

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

TC/TG/TRG NO.: T.C. 6.7 DATE: 2011
 TC/TG/TRG TITLE: Solar Energy Utilization
 DATE OF MEETING: February 1, 2011 LOCATION: Las Vegas, NV

MEMBERS PRESENT	YEAR APPTD*	MEMBERS ABSENT	YEAR APPTD*	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Gaylen Atkinson	09	Cenk Yavuzturk (Chair)	08	Michel Bernier
Costas Balaras (Handbook)	07	Robert Aresty	CM	Matthew Boyd
Andrew Chiasson (Sec)	10	Erv Bales	CM	John Dunlap
Charlie Cromer	09	William Bahnfleth	CM	Bereket Nigusse
Mark Hertel	09	John Brown	CM	
Janice Means (Program)	10	Alan Chalifoux	CM	
Tim Merrigan (VC/Research)	08	Brad Collins	CM	
Marija Todorovic	09	Kevin Cross	CM	
Ali Al-Alili	CM	Robert Davis	CM	
Reda Djebbar	CM	Peter Ellis	CM	
Brian Dougherty (Std)	CM	Robert Foster	CM	
Joshua Gillespie	CM	David Gerlach	CM	
Henry Healey (ALI)	CM	John Gladstone	CM	
Andy Lowenstein	CM	D.Y. Goswami	CM	
Khalid Nagidi	CM	Cory Hasiak	CM	
Ram Narayanamurthy	CM	Richard Hayter	CM	
Christian Vachon	CM	Hugh Henderson	CM	
Scott Wayland	CM	Bion Howard	CM	
		Jim Huggins	CM	
		Pamela Immekus	CM	
		Sanford Klein	CM	
		Wilfred Laman	09	
		Alfred Lutz	CM	
		Fariborz Mahjouri	CM	
		Jeff Mahoney	CM	
		Andrew McNamara	CM	
		Alfi Helmy Malek	CM	
		Svein Morner (Web)	CM	
		Stanley Mumma	CM	
		Joseph O'Gallagher	CM	
		Henry. Peebles	CM	
		Andrew Price	CM	
		Talal Rabiah	CM	
		Agami Reddy	CM	
		Harvey Stenger	CM	
		Menalaos Stylianou	CM	
		Ather Syed	CM	
		Gregoris Thoma	CM	
		Dean Tompkins	CM	
		Michael Wassmer	CM	
		Dean Wiersma	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. CM = corresponding member.



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DISTRIBUTION

ALL MEMBERS OF TC/TG/TRG

TAC CHAIR: B. Becker

TAC SECTION HEAD: J. Dunlap

LIAISONS:

Program: L. Jackins ALI: T. McGinn

Handbook: M Modera (Appl); T. Lawrence (S&E) RAC: J. Hogeling

Standards: J. Kohler TEGA:

Special Pubs: J. Keen

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

MANAGER OF STANDARDS: S. Reiniche



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ASHRAE TC 6.7 – SOLAR ENERGY UTILIZATION Winter Meeting – February 1, 2011 Las Vegas, Nevada

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

The meeting was called to order at 1:05 PM by Tim Merrigan, acting as chair for Cy Yavuzturk who was absent from the meeting. Quorum was met with eight voting members present: Gaylen Atkinson, Costas Balaras, Charlie Cromer, Andrew Chiasson, Mark Hertel, Janice Means, Tim Merrigan, and Marija Todorovic.

The Albuquerque (Summer 2010) meeting minutes were approved. Janice Means moved to approve and Charlie Cromer seconded. The motion carried 8-0.

II. CHAIR'S REPORT (Andrew Chiasson)

Andrew Chiasson attended the TC Chairs' breakfast meeting in place of Cy Yavuzturk and reported on news from that meeting. CEC has implemented some changes to technical programs, including badge scanning to track continuing education credits. Eight tentative tracks were announced for the 2012 Annual Meeting in San Antonio. The CEC has offered to work with TC Program Chairs to help improve the quality of their abstracts prior to submission to CEC in order to improve its chances for acceptance. The electronic communications committee (ECC) is recommending the use of Google Groups/Sites for on-line communication of TC members. Peer reviews of the *Advanced Energy Design Guide* series of publications are planned for four times between this meeting and the next annual meeting in June 2011. The fee structure for the winter and annual ASHRAE meetings is under review, as the majority of attendees to these meetings have their conference fee compensated by ASHRAE.

