

**TC5.3 Room Air Distribution
2014 Summer Conference Minutes
Seattle, WA
Tuesday, July 1 from 1 PM until 3:30 PM
Jefferson A (Sheraton 4th Floor)**

Chariman: Mr. Jerry Sipes

AGENDA

1. Call to order
2. Introductions/attendance sheet/verify quorum
3. Approval of New York Meeting Minutes
4. Membership report
5. Research subcommittee report
6. Standards subcommittee report
7. Handbook subcommittee report
8. Programs subcommittee report
9. Other subcommittee reports
10. Webmaster report
11. Honors and Awards report
12. Liaison reports
13. Other business
14. New business
15. Adjournment

APPENDICES

1. Attendance sheets
2. New York meeting minutes
3. Research subcommittee minutes
4. Handbook subcommittee minutes
5. Chilled Beam subcommittee minutes
6. Air Curtain subcommittee minutes
7. UFAD subcommittee minutes

1. Call to order at 1:00pm by J Sipes
2. Introductions/attendance sheet/verify quorum
 - a. Attendance is listed in Appendix 1.
3. Approval of New York Minutes
 - a. The New York meeting minutes were approved, motion by Randy Zimmerman , seconded by Jose Palma, 9-0-0-CNV
 - b. The New York Minutes are attached as Appendix 2.
4. Membership report Lorch
 - a. The new membership roster will become effective at the conclusion of this conference.
5. Research subcommittee report (subcommittee minutes in Appendix 3) Zimmerman
 - a. RP1546
 - i. motion to grant a no cost extension to the researchers, 10-0-0-CNV
 - b. Current work statements WS-1666
 - i. motion to move this work statement forward, motion by Randy Zimmerman , seconded by Jose Palma, 10-0-0-CNV
 - c. RTARs
 - i. other RTARS have been dropped
 - ii. Fan coil components and how they affect energy (circulated through email on 6-30-14)
 1. Randy Zimmerman, Byron Hagan, 10-0-0 CV
 2. TC 7.7 cosponsor
 - iii. New research – joint with AHRI – acoustics of lined air terminal boxes
 - iv. 62.1 and 4.3 – off-gassing RTAR outdoor air rates should that should vary depending on the age of the materials that are off-gassing – it would be nice if 5.3 was included in this discussion
6. Standards subcommittee report Lorch
 - a. Standard 70-2011 voted to revise this standard at the New York meeting, and request to revise this standard has been approved by ASHRAE
 - b. Standard 113-2009 reaffirmed in 2012 and can be removed from future agendas
 - c. Standard 130-2008
 - d. Standard 200 (MOT for chilled beams) Tully / Sipes
 - i. two sections of this standard are going out for public review of substantial changes Sipes
 - e. Standard 79 (MOT for fan coils) Hagan
 - i. close of 45 day pub review is July 28
 - f. Standard 129-1997 (Measuring air change effectiveness) John / Int-Hout
7. Handbook subcommittee report (subcommittee minutes in Appendix 4) Peters
 - a. Motion by Brian Rock to approve the chapter for the Applications handbook, seconded by Byron Hagan, 9-0-0-CNV
8. Programs subcommittee report Livchak
 - a. Seminar 33 *Optimized Control Strategies for Chilled Beams and Radiant Panels*
 - b. One program for this meeting was not approved but we'll try to put it through for Chicago – Energy performance of active chilled beams
 - i.
 - c. Future programs
 - i. Atlanta – proposed seminar for chilled beams and fan coils
 1. improved performance
 2. air curtains
 3. stratified systems
 - d. Future programs
9. Other subcommittees
 - a. Chilled beams subcommittee report (subcommittee minutes in Appendix 5) Sipes

DRAFT – Minutes are not official.

