Systems and Equipment): Doug Fitts was present before the TC meeting. See report of the Handbook Subcommittee below.

Other TCs: Don Colliver, liaison of the Solar Decathlon Subcommittee, was present at this TC meeting. Don reported that the Solar Decathlon is scheduled for October 12-20, 2007. The “Ask the Professional” program did not receive many inquiries. Don solicited volunteers to help with local chapters and logistics of the event, and explained that he is attempting to get one of the solar decathlon houses to be an exhibit at the AHR Expo in New York City. The Solar Decathlon has been ranked third by TC 4.7 in their program list, but Mark Hertel explained that he has committed TC 6.7 as the official TC to sponsor a program at the New York City meeting, and this program will be ranked first. Marija Todorovic suggested possible co-involvement with TC 4.4.

LEED Energy and Atmosphere TAG (Bion Howard): No report.

American Solar Energy Society (ASES): Svein Morner reminded the TC of a co-sponsored seminar with ASES on Wednesday morning (Jan. 31), “*ASHRAE and ASES Views on Solar Utilization in Zero-Energy Footprint Buildings*” (Seminar 52).



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American Society of Mechanical Engineers (ASME): No report.

Standards Liaison: No liaison report. See subcommittee report below

III. CHAIR'S REPORT

Chair Mark Hertel reported on matters presented at the TC Chairs meeting/breakfast.

The new roster process was discussed, and new software is expected by June 2007 which will facilitate roster changes. Liaisons will be subject to performance grading, meaning a new task and form for chair and vice-chairs to complete. ASHRAE is attempting to move toward paperless meetings as part of the "Greening of ASHRAE" efforts. An acronym GAME (Greening of ASHRAE Meetings and Expos) has been developed. The Program Committee is considering a new meeting registration fee structure; authors of papers will have free registration, seminar presenters will have free registration for the day of the seminar only, and session chairs will be subject to full registration fees. This new fee structure was not well-received by ASHRAE members. There has been a request from TAC to review what section each TC falls under for construction specifications. CTTC will sponsor their next webcast on Indoor Environmental Design.

IV. SUBCOMMITTEE REPORTS

A. HANDBOOK SUBCOMMITTEE – MARK HERTEL

TC 6.7 is responsible for two handbook chapters: Chapter 33 of the HVAC Systems and Equipment Handbook, "Solar Energy Equipment," and Chapter 33 of the HVAC Applications Handbook, "Solar Energy Use."

Mark Hertel reported that the submission date for the Systems and Equipment chapter is now May, 2007 (moved from March 2007). However, changes will also need to be made to the SI version. The Handbook Subcommittee met the previous evening (Jan. 29) and finalized changes. Voting members will be provided an email ballot to approve the chapter prior to final submission. The chapter in the Applications Handbook was not originally submitted by the liaison, but the galley has now been reviewed and everything has been taken care of.

B. RESEARCH SUBCOMMITTEE – TIM MERRIGAN

The Research Subcommittee met Monday evening, Jan. 29, 2007.

Tim Merrigan, Research Subcommittee Chair reported that the Work Statement for "*The Direct Regeneration of Desiccants with Solar Energy*" has been returned for the second time citing reasons that the project "looks too ambitious" and it "looks like product development". Thus, it was decided by the subcommittee not pursue this research project any further at this time. Svein Morner suggested emailing the work statement to interested TC members to solicit ideas for improvement.

Tim pointed out that several RTARs that have been turned down in the past may now be acceptable with some minor revisions due to ASHRAE's sustainability mission.

TC 6.7 could have input in an inter-TC group that is involved in the development of the Advanced Energy Design Guides, a series of books being created to promote 30% and greater energy savings in various building types. Andy Lowenstein suggested an RTAR regarding quantifying energy savings credits or equivalent for use in Renewable Portfolio Standards being developed by various States. Sandy Klein mentioned that this would be helpful, as there are no formal methods for State RPS programs to calculate energy savings. Charlie Cromer suggested possibly using Lakeland Electric in Florida as a model. Henry Healey mentioned that "time-of-day" rates would be important in any energy-savings calculation and should be included.

Mark Hertel noted that ASHRAE Special Publications inquired about the design guide developed by TC 6.7, which is currently out of print. Updating this guide could be a research project if properly presented to RAC. Henry Healey
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pointed out that a lot of the information in the guide book may be overkill. A revised version may include, in part, information on low/zero energy homes and climate data.

C. PROGRAM SUBCOMMITTEE – CENK YAVUZTURK

Cenk Yavuzturk was absent from the meeting.

