

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: January 5, 2009
 TC/TG/TRG TITLE: Solar Energy Utilization
 DATE OF MEETING: June 24, 2008 LOCATION: Salt Lake City, UT

MEMBERS PRESENT	YEAR APPTD*	MEMBERS ABSENT	YEAR APPTD*	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Mark Hertel (Chair, Handbook)	03	Andy Lowenstein	05	Larry Markel (RAC)
Tim Merrigan (VC/Research)	02	Christian Vachon	05	Agami Reddy
Andrew Chiasson (Sec)	05	Robert Aresty	CM	David McGowan
Cenk Yavuzturk (Program)	03	Costas Balaras	CM	Elaine Hale
Marija Todorovic (Int'l)	03	Erv Bales	CM	Theresa Weston
John Brown	04	Billy Black	CM	Kevin R. Brown
Janice Means	05	Norman Buckley	CM	
Brian Dougherty (Std)	CM	Alan Chalifoux	CM	
Gaylen Atkinson	CM	Brad Collins	CM	
Henry Healey (ALI)	CM	Kevin Cross	CM	
		Charilie Cromer	CM	
		Peter Ellis	CM	
		William Fleming	CM	
		Robert Foster	CM	
		John Gladstone	CM	
		D.Y. Goswami	CM	
		Cory Hasiak	CM	
		Richard Hayter	CM	
		Hugh Henderson	CM	
		Bion Howard	CM	
		Jim Huggins	CM	
		Sanford Klein	CM	
		Fariborz Mahjouri	CM	
		Alfi Helmy Malek (Int'l)	CM	
		David Menicucci	CM	
		Svein Morner (Web)	CM	
		Stanley Mumma	CM	
		Richard O'Neil	CM	
		Henry. Peebles	CM	
		Tony Pierce	CM	
		Andrew Price	CM	
		Earl Rush	CM	
		David Schieman	CM	
		Harvey Stenger	CM	
		Dean Tompkins	CM	
		Robert Turner	CM	
		Michael Wassmer	CM	
		Maurice Wildin	CM	
		Byard Wood	CM	
		Paul Zeigler	CM	

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



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DISTRIBUTION

ALL MEMBERS OF TC/TG/TRG

TAC CHAIR: _____ E. Groll/P. Graef _____

TAC SECTION HEAD: _____ B. I. Kilkis/T.A. Weston _____

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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DRAFT MEETING MINUTES ASHRAE TC 6.7 – SOLAR ENERGY UTILIZATION Annual Meeting – June 24, 2008 Salt Lake City, Utah

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

Meeting called to order shortly after 1:00 PM 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, Janice Means, Tim Merrigan, Cenk Yavuzturk, and Marija Todorovic (international member). (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.)

Attendees introduced themselves. Jaap Hogeling, who will replace Larry Markel as RAC Liaison was introduced.

The meeting agenda was approved by Tim Merrigan and seconded by Marija Todorovic.

Minutes from the New York City Winter Meeting, 2008 were approved by Tim Merrigan, with a minor correction pointed out by Tim regarding a statement made by RAC Liaison, Larry Markel. Cenk Yavuzturk seconded the approval of the New York City Winter Meeting minutes with the correction.

II. CHAIR'S REPORT (Mark Hertel) TC Chairs Meeting:

- a) ASHRAE has announced four new directives for becoming a global leader in sustainable HVAC design.
- b) Vision 2020 has been announced, which is a program to provide tools to enable design of net zero energy buildings.
- c) The Technology Transfer Council will be providing new web seminars.
- d) The Program Committee has changed its name to the Conference & Expo Committee (CEC).
- e) New Handbook Committee members and liaisons announced.

III. SUBCOMMITTEE REPORTS

A. HANDBOOK – MARK HERTEL

The subcommittee meeting was scheduled at the usual time at this meeting, but no subcommittee members were present. New liaisons Mark Modera (2011 Applications Liaison) and Tom Lawrence (2012 Systems and Equipment Liaison) attended. Mark Hertel mentioned he would like to find a new Handbook Chair.

Regarding the Chapter in the 2011 Applications Handbook, revisions need to be identified (usually by members of this TC) by July 2010. Some symbols and nomenclature are still inconsistent internationally, and with other fields. The Systems and Equipment new edition was just released.

B. RESEARCH – TIM MERRIGAN

ASHRAE's research budget is now approximately \$2.5 million. ASHRAE is soliciting member input through an on-line survey to guide the 2010-2015 strategic research plan.