- i. New chair of this subcommittee is David Pich
 - b. Fan coil subcommittee report Faris
 - c. Air Curtain subcommittee report (subcommittee minutes in Appendix 6) Cademo
 - d. UFAD subcommittee report (subcommittee minutes in Appendix 7) Megerson

- 10. Webmaster report
 - a. David Pich reported and others confirmed that our website is in order
 - b. Meeting documents can be found on the website
 - c. Links to documents on the website can be used in emails versus the actual docs

- 11. Honors and awards Hosni
 - a. Jerry Sipes received the ASHRAE Distinguished Service Award

- 12. Liaison reports
 - a. Standard 55 Int-Hout
 - i. new liaison from TC 5.3 Zach P.
 - ii. temp difference between head and ankles is proposed to be increased
 - b. Standard 62.1 Rice
 - i. filtration requirement was changed
 - ii. Tim Rice reported and is our new liaison
 - iii. change request in allowing airflow in an unoccupied room to drop to zero
 - c. New report
 - i. 62.2 – Mary Opalka
 - d. LEED Int-Hout
 - e. Standard 90.1 Bade
 - i. ECM change effective in 2013 edition
 - ii. John Bade will take over as new liaison
 - f. MTG.EAS Energy Efficient Air Handling Systems Filler/Sipes
 - i. conf call in March
 - ii. air curtains – MOT should be put together for effectiveness
 - iii. Gus Faris will be a new liaison for one year
 - g. AHRI Sipes
 - i. Justin Prosser with AHRI
 - h. new liaison report
 - i. Standard 215
 - 1. Currently only have TPS
 - 2. John Bade is the new liaison
 - 3. Craig Wray is the Chair and is shooting for a first draft in four months
 - i. GPC 36
 - i. John Bade, create a guideline for controls
 - j. STD 170
 - i. Matt McLaurin
 - ii. Task group on natural ventilation in hospitals
 - iii. operating room ventilation, air changes per hour can go through multiple
 - iv. way to limit the work-around in non-diffuser space over operating room tables

- 13. Other business none

- 14. New business
 - a. air terminal unit design guide
 - i. co chairs – Gus Faris and David John
 - ii. motion to approve moving forward with the air terminal unit design guide Brian Rock, Byron Hagan, 9-0-0-CNV
 - b. Gus Faris was appointed as Historian for TC 5.3

- 15. Adjournment

Appendix 1.

<u>Name</u>	<u>Email</u>
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Wangdi Zuo	W.Zuo@miami.edu

Appendix 2.

**TC5.3 Room Air Distribution
2014 Winter Meeting Minutes
New York, NY
Tuesday, January 21 from 1 - 3:30 PM
Gramercy West (Hilton Hotel, Level 2)**

16. Call to order Sipes
a. Jerry Sipes called the meeting to order at 1:00 PM.
17. Introductions/attendance sheet/verify quorum Sipes
a. Randy Zimmerman circulated an attendance sheet.
- | | | | |
|---------|-----------|----------|---------------|
| Jim | Aswegan | Jim | Kline |
| John | Bade | Ed | Koop |
| Fred | Bauman | V | Krishnan |
| Kevin | Cash | Shi Chao | Liu |
| Justin | Churchill | Andrey | Livchak |
| Jordan | Clark | Fred | Lorch |
| Frank | Cuaderno | Patrick | Oliver |
| Jeremy | Draa | Jose | Palma |
| Jake | Edmonson | Curtis | Peters |
| Luis | Escobar | Laura | Petrillo-Groh |
| Gus | Faris | David | Pich |
| Mike | Filler | Zacc | Poots |
| Anthony | Fontanini | Justin | Prosser |
| Kevin | Gebke | Tom | Rice |
| Mladen | Habensus | Gaylon | Richardson |
| Byron | Hagan | Julian | Rochester |
| Chad | Huggins | Sudhir | Sintha |
| Dan | Int-Hout | Jerry | Sipes |
| David | John | Trenton | Yarbrough |
| David | Johnson | Randy | Zimmerman |
| Thomas | Kitchen | | |
18. Approval of Denver meeting minutes – approved 9-0-0-CV Sipes
19. Membership report – Lorch
a. approved roster changes due to take affect after Summer '14 Conf.
i. vote 9-0-0-CV
20. Research subcommittee report Zimmerman
- WS-1500 'Terminal Unit Design Guide' - David John will write guide as a special publication rather than a research project.
 - RP-1546 'Expansion and Update ADPI for Overhead Mixing Systems in both Heating and Cooling' - No action required at this time
 - RP-1629 'Testing and Modeling Energy Performance of Active Chilled Beam Systems' - Expect to finalize agreement in January, 2014
 - RP-1666 'Experimental Evaluation of the Thermal and Ventilation Performance of Stratified Air Distribution Systems Coupled With Passive Chilled Beams' - Submit WS first draft before May 14, 2014
 - RTAR 'Research the Differences in Laboratory and Field Measurements for the Pressure Drop and Temperature in Coil Performance Testing' - Byron Hagan – Author, Resubmitted January 20, 2014 (3rd submission)