III. SUBCOMMITTEE REPORTS

A. HANDBOOK – COSTAS BALARAS

Costas Balaras became the new Handbook subcommittee chair as of July 1, 2010. Costas reported that The Systems & Equipment Handbook Chapter 36 has undergone revisions and needs to be finalized by end of February 2011, followed by an email vote in mid March. The Chapter is planned to be submitted to ASHRAE in mid April. Costas proposed the possibility of a chapter in the Fundamentals Handbook addressing renewable energy resources.

Costas mentioned that some members will have a conflict with the Handbook Subcommittee meeting in Montreal, so the subcommittee meetings will be re-ordered as follows: Programs, Handbook, Research.

B. RESEARCH – TIM MERRIGAN

Tim Merrigan reported on announcements from the research subcommittee chairs' breakfast. Funding available for new research for 2011-2012 is about \$1.3 million. There are currently 23 tentative research projects waiting for funding. TAC is creating a framework for multi-disciplinary task groups, which could facilitate research across multiple TCs and even outside of ASHRAE.

The research subcommittee met on the evening of Jan. 31. No RTARs are currently in the system. Some possible themes that emerged for RTARs included: long-term savings in solar collectors; MOT for concentrating collectors; and solar assisted heat pump systems.

Tim will look into the status of a previously-submitted RTAR regarding "coupling of solar heating with heat recovery units."



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C. PROGRAM – JANICE MEANS

Janice Means reported good attendance (over 80 people) at the TC 6.7-sponsored Seminar 15 *Going Lower with Solar*. Forum 6 *The Role of Solar and Other Renewable Energy Sources on the Strategic Energy Planning*, while not officially and formally sponsored by TC 6.7 was well received and attended. Marija Todorovic may host a follow-up Forum at the next annual meeting in Montreal.

A discussion ensued over the concern of how solar-related programs can be approved without the sponsorship, review, or approval of TC 6.7. The discussion centered around Seminar 28 *Integrating Solar and Hydronic Heating for Residential and Small Commercial Systems*, which was somehow approved for this meeting without knowledge of TC 6.7, while at the same time, other programs approved and submitted by TC 6.7 were denied for this meeting. There was a general feeling amongst some TC members that session track chairs have influence over which programs get accepted and denied. This issue was brought before John Dunlap as he visited this TC meeting, and he said that the issue would be looked into.

Janice Means reported that the programs subcommittee met on January 31. Several ideas were discussed for the Montreal meeting (June 2011). Proposed session topics for Montreal included: “*Solar Systems Monitoring*”, chaired by Christian Vachon or Ram Narayanamurthy; “*Commissioning of Solar Systems*”, possibly chaired by Svein Morner; “*Solar Cooling*” co-sponsored by TC 8.12 and chaired by Andrew Lowenstein. A forum chaired by Marija Todorovic was proposed as a follow-up to Forum 6 *The Role of Solar and Other Renewable Energy Sources on the Strategic Energy Planning* held at this meeting. Mark Hertel suggested that the session on “*Commissioning of Solar Systems*”, chaired by Svein Morner be deferred to the Chicago meeting (winter 2012).

Ideas for the Chicago meeting (January 2012) included: “*The Solar Decathlon*” chaired by Janice Means; “*Commissioning of Solar Systems*”, chaired by Svein Morner; and “*Solar System Cost Analysis*” chaired by Scott Wayland.

Ideas for the San Antonio meeting (June 2012) included a conference paper session related to solar combisystems.

D. STANDARDS – BRIAN DOUGHERTY

See attached report submitted by Brian Dougherty. In addition, Tim Merrigan mentioned that Standard 95 is not widely in use anymore, and that it could be withdrawn.

E. WEBSITE – SVEIN MORNER

No report. The website is up to date.

E. MEMBERSHIP – CENK YAVUZTURK

A new chair for TC 6.7 is needed as of July 1, 2011. Ram Narayanamurthy volunteered to be the new Program Subcommittee Chair. Christian Vachon and Scott Wayland are to become voting members as of July 1, 2011. Roster updates are due by 2/2/11.