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Twenty-four work statements were submitted during 2007-2008. TC 6.7 currently has no RTARs or work statements submitted. Four topics were discussed at the previous meeting in NYC, but nothing had been put in writing as of yet. These topics generally included collector testing, underground solar energy storage, BIPV, and solar-powered air-conditioning systems. The next deadline for RTAR submittal is August 15, 2008.

Marija Todorovic began a discussion about cooperating with other TCs. Theresa Weston suggested TC 4.4 and Tim Merrigan mentioned TC 6.6 might want help with commercial hot water end uses.

C. PROGRAM – JANICE MEANS

A Solar Decathlon program was planned for the Chicago Winter 2009 meeting, but the top three decathlon winners had not responded to Cenk Yavuzturk's email. Janice solicited ideas for program topics and a discussion ensued regarding the priority of identified topics. The first priority was a program that included presentations by Solar Decathlon winners. Another idea was for a program that addresses the theme of the history of solar energy utilization and lessons learned. Marija Todorovic suggested a program related to case studies of PV in urban environments for the Chicago meeting.

D. STANDARDS – BRIAN DOUGHERTY

Mark Hertel announced that Charlie Cromer had resigned from the committee (SPC 93), and a discussion ensued about possible replacements. Biard Wood and Doug Reindl were suggested as possible replacements.

See full attached report submitted by Brian Dougherty.

E. WEBSITE – SVEIN MORNER

No report.

IV. LIAISON REPORTS FROM SOCIETY & OTHER ORGANIZATIONS

ALI (Henry Healey):

A short course on Solar Applications was given at this meeting. There were approximately 30 attendees, consisting of facilities personnel and controls personnel. When describing the course content, Henry stated that ASHRAE had scratched PV topics, and a discussion ensued as to why. Henry thought it was mainly due to time constraints. Cenk Yavuzturk suggested writing a proposal to ASHRAE for a PV short course.

TAC (Theresa Weston):

Theresa presented Mark Hertel, as out-going TC Chair, with a certificate of appreciation on behalf of ASHRAE. Theresa also announced that reviewers are needed for the Advanced Energy Guides, and reminded members of the survey regarding the Strategic Research Plan.

RAC (Larry Markel):

Larry announced that he will no longer be RAC Liaison. ASHRAE is soliciting member input through an on-line survey to guide the strategic research plan.

Handbook:

New Handbook Liaisons were announced. See Handbook Report (above) by Mark Hertel.

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Other TCs:

Gaylen Atkinson, Chair of T.C. 1.4, described an ASHRAE-sponsored solar thermal sustainability project on-going in Salt Lake City (<http://utahashraesolar.tzo.com>). Gaylen requested feedback from members of this TC regarding suitable instrumentation and monitoring points for solar water heating projects in LEED and energy-efficient buildings.

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.

V. OLD BUSINESS

Mark Hertel encouraged TC members to update their bio for the TC roster.

ASHRAE Headquarters is moving in July or August 2008.

There has been no progress on CSI master format.

A discussion ensued regarding TC 6.7's scope. Cenk Yavuzturk stated that there's no compelling reason to overhaul the current scope. Brian Dougherty agreed, but still could not see clarity on the TC's involvement with PV. Cenk Yavuzturk suggested minor edits to the scope as follows (note that new words are underlined and italicized, and deleted words are crossed out):

“Technical Committee 6.7 is concerned with all equipment, processes, and systems which collect, convert, store and utilize solar energy or dissipate energy by nocturnal radiation. Overlap with other TCs is recognized where specific systems are included to utilize or distribute ~~heat~~ energy.”

The edited scope was seconded by Tim Merrigan. Members voted in favor of the new TC scope, 6-0-1 (chair abstained).

VI. NEW BUSINESS

The TC had received an email from Dick Hayter to develop some sort of certification for solar energy practitioners and designers. Henry Healey stated that he would contact ALI for past short course attendees to gauge interest.

VII. ADJOURNMENT

Meeting adjourned approximately 3:30 PM.