- RTAR 'Empirical Performance Comparison of Active Chilled Beams with DOAS vs. VAV with Reheat Systems' - Ran Liu – Iowa Energy Center, Revised per suggestions from TC 5.03 to limit scope
 - RAC Needs a Submission Tool for RTAR's and WS's - R. Zimmerman will submit this suggestion to RAC
 - RTAR 'PSC Motors vs. ECM in Fan Coils' - Byron Hagan - Could possibly replace previous RTAR for fan coils
 - RTAR 'Hot Water Coil Performance – Low Water Flow Effects' - Co-sponsored by AHRI, Differences in turbulent/transitional/laminar flow regarding rated capacity - David John will work with Justin Prosser (AHRI)
 - Unsolicited Research 'Energy Savings of Air Curtains' - Fred Cuaderno, TC 5.03 reaffirmed status as cognizant committee for air curtains
21. Standards subcommittee report Sipes
- a. Standard 70-2011 – suggested revision Lorch
 - i. vote to revise – 9-0-0-CV
 - b. Standard 113-2009 - reaffirmed Lorch
 - c. Standard 130-2008 - Lorch
 - d. Standard 200 (MOT for chilled beams) – under public review
 - e. Standard 79 (MOT for fan coils) Hagan/ Faris
 - i. Voted in SPC to send standard out for public review
 - f. Standard 129-1997 (Measuring air change effectiveness) John / Int-Hout
22. Handbook subcommittee report Peters
23. Programs subcommittee report Livchak
- a. Seminar 33 *Optimized Control Strategies for Chilled Beams and Radiant Panels*
 - b. Future programs
 - i. Energy Performance of Active Chilled Beams (Seattle, 2014)
 - 1. Tom Rice – Chair, Assisted by Jerry Sipes, has found (3) speakers
 - ii. proposed workshop for Chicago – Fan Coils, Chair - Byron Hagan
 - iii. Air Curtains – Chicago, Chair – Frank Cuaderno
 - iv. Stratified Systems Seminar – Chicago, Chair – Fred Bauman
 - v. Air Distribution and Acoustics - Chicago
24. Other subcommittees
- a. Chilled beams subcommittee report Zimmerman
 - i. Covered in Research, Standards, Programs...
 - b. Fan coil subcommittee report Faris
 - i. Covered in Research, Standards, Programs...
 - c. UFAD subcommittee report Bauman
 - i. *** Notes for this section still needed*****
25. Webmaster report Gebke
- a. Website is current
 - b. David Pich will be taking over the honor of webmaster duties
 - c. add "Historian" section
26. Honors and awards (no report) Hosni
27. Liaison reports
- a. Standard 55 Int-Hout
 - i. SSPC 55 2013 is out. It has moved all non-substantive issues into an informative appendix. The result is a Standard which should be easier to prove compliance to. Airspeeds over 40 fpm require the use of the SET procedure, rather than the graphical or PMV calculation methods. When one performs this calculation with air speeds less than 80 fpm, however, it has an immeasurable effect on the location of the comfort zone. (The last bit is not in the standard.)
 - b. Standard 62.1 Int-Hout
 - i. 62.1 still requires an increase in ventilation if discharge temperatures are more than 15F above the average room temperature. Not that there are three states of ventilation, off, minimum floor area and floor area plus persons. If a single

ventilation system supplies more than one space and the conditions change in one of them,. It would imply that a pressure independent control is likely required for all dampers in that system (The last is not a part of the standard, but seems pretty obvious).

