

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: June 28, 2011 LOCATION: Montreal, QC Canada

MEMBERS PRESENT	YEAR APPTD*	MEMBERS ABSENT	YEAR APPTD*	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Gaylen Atkinson	09	Andrew Chiasson (Sec)	10	John Dunlap
Costas Balaras (Handbook)	07	Charlie Cromer	09	Saunders Smith
Janice Means (Program)	10	Mark Hertel	09	Filza Walters
Marija Todorovic	09	Tim Merrigan (VC/Research)	08	
Cenk Yavuzturk (Chair)	08	Ali Al-Alili	CM	
Andreas Athientis	CM	Brian Dougherty (Std)	CM	
Ken Beisser	CM	Joshua Gillespie	CM	
Kevin Brown	CM	Henry Healey (ALI)	CM	
Nizaj Chandra	CM	Andy Lowenstein	CM	
Reda Djebbar	CM	Khalid Nagidi	CM	
Caroline Hachem	CM	Christian Vachon	CM	
Jaap Hogeling	CM	Scott Wayland	CM	
Hakin Elmahdy	CM	Robert Aresty	CM	
Joshua Kading	CM	Erv Bales	CM	
Michael Kummert	CM	William Bahnfleth	CM	
Lars Lisell	CM	John Brown	CM	
Andy Lowenstein	CM	Alan Chalifoux	CM	
Michael M Collarin	CM	Brad Collins	CM	
Ram Narayanamurthy	CM	Kevin Cross	CM	
Mohammed Tabarra	CM	Robert Davis	CM	
Shady Attia	CM	Peter Ellis	CM	
		Robert Foster	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	
		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	



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		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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FINAL MEETING MINUTES ASHRAE TC 6.7 – SOLAR ENERGY UTILIZATION Winter Meeting – June 28, 2011 Montreal, QC Canada

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

The meeting was called to order at 1:05 PM by Cy Yavuzturk. Janice Means is the new chair of TC 6.7, as of July 4, 2011. Quorum was met with five voting members present: Gaylen Atkinson, Costas Balaras, Janice Means, Marija Todorovic and Cy Yavuzturk.

The Las Vegas meeting minutes were approved. Janice Means moved for approval, Gaylen Seconded, 4-0-0.

II. CHAIR'S REPORT (Cy Yavuzturk)

Cy Yavuzturk is the chair of TC 6.7 and Janice Means is the new chair of TC 6.7. Together they gave a review of the TC chairs meeting. Papers are given priority to in the order, technical, conference, seminar/forums. A program must have a chair in order to be considered. Speakers are rated at the end of each seminar, a speaker with a rating of 3.5 or higher are given preference. Members can contact ASHRAE to find their speaker rating. Preference is given to application based papers instead of theoretical. Technical papers have two double blind (author does not know the reviewers, the reviewers do not know the author) and conference papers have a one single blind (author does not know the reviewer, but the reviewer knows the author). There are currently no RTARs for TC 6.7.

ASHRAE has introduced a new form of organization, the MTD (Multi-disciplinary Task Group). These groups consist of multiple disciplines to achieve a single purpose or goal. John Dunlap clarified the scope and responsibility of a MTG. An MTG will disband after a year unless the society approves its continuation. Janice suggested member come up with multi-discipline solar projects that could utilize the MTG process.

Members were also requested to consider nominees for the George Hightower award. *A TC/TG/TRG chair must fill out a nomination form and submit it to the TAC section Head by September 1, 2011.*

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 was the first revised chapter submitted. In September or October the chapter will be sent to Costas Balaras for final review. The Committee will not see it again until the next revision. The next two volumes (2013 Fundamentals and 2014 Refrigerants) will not need any modifications from TC 6.7.

The technical committee can still submit new electronic features to the handbook through online plus. This includes new materials, enhancements, spreadsheets and illustrations. The technical committee is encouraged to come up with applications for handheld devices. Janice Means mentioned a possibility of current fenestration research.

The US Army Core of Engineers has developed "*Central Solar Hot Water Systems Design Guide*". COE has requested that it be published under ASHRAE logo. The guide will be reviewed by: Costas Balaras, Charlie Cromer, Mark Hertel, Lars Lisell, Janice Means, Tim Merrigan, Marija Todorovic, and Cy Yavuzturk.



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B. STANDARDS – CY YAVUZTURK

Cy Yavuzturk reported on standards for Brian Dougherty who was absent. Standard 95 method of test has not been updated. A decision should be made to either update the standard or abandon it. Previously a sufficient committee could not be formed to update it. Janice means moved to update the Standard, Costas Balaras seconded, 4-0-0. Ram Narayanamurthy volunteered to be the committee chair. Committee members are, Costas Balaras, Niraj Chandra, Joshua Kading and Marija Todorovic.

C. PROGRAM – JANICE MEANS

Janice Means reported that conference paper abstracts are due on July 8, 2011 for the 2012 Winter meeting in Chicago. Seminar proposals are due by August 8, 2011. There will be 10 different tracks for the 2012 Winter meeting in Chicago.

Marija Todorovic reported that two conference paper sessions have been approved for the 2012 Winter meeting in Chicago. The ten papers still need to be uploaded.

A brainstorming session began for seminar possibilities for the 2012 Winter meeting. Ideas for the meeting 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.

The San Antonio meeting (June 2012) will have 7 tracks. September 26, 2011 the papers are due for the San Antonio meeting. Seminars proposals are due February 13, 2012.

Ideas for the San Antonio meeting (June 2012) included conference papers on *“Solar District Heating”* and *“Neighborhood Wide Solar”* proposed by Ram Narayanamurthy. Marija Todorovic has a possibility of five conference papers. Seminar ideas included: *“Novel Concentrating Solar”* from Cy Yavuzturk, A presentation on the army *“Central Solar Hot Water Systems Design Guide”*, *“Integrated Solar Cooling”* Andy Lowenstein.

Janice Means also requested reviewers for the papers.

D. RESEARCH – CY YAVUZTURK

Janice Means reported on the research subcommittee for Tim Merrigan who was absent. No RTARs are currently in the system. Janice pointed out that the society would like to focus on the system rather than the equipment. Some possible themes that emerged for RTARs included: Solar assisted Geo-Thermal from Marija Todorovic; developing a commercial sized building integration case studies and best practices- Gaylen Atkinson; Active solar heating design manual and installation manual, champion: Kevin Brown, Reda Djebbar, and Michael Kummert.

E. WEBSITE – SVEIN MORNER

No report. The website is up to date.

E. MEMBERSHIP – CENK YAVUZTURK

The new chair of TC 6.7 is Janice Means. Ram Narayanamurthy is the new programs subcommittee chair.

IV. LIAISON REPORTS FROM SOCIETY & OTHER ORGANIZATIONS

ALI (Filsa Walters and Sandra Smith): Requested a 3 hour short course to go more in depth in designing a solar system. The current short course gives a good overview but many are expecting more in depth design materials. The research pointed out by Gaylen Atkinson may make a good short course on lessons learned.



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TAC (John Dunlap): John reiterated the importance of the George Hightower award. He also stated that there would be a mixer at the Chicago meeting to promote young members to join ASHRAE.

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

None.

VI. NEW BUSINESS

None.

VII. ADJOURNMENT

Meeting adjourned approximately 3:30 PM. Gaylen Atkinson moved, Janice Means seconded 4-0-0.



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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 ?