



1791 Tullie Circle, N.E./Atlanta, GA 30329

404-636-8400

TC/TG/MTG/TRG MINUTES COVER SHEET

(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/MTG/TRG No. 5.5 DATE 2018-04-04

TC/TG/MTG/TRG TITLE Air-to-Air Energy Recovery

DATE OF MEETING 2018-01-23 LOCATION Palmer House, Chicago, Illinois

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Matthew Friedlander VM CH	2017	Blake Erb VM	2017	Drake Erbe
Tom Rice VM VC	2017	John Dieckmann	2014	Aniruddh Roy
Adam Fecteau SEC	2017	Alexander Sylvester	07/01/2017	Dave Haller
Peter Grinbergs VM	2015	Ali Rashid Al-Alili	07/01/2010	John Rose
Marcus D'Arcy VM	2016	Amin Engarnevis	07/01/2016	Larry Smith
James Piscopo VM	2016	Armin Hauer	12/06/2017	Marcus Thaw
James Scudamore VM	2017	Arsen K Melikov,	07/01/2015	Mark Baines
Ronnie Moffitt	2015	Artur AleksanGurdyumov	07/01/2017	Sean Stephansson
Prakash Dhamshala	2016	Aruna D AbhayaGopawardhana	07/01/2013	Yvette Daniel
Paul Pieper	2017	BIROL YAVUZ	07/09/2017	

Andy Kebernik	07/01/2016	Boualem Ouazia	07/01/2008	
Carey J Simonson, PhD	07/01/2008	Brandon Damas	07/01/2016	
Dr Gursaran D Mathur, PE	07/01/2017	Byron F Horak	07/01/2008	
Gursaran D Mathur, PE	07/01/2017	C Dominic Kolandayan	07/01/2013	
John Bade	06/27/2017	Carol E Marriott P. Eng.	07/01/2009	
Kristin Rice Sullivan	07/01/2016	Chris B Check	07/01/2002	
Marc Tardif	07/01/2011	Clifford M Scofield	07/01/2002	
Mark F Piegay	07/01/2017	David F Shipley	07/01/2011	
Mohammad Javad Afshin	07/01/2017	David M Baird	07/01/2017	
Peter Grinbergs VM	07/01/2015	Davor Novosel	07/01/2007	
Terrence Hugh Farrell Jr	07/01/2016	Dean Scott Herr	07/01/2013	
Wongyu Choi	05/18/2017	Dennis L Loveday	07/01/2017	
Xuan Le	07/01/2017	Dilip Y Vyavaharkar	07/01/2001	
Zidu Ma	07/01/2016	Dipak J Shah	07/01/2003	
		Duane P Rothstein	07/01/2008	
		Dwight H Heberer	07/01/2013	
		Elangovan Shanmugam	07/01/2016	
		Eric Erdman	06/27/2017	
		Eric Lee	07/01/2008	
		Feroze Ahmed	07/01/2005	
		Ganeson Kandasamy	07/01/2005	
		George W Austin, Jr	07/01/2013	
		Gerald L Martin	07/01/2005	
		Gregory Dobbs	07/01/2013	
		Hardin T James, Jr	07/01/1994	
		Helen Deborah Davis	07/01/2016	
		Henning Groenbaek	07/01/2005	
		Hoy R Bohanon, Jr	07/01/2015	
		Itzhak H Maor,	07/01/1994	
		James L Newman	07/01/2009	
		James Martin	07/01/2011	
		Jeff Gatlin,	07/01/2005	