- c. LEED Int-Hout
 - i. LEED V4 is out, and LEED for Schools has a 40 dBA prerequisite for the HVAC system only, and it may be proven to comply using either the ASHRAE Handbook or AHRI 885. Since the handbook does not include a method for predicting the transfer of sound through a ceiling plenum, the Handbook actually cannot be used. Reverb time is now specified by construction details. The implication is that acousticians are not required to prove compliance.
- d. Standard 90.1 Int-Hout
 - i. 90.1 still allows up to 50% of the max cooling airflow in reheat if one starts at 20%, controls discharge temperature, and uses VAV heating control.
- e. MTG.EAS Energy Efficient Air Handling Systems Filler/Sipes
- f. AHRI Sipes

28. Other business

29. New business - none

30. Adjournment

Appendix 3.

Minutes
TC 5.03 Research Subcommittee
Sunday June 29, 2014; 12:00-1:00 PM
Seattle, Sheraton 3rd Floor, Metropolitan B

1. CALL TO ORDER (Meeting called to order by R. Zimmerman at 12:00 PM)

1.1. Introduction of Members and Guests

1.2. Recording of Attendance

Randy Zimmerman	Chris Lowell	Curtis Peters
Kevin Gebke	Andrey Livchak	Chad Huggins
Jerry Sipes	Kevin Cash	David Pich
Frank Cuaderno	Tom Epp	Gus Faris
Mike Filler	Justin Prosser	Gaylon Richardson
Anthony Fontanini	John Bade	Jack Stegall
V. Krishnan	Byron Hagan	

1.3. Announcements

2. AGENDA REVIEW (Agenda approved)

3. MINUTES OF THE LAST MEETING (Minutes approved)

4. REPORTS ON CURRENT RESEARCH PROJECTS

4.1. RP-1546 *Expansion and Update ADPI for Overhead Mixing Systems in Both Heating and Cooling* (PMS Chair David John) – Work continues at the University of Texas – Austin. PMS staff visited the lab and met with the PI (06/03/14). An update presentation was made at the PMS meeting held in Seattle (06/28/14). A no cost extension was requested by the PI and recommended by the PMS. New completion date will be prior to Chicago meeting (01/31/15). Test results affirm previous ADPI research and additional tests will expand the number of devices. Other tests show that it is likely possible that ADPI can be expanded at a future date to include heating.

4.2. RP-1629 *Testing and Modeling Energy Performance of Active Chilled Beam Systems* (PMS Chair David Pich) – Work has begun at the University of Colorado – Boulder. The PMS is now free to communicate directly with the PI. An update presentation was made during the TC 5.03 chilled beam subcommittee meeting by the PI. Additional sample beams will be provided by a domestic manufacturer. Project is scheduled for completion by 05/31/15.

5. REPORTS ON CURRENT WORK STATEMENTS

5.1. WS-1666 *Experimental Evaluation of the Thermal and Ventilation Performance of Stratified Air Distribution Systems Coupled with Passive Chilled Beams* (F. Bauman, J. Rimmer, Z. Poots, D. Pich, D. Fisher) - The latest draft of this work statement was received (06/27/14) and distributed to the TC 5.03 full committee (06/30/14). In addition, the work statement was reviewed by TC 4.07 (06/28/14).

DRAFT – Minutes are not official.

The subcommittee voted to recommend approval by the full committee.

6. REPORTS ON CURRENT RTARS

- 6.1. RTAR *Research the Differences in Laboratory and Field Measurements for the Pressure Drop and Temperature in Coil Performance Testing* (Byron Hagan) – This RTAR is being dropped.
- 6.2. RTAR *Empirical Performance Comparison of Active Chilled Beams with DOAS vs. VAV with Reheat Systems* (Ran Liu) – At the NYC meeting it was recommended that Mr. Liu work with committee members to revise the RTAR. No word on whether this has been pursued.
- 6.3. RTAR *PSC Motors vs. ECM in Fan Coils* (Byron Hagan) – This RTAR is being dropped.
- 6.4. RTAR *Hot Water Coil Performance – Low Flow Effects* (David John/Justin Prosser) – This RTAR is being dropped.

7. NEW RESEARCH TOPIC PROPOSALS

- 7.1. RTAR *Understanding Fan Coil Components and How They Relate to Energy Consumption and Energy Modeling* (Byron Hagan) – This RTAR came as a result of a workshop held in Seattle (06/28/14) and is intended to replace two prior RTAR proposals. It was distributed for review at the research subcommittee meeting. The subcommittee voted to recommend approval by the full committee.