Mark Hertel reported that submissions for programs at the Long Beach, CA meeting are due by February 9, 2007. Potential topics are zero energy homes, Build America, and case studies. Other possibilities are potential new solar water systems (i.e. polymer-based systems) under development that may have interest in California.

TC 6.7 is planning a Solar Decathlon Seminar for New York City in Winter 2008. TC6.5 is planning to submit a solar radiant heating program for the New York City meeting, which TC 6.7 could possibly co-sponsor. A seminar regarding “*Solar Energy Utilization in Cold Climates*”, not selected for the Quebec City Meeting, could be re-submitted for the New York City meeting.

D. STANDARDS SUBCOMMITTEE – BRIAN DOUGHERTY

The standards subcommittee report is provided below. Standard 96 was voted to be revised. Standard 109 was voted by previous email ballot to be withdrawn, but there was some follow-up discussion whether heat pipes could fall under this standard. Standard 95 needs to be reviewed for current status. If expired, ISO can still reference it. Brian will follow up with Jim Huggins.

E. WEBMASTER – SVEIN MORNER

Svein Morner invited all to go to the webpage and write up any suggestions. It had been previously considered to post PowerPoint presentations from seminars on the TC website, but Svein stated that too much storage space would be required. It was decided that the TC could post seminar titles, author information, and a brief abstract.

F. AWARDS – JANICE MEANS

No report.

V. Membership

Mark Hertel reported that that his term as TC Chair will finish at the end of June 2007, but he can get a one-year extension. Mark also stated that the MOP for TCs will be changing effective probably July 2008, and the Vice Chair will be the “chair in training”. Cenk Yavuzturk was nominated for Vice Chair, to eventually become the TC chair. Svein Morner offered to serve as backup Program Chair, as this position is currently held by Cenk. Cenk Yavuzturk will roll off as voting member as of July 2007, and Tim Merrigan and Svein Morner will roll back on. Marija Todorovic’s term as a voting member also expires, but Mark will check if she needs to roll off since she is an international member. If Marija must be rolled of as a voting member, Costas Balaras will serve as international voting member.

VI. OLD BUSINESS:

The ASHRAE Headquarters renovation is becoming more costly than new construction, and thus the project is in a state of limbo. SRCC has scanned pages of the solar design book and is available on their website. The ASHRAE draft Green Guide has some solar tips and is open for comments.

VII. NEW BUSINESS

FAQs for solar energy need to be updated.

VIII. ADJOURNMENT

The meeting was adjourned at 3:30 PM.



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Standards Subcommittee Report
ASHRAE TC 6.7 Solar Energy Utilization
2007 Winter Meeting – Dallas, TX
Standards Committee Liaison to TC 6.7: Jay Kohler

Std 93-2003R *MOT to Determine the Thermal Performance of Solar Collectors*

SPC Chair: Charlie Cromer

SPC Liaison: Eli Howard

The current standard is a reaffirmation of the 1986 publication and its latest ANSI approval occurred on April 22, 2003. The formation of the SPC was approved at the June 2006 Annual Meeting in Quebec City. In accordance with current ASHRAE policy, all Standard Project Committees must obtain a minimum of five voting members within 12 months after the project committee is approved (see section 4.3 of the PC MOP). SPC 93R is presently seeking new members. Volunteers (ASHRAE and non-ASHRAE members) willing to serve on the committee are asked to contact the ASHRAE staff member who oversees Project Committee membership, Teri Davis (404-636-8400, ext 1125 or by email at PCMembership@ashrae.net). Potential committee members will be required to update or create a biographical record and complete an Individual Application for Project Committee Membership and Bias form.

Std 95-1987P¹ *MOT to Determine the Thermal Performance of Solar Domestic Water Heating Systems*

SPC Chair: Tim Merrigan

SPC Liaison: Roger Hedrick

Co-cognizant TC: 6.6 (Service Water Heating)

SPC 95P has voted to conduct a Modified adoption of ISO Standard 9459-1: 1993, “Solar heating – Domestic water heating systems – Part 1: Performance rating procedures using indoor test methods.” The ISO standard will replace ASHRAE Standard 95. ASHRAE staff has confirmed that SPC 95 does not have to be repopulated in order for the modified adoption to begin. The August 1995 vote (5-0-1) to recommend the adoption is still viewed as acceptable. New SPC 95 members will be needed if comments are received during the public review. ASHRAE staff has generated a Word version of the ISO standard. Brian Dougherty has made non-substantive editorial corrections to the draft along with the one substantive change recommended by the original SPC 95 members: changing Annex A, “Test day specifications”, from being classified as normative to being classified as informative. The document will be forwarded to SPC 95 Chair Merrigan for a final review and then submitted to ASHRAE staff for public review.