		Jeffrey K Smith	07/01/2008	
		John C Bolster	07/01/2017	
		Jose Chavez	07/28/2017	
		Joseph A Knoedler	07/01/1997	
		Joseph Brooks,	07/01/2000	
		Kamalakkannan Muthucubramanian	06/05/2017	
		Kelley P Cramm,	07/01/2017	
		Kenneth Sonmor	07/01/2006	
		Kevin Duane Baldwin	07/01/2017	
		Klas C Haglid,	07/01/2017	
		Kyle Brownell,	07/01/2000	
		Lawrence C Hoagland,	07/01/1995	
		Manalee Jayant Nabar	07/01/2017	
		Marc Poirier, Eng	07/01/2017	
		Marty James Johnson	07/01/2017	
		Maury B Wawryk	07/01/2001	
		Mazen M Awad	07/01/2008	
		Meho Berkovic	07/01/2011	
		Michael A Harvey	07/01/2011	
		Michael M Ohadi,	07/01/2014	
		Michael R Vaughn	07/01/2001	
		Michael S Sherber	07/01/2011	
		Michael S Sherber	07/01/2017	
		Mohamed R.H. Abdelsalam	08/03/2017	
		Nicholas H Deschamps,	07/01/2010	
		Patrick Justin Geoghegan	07/01/2017	
		Paul A Lebbin	07/01/2016	
		Philip LePoudre	07/01/2016	
		Radha Krishna Ganesh	07/01/1999	
		Robert W Besant	07/01/2014	
		Ruth E Urban	07/01/1995	
		Ryan Huizing	07/01/2017	

		Samuel A Beil, III,	07/01/2007	
		Sharad V Paranja,	07/01/2009	
		Somasundaram Natarajan	07/01/2017	
		Sruti Chigullapalli	12/18/2017	
		Stanley Slabinski	07/01/2010	
		TENG YI MA	07/06/2017	
		Thomas J Kelly	07/01/2000	
		Timothy J Orris	07/01/2003	
		Toshio Murata	07/01/2017	
		Vijayanand Riannan	07/01/2014	
		Wayne E Caudle	07/01/2011	
DISTRIBUTION:		Wayne E Caudle	07/01/2011	

TAC Section Head: SH5@ashrae.net	
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.)	prakash-damshala@utc.edu d.l.loveday@lboro.ac.uk akm@byg.dtu.dk MORTS@ashrae.net hbs3@ashrae.net RL5@ashrae.net SL5@ashrae.net
TC5.5 members	

MINUTES ASHRAE TC 5.5 Air-to-Air Energy Recovery
ASHRAE 2018 Annual Conference, Chicago, Illinois
January 20 -24, 2018

1. Call to Order @ 15:35 CT
2. TC Scope
 - a. The Chair reviewed the scope of TC 5.5 :
“TC 5.5 is concerned with air-to-air heat exchangers, their application and cost benefit relationship. It includes consideration of the needs and procedures for standardization and testing, rating and terminology applicable to air-to-air energy recovery.”
3. Introduction & Sign up (current email & updates)
 - a. a round of the table was done and everyone introduced themselves
4. Roll Call of Voting Members
 - a. With 4 of 5 voting members present quorum was established.
5. Agenda Review
 - a. Motion by A. Fecteau, 2nd by M. Darcy to approve the agenda.
 - b. Motion carries, 3/0/0 Chair Not Voting
6. Long Beach Minutes Approval
 - a. Motion by A Fecteau, 2nd by GD Mathur to approve the Long Beach Minutes
 - b. Motion carries, 3/0/0 Chair Not Voting
7. Chair's Report & membership (Matthew Friedlander)
 - a. ASHRAE information system (website including Public Review) will be updated in the next 1-6 months. Some downtime may be observed.
 - b. Chair is cleaning up the roster to remove members who are no longer interested.
 - c. Chair described the Student Welcome Activity held on Saturday afternoon as a good networking activity with students.
 - d. Section Head Larry Smith re-affirmed the importance of Student activity. He informed the section that a new TAC training coordinator has been appointed and a lot of changes in chair training is to be expected. He further requested that the TC cc him on proposals to CEC for papers.

Subcommittee Reports

8. Handbook Subcommittee (G.D. Mathur, M. D'Arcy)
 - a. The handbook subcommittee discussed their progress on adding to an existing or creating a new chapter on air-to-air energy recovery in Fundamentals, since that is the most widely used of the four Handbooks. This working group is led by Marcus D'Arcy.
 - b. The subcommittee also proposed to add more content about controls to the existing chapter in the Equipment handbook.
 - c. In subcommittee, it was agreed that the intent of these actions is to increase awareness of the technology.