8. OTHER BUSINESS

- 8.1. Gus Faris requested that the research subcommittee contact ASHRAE to find out why the consortium research report regarding fan-powered terminals with ECM's has still not been posted after being donated so many years ago (Summer, 2011).
- 8.2. Gus Faris provided an update on *WS-1500 Terminal Unit Design Guide* (David John). This is being dropped as a research project and will instead become an ASHRAE publication. Gus and David will co-author this publication.
- 8.3. Randy Zimmerman reported that he will soon begin working to propose a joint AHRI/ASHRAE research project concerning the acoustical effects of various terminal unit lining materials.

9. ADJOURN (The meeting was adjourned by R. Zimmerman at 1:00 PM)

Appendix 4.

TC 5.03 Handbook Sub-Committee Meeting Minutes 6/27 & 6/28/14

Applications 2015 – Chapter 57 ‘Room Air Distribution’

- Updated chilled beam section based on Ken L comments
- Added reference to Std 55 based on Dan Int-Hout’s comments
 - Chose not to include as appendix
- Replaced references to Bauman Daly 2003 with UFAD Guide
- Removed dates from standards in continuous maintenance (i.e. 55, 62.1, and 90.1) except for reference to new minimum efficiency for fractional hp motors in 90.1-2013
- Fixed terminal unit application table
- Removed reference to heating coil selection in terminal unit section
- Added ‘Heating and Cooling Coil Selection’ section which covers applications to terminal units and fan coils
 - Section is broken down by ‘Sensible Heating and Cooling Coil Selection’ and ‘Total Cooling Coil Selection’
 - Changed methodology from room load to coil capacity with the assumption that design engineers have already performed load calculations and the starting point for SAT and airflow are known.
- Reviewed and updated Room Fan Coil Unit section

HVAC Systems & Equipment 2016 – Chp 20 ‘Room Air Distribution Equipment’

- Completed review and update of Terminal Unit section
- Completed review and update of Chilled Beam section
- Completed review and update of Partially Mixed section
- Completed review and update of Fully Stratified section
- Partial review and update of Types of Supply Outlets section
 - Stopped prior to section 20.8 Diffusers
 - Need feedback from Kevin G on fabric duct section of outlet table (partially mixed application)
- Will review new Air Curtain Unit section on Saturday morning in Chicago
 - Frank, Ed, and David will coordinate with AMCA Engineering Committee and have updated section ready for review by Chicago

Misc

- How to get VAVRC information onto ASHRAE website (donated to ASHRAE and AHRI)
- Separate meeting to review Heating and Cooling Coil Selection section
 - Add more examples including sensible cooling on terminal unit, heating coil on induction port of parallel terminal unit, and at least two more examples of fan coil selections including iterative process of poor selection with reasons for re-selections

- Add more detail and possibly formulas on Total Cooling Coil Selection section
- Sub-committee would like direction from TC on a work statement or vision for handbook chapters. Currently a lot of cross-over between chapters. Possible split into two Applications chapters: 'Room Air Distribution' concentrating on the zone (i.e. fully mixed, partially mixed, and fully stratified) and 'Terminal Devices' concentrating on the equipment/devices (i.e. terminal units, fan coils, outlets/inlets, chilled beams, air curtains, etc...)

Appendix 5.

Minutes TC5.03 Chilled Beam Sub-committee

Sunday June 29, 2014; 9:30 to 10:30AM
Metropolitan Ballroom (Sheraton 3rd floor)