Std 96-1980 (RA 89)P¹ *MOT to Determine the Thermal Performance of Unglazed Flat-Plate Liquid-Type Solar Collectors*

SPC Chair: James Huggins

SPC Liaison: Roger Hedrick

SPC 96P plans to consider an identical or modified adoption of ISO Standard 9806-3: 1995, “Test methods for solar collectors -- Part 3: Thermal performance of unglazed liquid heating collectors (sensible heat transfer only) including pressure drop” in lieu of, or in addition to, revising ASHRAE Standard 96. The chair of SPC 96 has set the first meeting of this SPC, a telephone conference call, for February 14, 2007. Volunteers (ASHRAE and non-ASHRAE members) are still sought to serve on the SPC. If interested, please contact the ASHRAE staff member who oversees Project Committee membership, Teri Davis (404-636-8400, ext 1125 or by email at PCMembership@ashrae.net).

¹ *NOTE: Standards 95 and 96 are designated as “Proposed” rather than as a “Revision” due to exceeding the maximum time frame in which a standard may retain the ANSI designation.



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TC 6.7 Standards Subcommittee Report 2007 Winter Meeting – Dallas, TX

Std 109-1986 (RA 03) *MOT to Determine the Thermal Performance of Flat-Plate Solar Collectors Containing a Boiling Liquid*

The current standard is a reaffirmation of the 1986 publication and its latest ANSI approval was gained on April 22, 2003. TC 6.7 voted (8-0-0-1, CV) to recommend that this standard be withdrawn. Knowledgeable members of the solar thermal community are not aware of a specific product on the market for the last several years that is rated using ASHRAE Standard 109. Unlike other ASHRAE Standards, in addition, Standard 109 is neither referenced by the Solar Rating and Certification Corporation nor the basis for an ISO standard. The withdrawal vote was taken via an email ballot which closed on January 29, 2007. At the Dallas meeting, a few attendees questioned the vote for withdrawal but, after further consideration and the shared understanding that this standard only applied to flat-plate collectors containing a boiling liquid, no motion was made to reconsider.

Std 125-1992 (RA 00) *MOT Thermal Energy Meters for Liquid Streams in HVAC Systems*

Cognizant (Lead) TC: 6.1, Hydronic and Steam Heating Equipment and Systems

Co-cognizant TC: 6.7

The reaffirmation public review was completed in late June 2005. No comments were received. The document was approved for publication by the ASHRAE Board of Directors on January 22, 2006. Since its publication, an errata was generated to address errors found by a users of the standard. This errata may be downloaded at <http://www.ashrae.org/technology/page/120>.

Canvass Ballots - None

ISO Technical Committee 180 (Solar Energy)

Subcommittee 4 (Systems – Thermal Performance, Reliability, and Durability)

ISO TC 180 Secretariat: Australia

ISO TC180/SC4 Secretariat: ASHRAE

ASHRAE holds the secretariat for Subcommittee 4 within TC 180, Systems – Thermal Performance, Reliability and Durability. Jim Huggins serves as the SC 4 chair. ISO TC180/SC4 met on 5 April 2006 in Las Palmas de Gran Canaria, Spain. The next meeting of TC 180/SC4 is tentatively scheduled for the Fall of 2007.

1. ISO Standard 9459-1: 1993, “Solar heating – Domestic water heating systems – Part 1: Performance rating procedures using indoor test methods”

Cognizant SC: 4

At their April 2006 meeting in Spain, SC4 passed Resolution 148 which recommended to SC5 that the relevant solar simulator specifications within Standard 9459-1 be transferred to ISO standard 9806-1, “Test methods for solar collectors – Part 1: Thermal performance of glazed liquid heating collectors including pressure drop.” If implemented, SC4 would then act to ballot ISO 9459-1 for withdrawal, dependent upon a review of ISO 9459-1, Clause 4 – Symbols. Since ASHRAE SPC 95 is pursuing a modified adoption of this ISO standard, Brian Dougherty was tasked with making an inquiry of the ISO TC as to whether these withdrawal plans were firm. ISO document stage code is 90.93 – international standard confirmed.



