

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS,  
INC.**

**1791 Tullie Circle, N.E./Atlanta, GA 30329  
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**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 5.5 DATE February 5, 2012

TC/TG/TRG TITLE A i r t o A i r E n e r g y R e c o v e r y

DATE OF MEETING January 24, 2012 LOCATION Chicago, IL

MEMBERS PRESENT	Chapter Position	YEAR APPT D	MEMBERS ABSENT	Chapter Position	YEAR APPTD
Dr. Gregory M Dobbs	Chair/ Voting Member	2011	Prakash Damshala	Handbook Subc. Chm./ Voting	2010
Ronnie R Moffitt	Vice Chair/ Voting Member	2011	Michael M Ohadi, PhD	Member Non-Quorum	2010
Paul Pieper	Secretary / NV Member	2011			
Bob Besant	Research Subc. Chm./ Voting Member	2009			
Matthew Friedlander	Standards Subc. Chm/ Voting Member	2010			
Drake Erbe	SSPC 90.1 Liaison / Non-Voting Member				
Bede Wellford	SSPC 62.1 Liaison / Non-Voting Member	2003			
G.D. Mathur	Voting Member	2011			
John Diekmann	Voting Member	2010			
Klas C Haglid	TC 7.5 Liaison / Voting Member	2011			
Charissa Garcia	TC Webmaster, Program Subc / Non-Voting	2011			
Carol Marriott	SSPC 189.1 Liaison / Non-Voting	2009			
Bert Phillips	Membership Chm./ Non-Voting Member	2007			
See Attachment for Additional Attendees					

**DISTRIBUTION**

***All Members of TC/TG/TRG plus the following:***

TAC Section Head: <b>Giustino Mastro</b>	<a href="mailto:SH5@ashrae.net">SH5@ashrae.net</a>
TAC Chair: <b>Donald Brundage</b>	<a href="mailto:TACchair@ashrae.net">TACchair@ashrae.net</a>
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	Name Position Sheinman, Harris Handbook Liaison Mendez, Florentino Professional Development

	Comm (EDUC) Castellan, Danny Research Liaison Mumma, Stanley Special Pubs Liaison Subherwal, Bodh Standard Liaison Vaughn, Michael Staff Liaison
TC 5.5 Membership	<a href="mailto:TC0505@ashrae.net">TC0505@ashrae.net</a>

## General

- Call to Order / Welcome at 16:32
- Introduction & Sign up (Current e-Mail & updates)
- Roll call with 8 out of 10 voting members present; quorum met
- Agenda review; no changes to agenda, proceeding with agenda as written
- Montreal minutes approval; GD Mathur made a motion to approve the minutes; approved with amendments 7-0-0 CNV

### Chair's Report (Greg Dobbs) - News and announcements from Chair's Breakfast Meeting

The future cost of registration at meetings is one topic of discussion for future meetings. There is the potential of dropping the fee for paying members that attend the conference (with the exact value to be determined yet). Speakers could incur a \$100 fee to attend the meeting as opposed to being free (as it is now). Life members and board of directors will also be charged. The TCs are encouraged to Manage by Objectives. ASH RAE is looking for more peer reviewers for the AEDG; TCs are encouraged to review with AAERV to ensure that it is properly and fairly represented. An important note is that no TC members can "officially" speak on behalf of the TC without approval from the TC. The new ASH RAE website has been launched with the new logo. ASHRAE has a new logo and name to create more international appeal. Some members have indicated to the Chair which subcommittees that they would like to support and the Chair will direct them appropriately after the meeting.

## Subcommittee Reports

### 1. Handbook (Prakash Damshala / GD Mathur)

The modified chapter was submitted to ASRAE in October and we should receive the galley proofs in February.

### 2. Program (Charissa Garcia)

The ALI Short Course was presented on Sunday at McCormick Place. The presentation was updated slightly from previous years. Approximately 51 attendees were present. The majority were consulting engineers (2/3rds) with some contractors, building owners, performance contractors making up the remainder. Good feedback from participants and the presentation was well received. Paul Pieper has submitted a request to expand the short course from a single three hour presentation into two (2) three hour short courses split into basic and advanced topics (This strategy was recommended by ASH RAE as short course attendance is typically higher than full day sessions and they would typically schedule them back to back). The request is being evaluated at this meeting and we expect to have feedback shortly. If approved, Paul Pieper will submit some revised and expanded content to this committee for review and comments as with the previous version.

The next phase would be to develop this into a self-directed online course that can be taken through ALI which Paul Pieper will initiate after expanding the course.

San Antonio, TX (June 23-27)

We have not submitted a conference paper for San Antonio.