IV. LIAISON REPORTS FROM SOCIETY & OTHER ORGANIZATIONS

ALI (Henry Healey): The half-day short course “*Successful Solar Applications*” was offered and Henry reported a good mix of about 50 attendees. Henry also reported that there has been no news on a photovoltaic short course to be offered by ASHRAE.

TAC (John Dunlap): John had no news, other than that he felt things are going well with TC 6.7.



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RAC (Jaap Hogeling): Jaap reported that 22 students had been awarded ASHRAE's grant-in-aid. Other announcements included the new idea of multi-disciplinary task groups (MTGs).

Handbook (Mark Modera and Tom Lawrence): No formal report.

Other TCs:

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

American Solar Energy Society (ASES): No report.

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

Standards Liaison: See subcommittee report below.

Solar Decathlon (Mike Wassmer): No report.

Energy Guide (Don Colliver): No report.

V. OLD BUSINESS

Cy Yavuzturk is writing to ASHRAE for permission to support funding of design manuals.

VI. NEW BUSINESS

None.

VII. ADJOURNMENT

Meeting adjourned approximately 3:30 PM.



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Standards Subcommittee Report
ASHRAE TC 6.7 Solar Energy Utilization
2011 Winter Meeting – Las Vegas, NV
Standards Committee Liaison to TC 6.7: James Vallort

Std 93-2010 *MOT to Determine the Thermal Performance of Solar Collectors*

The revised standard completed the ASHRAE/ANSI approval process on January 28, 2010. The 2010 standard replaces the version that was last revised in 1986. The standard will next be considered by TC 6.7 for revision, reaffirmation, or withdrawal in 2013.

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

SPC Chair: Tim Merrigan

SPC Liaison: Boggarm Setty

Co-cognizant TC: 6.6 (Service Water Heating)

SPC 95P was disbanded because of its inability to repopulate the committee. Questions remain whether Standard 95 will be withdrawn. Conversations with ASHRAE staff have not been definitive. SPC had recommended that ASHRAE 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 would have replaced ASHRAE Standard 95. A Word version of the ISO standard containing both substantive and non-substantive modifications has been generated.

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: Boggarm Setty

SPC 96P plans to pursue 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.” SPC 96 Chair Jim Huggins has requested that ASHRAE staff generate a Word version of the ISO standard so that the SPC may use it as a working draft. SPC 96 has been otherwise inactive over the last few years.

Std 125-1992 (RA 06) *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 ASHRAE Standards Committee has approved the reaffirmation of Standard 125. No posting currently provides an update on the reaffirmed standard.

Canvass Ballots - None

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 2011 Winter Meeting – Las Vegas

ISO Technical Committee 180 (Solar Energy) Subcommittee 4 (Systems – Thermal Performance, Reliability, and Durability) ISO TC 180 Secretariat: Australia ISO TC180/SC4 Secretariat: USA (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.

When possible, ISO TC 180 holds joint meetings with CEN/TC 312 and/or IEA Task Group 43. The next meeting of TC180/SC4, which last met in late 2009, is yet to be scheduled.

IEA Task Group 43, “Solar Rating and Certification Procedures – Advanced Solar Thermal Testing and Characterization for Certification of Collectors and Systems,” is working to harmonize solar thermal collector and system test methods worldwide, and then may seek to do the same for certification programs. Their last meeting was held in Stuttgart, Germany in February 2010 and was well attended. The Task Group’s next meeting is tentatively scheduled to occur in conjunction with the next meeting of ISO TC 180/SC4.

Several ISO solar thermal standards are currently being revised or revisions are planned in the near future. Opportunities therefore exist for US experts to serve on ISO working groups and as members of the US Technical Advisory Group that ultimately formulates the US position on these ISO standards. Anyone who can serve in such a capacity is asked to contact Doug Tucker, Assistant Manager of Standards – International (dtucker@ashrae.org or 404-636-8400, ext. 504).