10. CALL TO ORDER 9:32AM (Sipes – acting chair)
 - 10.1. Introduction of Members and Guests
 - 10.2. Recording of Attendance 31 attendees
 - 10.3. Announcements
11. AGENDA REVIEW
12. MINUTES OF LAST MEETING
13. HANDBOOK
 - 13.1. Applications section to be voted for approval by main TC meeting
 - 13.2. Systems under review
14. PROGRAMS
 - 14.1. Energy Performance of Active Chilled Beams (A. Livchak) Chicago
 - 14.2. Why Chilled beams over Fan Coils in Laboratories? (G Richardson) Atlanta?
 - 14.3. Maintenance and IAQ with chilled beams? (T Rice?) Atlanta?
15. RTARS
 - 15.1. RTAR 'Empirical Performance Comparison of Active Chilled Beams with DOAS vs. VAV with Reheat Systems' - Ran Liu – Iowa Energy Center, Revised per suggestions from TC 5.03 to limit scope – no action, will be dropped
16. WORK STATEMENTS
 - 16.1. WS-1666 – *Experimental Evaluation of the Thermal and Ventilation Performance of Stratified Air Distribution Coupled with Passive Beams* (F. Baumann, J. Rimmer, I. Nelson, Z. Poots, D. Fisher)
 - 16.1.1. Voted and approved to recommend that the main TC approve WS 1666 for submission.
17. RESEARCH PROJECTS
 - 17.1. RP-1629 Testing and Modeling Energy Performance of Active Chilled Beam Systems
 - 17.1.1. John Zhai, University of Colorado Boulder, Primary Investigator
 - 17.1.2. PMS: David Pich (chair), Ken Loudermilk, Fred Bauman, Andre Livchak and Dan Fischer?
18. ASHRAE/REHVA DESIGN GUIDE – was approved last meeting
19. AHRI / SPC 200 : **Monday 8:00am – 12:00pm, Metropolitan Ballroom A (Sheraton, 3rd floor)**
20. NEW RESEARCH TOPIC PROPOSALS
 - 20.1. None at this time.

DRAFT – Minutes are not official.

21. NEW BUSINESS

21.1.1. AHRI Chilled Beam section requested ASHRAE 62.1 for removal of filter requirement on sensible only cooling coils to match the change in the IBC 2015.

21.1.1.1. Was approved by members and members not in attendance have been balloted

22. ADJOURN

CHILLED BEAM SUBCOMMITTEE ROSTER

Name		Company	Email
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Appendix 6.

**ASHRAE TC 5.3 Air Curtain Subcommittee Meeting Minutes
2014 Annual Meeting
Seattle, WA**

Sunday, June 29, 2013 from 10:30 am – 12:00 pm

31. Call to Order
- a. Introduction of Members and Guests
 - b. Attendance
 - i. Frank Cuaderno
 - ii. Joe Brooks
 - iii. David Johnson
 - iv. Chad Higgins
 - v. Ryan Johnson
 - vi. George Hamad
 - vii. Jack Stegall
 - viii. Josiah Wiley
 - ix. Krishnan N
 - x. Gaylon Richards
 - xi. Anthony Fontanni
 - xii. Ed Koop
 - c. Announcements
 - i. None
32. Agenda Adoption
Motedioned by David Johnson
- Seconded by Ed Koop
33. Approval of Previous Meeting Minutes
Motedioned by Ed Koop
- Seconded by David Johnson
34. Discussion Topics
- 4.1 ASHRAE
 - 4.1.a Applications Handbook 2015
The TC 5.3 Air Curtain Subcommittee provided content for the Applications Handbook and was reviewed and approved by committee for submission to the 2015 publication
 - 4.1.b Systems and Equipment Handbook 2016
The TC5.3 Air Curtain Subcommittee met and generated the content for Systems and Equipment Handbook for review in 2016. Once we finalize the content, we will submit to the committee for review.
 - 4.1.c ASHRAE 90.1 and other Meetings that include Air Curtains
 - o Michael Ivanvich, AMCA's Director of Strategic Energy Initiatives, recommended that members of this committee attend 90.1 envelop committee meeting to address questions from committee members. Please note that if anyone else knows of other committees that include air curtains as one of their topics of discussion, please let us know. We had lunch with few 90.1 members and they suggested we contact TC4.3 – Ventilation Requirements and Infiltration. The chair is Steve Taylor and we should get feedback from the committee on what the air curtain subcommittee needs going forward.
 - 4.1.d ASHRAE RTAR
The TC 5.3 Air Curtain Committee has decided not to pursue ASHRAE funding until the Concordia University study has been complete, due to timelines.
 - 4.2 Testing and Funding

Funding of additional CFD studies for Air Curtain Effective through Concordia University, Montreal, CN are being privately funded by (3) air curtain manufacturers. Energy Pro will replace Transys as the simulation software in this third phase of the study. We are also looking at options for future lab testing of air curtains to confirm CFD results.