We will look to have a Forum on *Issues in Accurately and Correctly Modeling AAERV* based on the feelings of the TC. The majority is in agreement as this will fuel future research and programs. Charissa Garcia will investigate with Carol Marriott to see if she will be able to Chair the Forum (based on the feelings of the TC she would be ideally suited). Michael Sherber and Hoy Bohanon have volunteered to Chair the session in the event that Carol is unwilling or unavailable.

We will submit the following seminar *Best Practices for Energy Recovery in Low EATR Applications* with the following presentations: Selecting AAERV for Low EATR with respect to Cost and Performance (Paul Pieper), AAERV for Healthcare Applications (TBD, Paul to Investigate with Charissa) and Laboratory Exhaust Strategies (Hoy Bohanon)

John D. made a motion to submit Forum and Seminar and approved with no discussion 7-0-0 CNV

Charissa will hold WebEx sessions for sub-committee members to discuss future topics and will let the entire TC know if they would like to participate.

Potential Topics Moving Forward:

*Metrics for Evaluating AAERV* (Effectiveness, Sensible, Total, Latent, NET, Apparent Effectiveness, Impact of EATR on Net Effectiveness and Energy Impacts of OACF)

*AAERV Controls* (Basic ERV Functions and Functionality, Frost Control, Free Cooling and Air Side Economizers and Part Load Performance Considerations for Packaged Systems)

### 3. Research (Bob Besant)

The Subcommittee meeting discussion revolved around future research topics looking to create an RTAR regarding simulations and studies. Discussion – Carey S. highlighted two issues when simulating energy savings, should be use a constant effectiveness under all conditions, and is it important to control part-load conditions, if you don't properly simulate the energy recovery systems cooling energy may actually go up incorrectly characterizing the technology; temperature and humidity effects, flow rates, balanced and unbalanced flows are also a consideration. What are the tools being used today the research could focus on some of the details? Matt F. mentioned that the RTAR should comment on how good the current models are; Mike S. noted the bigger packages tend to understate the actual savings, on poorly represent; Mumma stated controls are an issue in correct modeling with DOE and commercial software. Unfortunately these models determine success of many projects as they are used as justification.

Bob will begin formulating several straw man RTARs for the TC to review at the next meeting. Drake will put Bob in touch with interested individuals from the 90.1 mechanical subcommittee and Bob will get support from Gregg, Matt and Drake.

John D. provided a status update on the DOAS Design Guide: The project went out for bid and the PMS recommended a contractor provisionally. The contract should be awarded in the spring and the completed design guide should be completed in 24 months after that.

TC 5.5 is not cosponsoring any other RTARs and Greg called out to members to indicate that if anyone is aware of other research activity that other TCs are performing that would be of interest that they should bring it to the attention of Bob B.

### 4. Standard 84 (Matt Friedlander)

An effort was launched to re-open Standard 84 to specifically correct some errors and omissions in the original document and be able to achieve consensus on a working draft. The committee has been meeting monthly with some administration work to format a letter and will submit to ASHRAE for public review. This should be ready for the meeting in San Antonio.

### 5. Membership (Bert Phillips)

The terms are 4-years right now. Ronnie M. is shown as rolling off as Vice-chair which is not correct; he only rolls off as a voting member NOT the Vice-chair. The Roster is at 9 voting members with 2 rolling off. Is this the correct amount? One voting non-quorum, can we get a second VNQ? We are looking to expand the committee to get more voting members and we are allowed to have 6-18 VMs. Greg will look at the distribution.

## 6. Website (Charissa Garcia)

The website has been updated and Charissa is happy to hear and implement specific suggestions from the TC. Charissa has some ideas to improve and fix some updates and has some ideas of what information needs to be posted. She also needs a copy of roster and needs written permission to post peoples contact information on the website. Charissa is investigating the rules with ASHRAE. We have been posting the slides from past meetings. The Members only is password protected with the same password as before.

## Liaison Reports

### 1. SSPC 189.1 (Drake Erbe)

Carol M. was not present and Drake E. provided an update: Standard 189.1 has done some clean-up work, housekeeping mostly, and its stated need in energy is to be 30% better than Standard 90.1. At present, there are no changes in the provisions relating to energy recovery, but redundant verbiage from 90.1 has been removed and 90.1-2010 is referenced that's as far as they have proceeded so far.

### 2. SSPC 90.1 (Drake Erbe)

The Mechanical subcommittee is addressing a number of areas that may affect the TC:

The fan power limitation provisions are being revisited. One of the items for consideration is how to allocate the fan power allocation between 2 systems serving the same zones. This becomes important to systems such as energy ventilation serving multiple units or DOAS which is fed by one energy recovery ventilator.