- i. To review chapter in the Fundamental handbook, the revised text need to be approved by the TC by summer 2020.
 - ii. To add a new chapter in Equipment handbook, the new chapter text needs to be approved by TC by summer 2019.
- d. Motion by GD, 2nd by M. D'Arcy to approve the handbook subcommittee to investigate putting fundamentals content together to add to a new, or already existing, chapter.
 - i. Discussion on possible new content for application
 - ii. To implement this, a draft will need to be proposed by Houston
 - iii. Motion carries, 3/0/0 Chair Not Voting

9. Program Subcommittee (Ronnie Moffitt)

- a. Seminar "Going Large with Air-To-Air Energy Recovery" was presented on Jan. 23, 2018.
 - i. an estimated attendance of 125 persons.
 - ii. Mr. Julien Allard could not attend. His flight was grounded in Montreal due to Freezing Rain.
- b. Seminar co-sponsored with 8.12 "Surgery Room Dehumidification" is scheduled for Jan 24, 2018
- c. Houston Upcoming Deadlines
 - i. Thursday, January 11, 2018: Website Opens for Seminar, Workshop, Forum, Debate and Panel Proposals
 - ii. Monday, January 15, 2018: Conference Paper Accept/Revise/Reject Notifications
 - iii. Friday, February 9, 2018: Program (Seminar, Forum, Workshop, Debate and Panel) Proposals Due
 - iv. Friday, February 9, 2018: Revised Conference Papers/Final Technical Papers Due
 - v. Possible tracks for Houston
 - 1. Residential in hot and humid climate
 - a. Possibly one speaker with cost justification from TC55 WG results
 - b. may not get a 2nd speaker on time
 - 2. Control Freak Track
 - a. Frost control sequence
 - b. but Houston is in a Hot and Humid climate and not natural for a frost control topic.
 - 3. Action -> Program S/C Chair to send an email out, also to HVI in order to request speaker.
- d. Member congratulated the Seminar 41 speakers.
- e. 2019 ASHRAE Winter Conference in Atlanta, GA:
<http://www.ashrae.org/atlanta>
 - i. Conference Paper Abstracts are due Monday, March 5, 2018
 - ii. Seminar, Forum, Debate, Panel and Workshop submissions begin Monday, June 4, 2018
 - iii. Conference Papers are due Friday, July 6, 2018
 - iv. Seminar, Forum, Debate, Panel and Workshop proposals are due Friday, August 3, 2018

10. Research Subcommittee (Matthew Friedlander, in John Dieckmann's absence)

- a. Chair asked members with interest in serving as vice-chair of the Research S/C to contact him.
 - b. Discussion of Work Statement (WS) 1780 - test method to evaluate cross-contamination of gaseous contaminant within total energy recovery wheels. Responsible TC 9.10 Laboratory Ventilation.
 - i. ACTION per Agenda: TC vote to in support of or opposition to advancing the WS to Research Advisory Council (RAC).
 - ii. Members comments
 - 1. Specific to Wheel only, consider application to any technologies with recapture potential.
 - 2. Gives the impression that the method will apply to applications other than Laboratories, and should not.
 - 3. Suggestion that the WS should focus on developing a method and not to test actual technologies.
 - iii. ACTION → Add Intertek as a potential bidder to the project.
 - iv. motion by Tom Rice, 2nd by M. D'Arcy, GIVE CHAIR 4 WEEKS (FEB. 20) TO ORGANIZE COLLABORATIVE MEETING OF INTERESTED PARTIES TO EDIT THE WORK STATEMENT; IF NO MEETING CAN BE SCHEDULE, SEND THE WORK STATEMENT OUT FOR LETTER BALLOT.
 - v. Motion carries, 3/0/0 Chair Not Voting
 - c. Other research proposals:
 - i. No discussion.
11. Standards (Matthew Friedlander)
- a. Chair gives a report on the status of ASHRAE 84-2013. The SPC is working actively on the revision and targets publication by the end of 2018. Revisions include editing into mandatory standards language, addition of method of test for fixed-bed regenerators.
 - b. members to share by email to the chair their comments
12. Website (James Scudamore)
- a. The website is up to date.
13. Membership (Matthew Friedlander)
- a. Was addressed in item 7.