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TC 6.7 Standards Subcommittee Report 2007 Winter Meeting – Dallas

2. ISO Standard 9459-3: 1997, “Solar heating – Domestic water heating systems – Part 3: Performance tests for solar plus supplementary systems”
Cognizant SC: 4
This standard was withdrawn by ISO in 2005. At its April 2006 meeting, SC4 passed Resolution 150 that calls for reinstating and revising the standard. Australia agreed to prepare the New Work Item Proposal to implement this resolution and to generate a new draft that is based on an Australian national standard.
3. ISO / AWI 9459-4, “Solar heating – Domestic water heating systems – Part 4: System performance characterization by means of component tests and computer simulation”
Cognizant SC: 4
The program has been reinstated and will use ENV/CEN 12977-2, “Thermal solar systems and components – Custom built systems – Part 2: Test methods” as the basis for the ISO document. Consideration will also be given to referencing the Australian standard AS 4234, “Solar water heaters – Domestic and heat pump – Calculation of energy consumption.” Jim Huggins is the project leader. A draft of ISO 9459-4 was submitted to attendees at the April 2006 meeting and the preliminary response was good. The project leader is currently working on refining the draft for formal submittal sometime later this year.
ISO document stage code is 20.00 – new project registered in TC/SC work program.
4. ISO/FDIS 9459-5, “Solar heating – Domestic water heating systems – Part 5: System performance characterization by means of whole-system tests and computer simulation”
Cognizant SC: 4
The Draft International Standard (DIS) ballot passed with 12 of 13 P-members voting in favor; the US was lone disapproving vote. The negative vote was cast because of the standard is based on the use of a proprietary software package that is not readily available. Comments received from the DIS ballot were addressed at the SC4 meeting on 5 April 2006. The Final Draft International Standard (FDIS) ballot of 9459-5 has been initiated. The publication target date is April 2007.
ISO document stage code is 50.20 – FDIS ballot initiated. Proof sent to Secretariat.
5. ISO/WD TS 11924, “Solar heating – Domestic water heating systems – Test methods for the assessment of protection from extreme temperatures and pressures”
Cognizant SC: 4
The current document is being revised with the goal of publishing it as an ISO Standard. At its April 2006 meeting, SC4 agreed to include information in Annex C of EN 12976-2, “Thermal solar systems and components – Factory made systems – Part 2: Test methods,” within the draft revision of ISO/WD TS 11924. ISO document stage code is 20.99 – working draft approved for registration as a committee draft.
6. ISO Standard 9806-3: 1995, “Test methods for solar collectors – Part 3: Thermal performance of unglazed liquid heating collectors (sensible heat transfer only) including pressure drop”
Cognizant SC: 5 (Collectors and other components)
ISO document stage code is 90.20 – international standard under periodic review.
7. ISO/TR 12596:1995 / Cor 1:1996, “Solar heating – Swimming-pool heating systems – Dimensions, design and installation guidelines.”
Cognizant SC: 4



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At its April 2006 meeting, SC4 passed Resolution 151 that calls for publishing an ISO Publicly Available Specification (PAS) that is based on the previously withdrawn technical report, ISO/TR 12596:1995.

Report Submitted By: Brian Dougherty

TC/TG Activity Feedback Form

Please provide feedback on your TC/TG activities and return this form to your Section Head by email or drop off a printed copy in the Section Head's mailbox folder outside the ASHRAE Headquarters Room by Tuesday night 9:00 pm.

From TC 6.7	Committee Name: <i>SOLAR ENERGY UTILIZATION</i>
	Chair: <i>MARK HERTEL</i>

Meeting was Held	(Day) <i>TUESDAY</i>	(Date) <i>JAN. 30, 2007</i>
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Membership		
	Number Present	Total Number on Committee
Voting Members	<i>7</i>	<i>9</i>
International Members	<i>1</i>	<i>1</i>
Corresponding Members	<i>6</i>	<i>49</i>
Visitors and Guests	<i>4</i>	

Handbook Responsibilities *		Standards Responsibilities *	
Volume and Chapter (number only)	Next Revision Due Date	Standards Number (number only)	Next reaffirmation date
<i>SYS. & EQUIP. 33</i>	<i>MAR. 22, 2007</i>	<i>95-1987</i>	
<i>APPLICATIONS</i>	<i>MAR. 22, 2010</i>	<i>96-1980</i>	
		<i>125-2002</i>	
		<i>93-2003</i>	
		<i>109-1986</i>	

Program Activities * at this Meeting		
Transactions	Seminar	Forum
	<i>No. 52</i>	

Current Research Activities *		FAQs Responsibilities *	
Research Project (number only)	PMS meeting held (yes/no)	FAQ number (number only)	Last time reviewed
<i>1109</i>		<i>79</i>	
<i>1428</i>			

Does Committee have Web Site on ASHRAE Server? YES

If so, is Web Site up to date? YES

Any requests of the Technical Activities Committee ?