Another item under consideration is fan efficiency or FEG. There was an addenda u which was advisory addendum that received 18 comments. Currently, this requirement would be for above 5 hp and has the possibility of increasing the size of the fans which could increase cost. Another effect is to establish total efficiency rather than static efficiency which could cause confusion in the industry. The proposal would exclude labeled equipment that has its own energy metric, i.e. EER which includes the fan power

There has been discussion on increasing the effectiveness to 60% in the base provisions for energy recovery, however this and any change to the definition of effectiveness is on hold until Standard 84 is complete. There has been discussion on extending the table so it would be identical to the one in 189.1, but it has not been proved to be cost effective to do so there is more involvement and understanding but constant vigilance is required.

Don Fisher on kitchen ventilation changes in 90.1 – DCV and ERV have lost ground over the years. Lacking experience in these areas, TC 5.10 has provided input on heat recovery with kitchen exhaust and is developing an RTAR and co-sponsorship. Field performance monitoring should be required. They will draft and RTAR and are encouraged to work with Bob B. and will be put to a vote

Stanly Mumma discussed effectiveness and feels we should remove the term effectiveness from the definition due to balanced flow issues with VE on falsely high effectiveness numbers. Some degree of pressurization is always present and the unbalanced flow affects DOAS in particular. As an individual, Stanly Mumma will comment directly and asked if the TC would make an official statement. Stanly will provide input and was encouraged to submit a description for the TC to review.

### 3. Standard 62.1 (Bede Wellford)

Hoy is picking up on the discussion where we left off in Montreal. While Hoy was not in attendance at the SSPC but has spoken to the Chair and Vice-chair about the issue. There was a change request to create class 5 air which is higher but somehow better than Class 4 air and must meet with a variety of

criteria. It should not be coming out as a proposed change, but Hoy will keep the TC abreast.

Charissa read off the definition proposal.

Hoy expressed that he has not objected to an additional classes of air for hoods (for different types of exhaust) but not as the proposal has been written.

The composition and characteristics of Standard 62.1 has changed greatly over the last 20 years; where there used to be many MDs and epidemiologists, as of late it appears to be more focused on saving energy with engineers leading the charge. So rather than talking about increasing ventilation rates to maintain and focus on acceptable indoor air quality it appears that the SSPC is more interested in trying to figure out how to reduce ventilation rates and reduce energy consumption even though that is not the mandate of the Standard.

4. TC 7.8 (Klas Haglid)

The sampling tool is being populated, but only has only two ERVs but needs a minimum of 30 in order to become statistically relevant. Klas has reached out to members to populate the tools. The 2015 handbook will be updated with lifecycle costs from these tools and it is possible to increase the proposed longevity relating to AAERVs as the data will go into the Owning and Operating Table. We would like older buildings to document the lifespan of ERVs and other components. Charissa will put a link to the tools on the website with directions on how to get there.

Other Old Business

No old business.

**New Business**

Greg has become aware of Participation in MTG for design, operation, and retrofit of energy-efficient air-handling systems; we have been added as a relevant TC and have a couple of volunteers. Ronnie and Hoy will represent TC 5.5 on the MTG (12 month commitment).

The Chair entertained motions at this time.

Klas made a motion with an amendment from Charissa that TC 5.5 moves that as a TC to support the population of the web based sampling tool with ERV/DOAS systems to accurately represent the reliability and longevity that ERV/DOAS systems present; 7-0-0 CNV

Mat F. (Chair of SSPC 84) made the motion:

This motion is to put TC5.5 on record in regard to the usage of particular air-to-air energy recovery device technologies in airstreams in which a life safety issue may exist, and for Class 4 airstreams. In such applications where toxic, odorous, infectious or otherwise hazardous gases, vapors or airborne particles are present, a technology generally accepted as safe should be used: specifically runaround loops in which the supply and exhaust streams are not proximate and for which there is no possibility of transfer from the exhaust to the supply side. This includes hazards to animals as well as humans. It is not acceptable to use technologies in which there may be leakage or in which active methods are to be used to reduce leakage such as pressure ratios or selective absorption. It must be considered what would happen when the device shuts down and resumes operation. There is not currently a consensus test procedure to identify the levels of all contaminants possibly present which characterizes the transfer for each under all conditions that may occur during the lifecycle operation of the unit, including the effects of humidity, interactions among contaminants, the presence of dirt coatings, or the lack of proper maintenance. The Chair is directed to communicate this Position and the vote to relevant ASHRAE TC's and Standards committees; 8-0-0 CV

Motion made to adjourn; 7-0-0-CNV

Adjournment 18:03 pm

**ATTENDEE LIST FROM THE SIGN-IN SHEET TO BE PROVIDED BY THE CHAIR**