4.3 IGCC

The IGCC Subcommittee approved the revised air curtain language for the IGCC 2015 cycle. The final committee voting to be held during 2014 Annual Conference and Group C Public Comment Hearings, September 28 - October 5, 2014 at Fort Lauderdale, Florida. Mars, Berner and possibly other will attend the meeting to testify on behalf of the industry. We will be working with ICI and AMCA, to navigate through the process.

4.4 DOE

An exclusion letter to the environmental advocated, drafted by the ACEC to exclude air curtains in the current DOE regulation cycle. We are still currently working with the advocates for a resolution.

35. New Business

5.1 Asked to represent AMCA in 90.1 Envelop Subcommittee

5.2 Joe Brooks to report back to MTG.EAS status of air curtain project

5.3 Joe Brooks will keep line of communication to TC 5.1 regarding future funding of air curtain effectiveness study.

36. Next Meeting

37. Adjournment

Appendix 7.

**TC5.3 Room Air Distribution
Subcommittee on Underfloor Air Distribution (UFAD)
2014 Summer Meeting Minutes
Seattle, WA**

Tuesday July 1, 2014; 8:00 to 10:00AM
Washington State Convention Center, Sixth Floor, Room 614

1. The meeting was called to order at 8:00 am by Jim Megerson
2. An attendance sheet was circulated. The attendees are listed below.

Name	Affiliation	e-mail
Jim Megerson	Design Mechanical, Inc.	jmegerson@dmi-kc.com
Randy Zimmerman	Titus	rzimmerman@titus-hvac.com
Bill Reynolds	Tate Access Floors	breynolds@tateinc.com
Peter Strapp	Tate Access Floors	pstrapp@tateinc.com
Don Larson	Hoffman & Hoffman	Don.larsson@hoffman-hoffman.com
Gus Faris	Nailor	gfaris@nailor.com
Curtis Peters	Nailor	cpeters@nailor.com
Jack Stegall	Energistics Lab	jstegall@energisticslab.com
Michael Tardif	Natural Resource Canada	mitardif@nrcan.gc.ca
Jack Geortner	Johnson Controls	Johm.m.geortner@jci.com
Ryan Johnson	Price Industries	ryanj@price-hvac.com
Chris Burroughs	Price Industries	Chrisbu@price-hvac.com
Jerry Sipes	Price Industries	jerrys@price-hvac.com
David Pich	Titus	dpich@titus-hvac.com
Chad Huggins	Krueger	chuggins@krueger-hvac.com
Walter Horn	WH Engineering, Inc.	Walter.d.horn@gmail.com

3. General – Jerry Sipes discussed that it might be better to schedule future UFAD subcommittee meetings on Sunday prior to the Research meeting. It was generally agreed to by the group.
4. Handbook – All UFAD information has been moved to 2015 Applications. References to the 2003 UFAD design Guide have been updated to refer to the 2013 UFAD Design Guide.
5. Publications – It was discussed that there seems to be a need for a UFAD User Guide. This document would focus on operation and maintenance of UFAD systems. Bill Reynolds volunteered to assemble a draft outline for this document and distribute in October 2014 for comment before finalizing at the Winter Meeting in Chicago.
6. Guss Faris brought up that an ASHRAE Journal Article on the history of UFAD might be interesting. Jack Geortner volunteered to head up putting together an article with Gus's help.

DRAFT – Minutes are not official.

7. Program – It was discussed that a program/ seminar could be organized around commissioning of UFAD. Jack Geortner and Chris Burroughs volunteered to pull together a seminar for submission under Track 1 for the Atlanta Summer Meeting. Preliminary title of Integrated UFAD Design Approach.
8. Research – Several potential research topics were discussed. Jerry Sipes stated that if someone wanted to propose research that they should draft an RTAR and distribute before the Chicago meeting so that it can be added to the agenda for the Research subcommittee meeting.
9. Meeting was adjourned.

Respectfully submitted,

James E Megerson, PE, LEED AP
Design Mechanical, Inc.
Kansas City, KS