Liaison Reports

14. ASHRAE Learning Institute (Paul Pieper)
- a. Paul gave short course this weekend and had good attendance.
 - b. Paul is also working with other to develop a presentation on DOAS.
 - c. There will be a fall online learning class.
 - d. There is a new proposal for a course on ERV control.
15. SSPC 90.1
- a. SSPC 90.1 Activities – (Adam Fecteau)
 - i. By-Pass damper addendum
 - 1. Addendum was intended to add "clarification of original intent" but will result in language mandating a by-pass damper on both side for free-cooling.
 - 2. Initial modeling shows a payback well over 12 years for the addition of the damper.
 - 3. Proposal was tabled for the next meeting
 - 4. WG was formed. From TC 55, WG includes M. Friedlander, A. Fecteau, M. Tardif and R. Moffitt.

5. Action → Fecteau to review with N90.1 MSC Chair for status of by-pass damper working group and add members as designated reviewers.
 - ii. Addendum DN is still alive
 1. Was approved for a 2nd public review
 2. Has been completely reworked.
 3. Adds a definition of series ERV with cooling
 4. Add some Climate Zone considerations to the solar heating exception.
 - iii. Addendum AM on Pool ERV
 1. Added an exception to allow for 50% sensible if climate zone requires it
 2. Exception to ERV if dehumidification energy is used to re-heat the pool water.
 - iv. MSC advised that if we want changes for the 2019 revision, it has to be completed for the next summer meeting.
 - v. DOAS supply air temperature official interpretation
 1. Reid Hart from SSPC 90.1 needs help for an official interpretation.
 2. A. Fecteau, M. Friedlander, M. Tardif and R. Moffitt volunteered to help Reid.
 - b. HVI/TC5.5 Working Group (Mo Afshin)
 - i. Mo briefly reported on the status of the working group for residential ERV in 90.1.
16. Standard 62.1 (Tom Rice)
- a. new addendum to modify 5.1.1 on air balancing,
 - i. May impact where to measure the airflow and outdoor air vs supply air and EART cannot be accounted for OA
 - ii. new addendum on fig 3.1.1
 - iii. to add different ERV location in the figure.
 - iv. Tom rice to offer TC55's help
 - v. modification of table 5.1 for separation of Outdoor air intake.
 - b. in a request for interpretation, they performed test with a specific contaminant of concern that ask for contaminant of concern with ERV
 - i. The response is confirming that contaminant transfer isn't addressed in the standard.
 - c. ASHRAE 62.1 intends to use the ASHRAE 84 definition of ERV.
 - d. ASHRAE 62.1 wants to reduce the acceptable EATR threshold for different air classification.
 - i. it was proposed by a member to use any influence to vote no in the recirculation ballot

Old Business

None

New Business

None

Next Meeting

Next face-to-face meetings will be at the Annual Conference in Houston TX to be held June 23-27, 2018

ATTACHED: WS-1780 (draft) and WS-1780 comments review

Meeting adjourned on 1815 CT

EXHIBIT 1 : Meetings and Session Schedule

Meetings	Time	Location
SPC 84 Method of Testing Air-to-Air Heat/Energy Exchangers	Monday, January 22, 2018 4:15pm – 6:30pm	Palmer House, Level 3, Room: Cresthill
TC 5.5 Handbook, Program, Research	Tuesday, January 23, 2018 1:00pm - 3:30pm	Palmer House, Level 7, Room: Burnham 2
TC 5.5 Air-to-Air Energy Recovery	Tuesday, January 23, 2018 3:30pm – 6:00pm	Palmer House, Level 7, Room: Burnham 1
<i>Sponsored Seminars/Courses</i>		
Going Large in Air-to-Air Energy Recovery	Tuesday, January 23, 2018 11:00am - 12:30pm	Palmer House, Level 4, Room: State Ballroom
ALI Short Course: Air-to-Air Energy Recovery Applications: Best Practices	Sunday, January 21, 2018 3:30pm - 6:30pm	McCormack Place