1. ISO Standard 9459-1: 1993, “Solar heating – Domestic water heating systems – Part 1: Performance rating procedures using indoor test methods”
Cognizant SC: 4
ASHRAE SPC 95 is pursuing a modified adoption of this ISO standard. No activity has been reported on the ISO Standard itself for a few years.
ISO document stage code is 90.60 – close of review.
2. ISO Standard 9459-2: 1995, “Solar heating – Domestic water heating systems – Part 2: Outdoor test methods for system performance characterization and yearly performance prediction of solar-only systems.”
Cognizant SC: 4
This standard is being revised. Spain, for example, proposed modifications to Section 9, “Prediction of long-term performance,” during the systematic review ballot which ended on 17 March 2010.
ISO document stage code is 90.60 – close of review.
3. ISO Standard 9459-3: 1997, “Solar heating – Domestic water heating systems – Part 3: Performance tests for solar plus supplementary systems”
Cognizant SC: 4
This withdrawn standard is being reinstated. The Secretary will prepare a New Work Item Proposal and a new draft based on Australian national standard AS 2984.



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TC 6.7 Standards Subcommittee Report 2011 Winter Meeting – Las Vegas

4. ISO/DIS 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 document passed the DIS (Draft International Standard) ballot with 100% approval and so will proceed for either an FDIS (Final Draft International Standard) ballot or directly to publication, depending upon how the DIS comments are addressed. The proposed test method is for complete systems and uses the component test plus system simulation method. The proposed method is based on a combination of SRCC TM-1 and EN 12976-2.
ISO document stage code is 40.60 – Close of voting
5. ISO Standard 9459-5: 2007, “Solar heating – Domestic water heating systems – Part 5: System performance characterization by means of whole-system tests and computer simulation”
Cognizant SC: 4
The document was published as an international standard in May 2007.
ISO document stage code is 90.60 – Close of review
6. ISO Standard 9806-1: 1994, “Test methods for solar collectors – Part 1: Thermal performance of glazed liquid heating collectors including pressure drop”
Cognizant SC: 5 (Collectors and other components)
At the Pretoria meeting in 2009, TC 180 reaffirmed its previous decision to initiate New Work Items for revising all three parts of ISO Standard 9806. The projects will be carried out as joint ISO/EN Standards by CEN/TC 312/WG1 that will have additional membership from TC 180. The eventual documents will replace the current ISO 9806 and EN 12975-2 series of standards.
ISO document stage code is 90.93 – international standard confirmed.
7. ISO Standard 9806-2: 1995, “Test methods for solar collectors – Part 2: Qualification Test Procedures”
Cognizant SC: 5 (Collectors and other components)
See comments given above with ISO Standard 9806-1.
ISO document stage code is 90.93 – international standard confirmed.
8. 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)
See comments given above with ISO Standard 9806-1.
ISO document stage code is 90.93 – international standard confirmed.
9. ISO New Project 16280: “Solar energy – Evacuated solar collectors – Design, classification and tests,”
Cognizant TC: 180
The new project was proposed by China and approved by TC 180. According to the New Work Item Proposal, the purpose of the proposed standard is to promote the harmonization of national specifications and requirements for evacuated solar collectors, including the vocabulary and definitions, product classifications and marks, requirements, test methods, inspection rules, labels, packing, transportation, and test reports.
ISO document stage code is 10.99 – New project approved.



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TC 6.7 Standards Subcommittee Report
2011 Winter Meeting – Las Vegas

10. ISO New Project 9488: “Solar energy – Vocabulary”

Cognizant TC: 180

The new project calls for revising the existing 1999 standard. The revision will be performed in collaboration with CENT/TC 312.

ISO document stage code is 10.99 – New project approved.

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>Cy Yavuzturk</i>

Meeting was Held	(Day) <i>TUESDAY</i>	(Date) <i>JUN. 29, 2010</i>
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Membership		
	Number Present	Total Number on Committee
Voting Members	7	9
International Members	1	1
Corresponding Members	4	47
Visitors and Guests	5	

Handbook Responsibilities *		Standards Responsibilities *	
Volume and Chapter (number only)	Next Revision Due Date	Standards Number (number only)	Next reaffirmation date
<i>A 33</i>	<i>MARCH 2013</i>	<i>93-2003</i>	
<i>S 36</i>	<i>MARCH 2011</i>	<i>95-1987</i>	
		<i>96-1980</i>	
		<i>109-1986</i>	
		<i>125-2002</i>	

Program Activities * at this Meeting		
Transactions	Seminar	Forum

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