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Standards Subcommittee Report
ASHRAE TC 6.7 Solar Energy Utilization
2008 Annual Meeting – Salt Lake City
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: Nadar Jayaraman

The current standard is a reaffirmation of the 1986 publication and its latest ANSI approval occurred on April 22, 2003. SPC 93R held its second official meeting on Monday, June 23, 2008. The SPC plans to revise Standard 93 while making it more compatible with ISO Standard 9806. Anyone wishing to join the SPC (ASHRAE and non-ASHRAE members) are encouraged to do so. Please contact the SPC 93 Chair, Dr. Charles Cromer, or the ASHRAE staff member who oversees Project Committee membership, Teri Davis (404-636-8400, ext 1125 or by email at PCMembership@ashrae.net).

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 is in the process of recommending 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 will replace ASHRAE Standard 95. A Word version of the ISO standard containing both substantive and non-substantive modifications has been generated. SPC 95 Chair Merrigan will forward all the needed paperwork to ASHRAE staff for a vote on a publication public review. Although ASHRAE staff originally agreed that SPC 95 did not have to be repopulated in order for the modified adoption to move forward, the ASHRAE Standards Committee is now recommending that two members be added immediately. Chairman Merrigan is addressing the membership issue.

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 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.

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

TC 6.7 voted (8-0-0-1, CV) to recommend that this standard be withdrawn via an email ballot conducted immediately prior to the January 2007 Winter Meeting. A Withdrawal Public Review was conducted from September 14 to October 29, 2007. No comments were received. The withdrawal action received final approval from the ASHRAE Standards Committee, Technology Council, and the Board of Directors at the New York City meeting in January 2008

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 2008 Annual Meeting – Salt Lake City

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 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: 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. ISO TC180/SC4 met on 17 October 2007 in Nicosia, Cyprus. TC 180 met in conjunction with CEN TC 312, “Thermal Solar Systems and Components,” on 16 and 17 October 2007 in Nicosia. Several resolutions were passed at both the TC and SC meetings. ISO TC 180, and SC4, tentatively plan to next meet in Beijing, China. As an alternative, TC 180 and SC4 may hold a meeting in conjunction with the CEN TC 312 meeting that is scheduled for London, England on 17 and 18 November 2008.

As noted below, 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

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 should 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 inquired whether these withdrawal plans were firm. Australia’s Ken Guthrie, the Chair of ISO TC 180, responded that the ISO standard would not be withdrawn if it is adopted as a national standard.

ISO document stage code is 90.93 – international standard confirmed.



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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 will be revised. A revision project team is currently being formed. Participating member countries are being asked to nominate experts who will assist with the revision.
ISO document stage code is 90.93 – international standard confirmed.
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 standard was withdrawn by ISO in 2005. SC4 passed Resolution 150 that calls for reinstating and revising the standard. Australia agreed to prepare the New Work Item Proposal and to generate a new draft that is based on the Australian national standard AS 2984.
4. ISO/CD 9459-4, “Solar heating – Domestic water heating systems – Part 4: System performance characterization by means of component tests and computer simulation”
Cognizant SC: 4
SC4 voted to advance the draft, as revised, to the Committee Draft Stage (30.00). Jim Huggins is the project leader.
ISO document stage code is 30.00 – committee draft (CD) registered.
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 60.60 – International standard published.
6. ISO/DTS 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 failed to receive sufficient votes for publication as a Technical Specification. SC4 agreed to add information from Annex C of EN 12976-2, “Thermal solar systems and components – Factory made systems – Part 2: Test methods,” within the draft revision.
7. 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 Cyprus meeting, TC 180 and CEN TC 312 agreed to have TC 180 initiate New Work Items for revising all three parts of ISO Standard 9806. Working Group 1 under CEN TC 312 will provide draft documents and other resource documents used in the revision of EN 12975 to the ISO working group that is tasked with the revision of ISO Standard 9806.
ISO document stage code is 90.60 – international standard, close of periodic review.
8. ISO Standard 9806-2: 1994, “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 90.60 – international standard, close of periodic review.



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9. 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 90.60 – international standard, close of periodic review.

10. ISO/TR 12596:1995 / Cor 1:1996, “Solar heating – Swimming-pool heating systems – Dimensions, design and installation guidelines.”
Cognizant SC: 4
Previously withdrawn technical report, ISO/TR 12596:1995 will be published as an ISO Publicly Available Specification (PAS).

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>JUN. 24, 2008</i>
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Membership		
	Number Present	Total Number on Committee
Voting Members	7	9
International Members	1	1
Corresponding Members	3	49
Visitors and Guests	6	

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 2010</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
	<i>No. 24</i>	

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 ?