

**ASHRAE Technical Committee 5.12: Ventilation Requirements & Infiltration
2005 WINTER MEETING Minutes**

Monday, February 7, 2005, 4:15-6:30 pm
Grosvenor Hotel, Salon IX (M), Lake Buena Vista (Orlando), FL

Subcommittee Meetings:

Handbook: Sunday, February 6, 2005, 5:00-6:00 pm, Wyndham Hotel, Captain (L)
Program: Sunday, February 6, 2005, 6:00-7:00 pm, Wyndham Hotel, Captain
Research: Monday, February 7, 2005, 2:15-4:15 pm, Grosvenor Hotel, Salon IX (M)
PMS for 1167-RP, Sunday, February 6, 2005, 4:00-5:00 pm, Wyndham Hotel, Captain
PMS for 1169-RP, Monday, February 7, 2005, 1:00-2:15 pm, Grosvenor Hotel, Salon IX (M)

Scope: *TC 5.12 is concerned with ventilation, infiltration, airflow around buildings, and the reentry of exhausts, including their interactions with indoor air quality, HVAC system performance, and energy consumption.*

1. Welcome & Introductions

- Voting members sit at the table; all sign the attendance list and include contact data
- TC web site: <http://tc512.ashraetcs.org/>
- Distribution of agenda & minutes package

2. Attendance & Quorum Check

Voting members for this meeting: *Carter, Emmerich, Griffiths, Medina, Modera, Reardon, Stathopoulos, Taylor, Walker, Liddament (IM), Olesen (IM) (scheduled to roll-off after 2005 Annual Meeting)*

There was some confusion about voting status, so the membership may not have received the 2004-2005 roster from HQ.

(quorum > 1/2 all VM, excl. IM; super maj. $\geq 2/3$ VM present; simple maj. > 1/2 VM present)

3. Approval of Nashville Meeting Minutes (distributed at this meeting).

Brief pause while members and guests reviewed draft minutes for corrections needed. Errors: (a) Doug Dale was not here, remove mention from heading Other Research ideas, (b) attendance list requires corrections

4. Announcements & Liaisons

- Liaisons
 - TAC (Int-Hout): *not present*
 - RAC (Kohloss): *Present at subcommittee meeting. Discussion regarding use of 7.5 cfm/person for school ventilation. Reference was made to current TC 2.1 research project.*
 - Handbook (Rock): *Passed along thanks from Flemming for the getting the 2005 HOF submittals in on time. Announced due date for Applications chapter is April 12, 2006.*
 - Standards (Hogan): *not present*
 - Program (Brambley): *not present*
 - Education (Hydeman): *not present*
 - CTTC (Circosta): *not present*
 - Special Publications (Ferguson): *not present*
 - ALI: ASHRAE Learning Institute (Boome):
Boome not present. Wray to investigate, may now be professional development committee. Yuill volunteered to be new liaison to ALI (or PDC as appropriate)
 - EHC: Environmental Health Committee (Cardenal): *not present*

- ARTI: Air-Conditioning & Refrigeration Technology Institute (Emmerich):
www.arti21cr.org
Slowly contracting program and are now down to one committee with a few ongoing research projects. Emmerich is chair of one ongoing research project regarding residential ventilation systems. Phase II of dispersion around a rooftop HVAC unit is ongoing.
- Announcements
 - Section 5 meeting announcements (Reardon): *Regina Stafford, Asst. to MORTS, retired from ASHRAE on Dec. 10, 2004. Tara Thomas is her replacement; Reminded to keep references up to date for handbook chapters; Clima 2005 promoted their meeting; Society is moving management by objective to TC level; website use encouraged - training to be provided in Denver; reminded TC chairs to look at manual of procedures (MOP) - available on the web; Reardon received list of requests for Corresponding Members; there was a training session for incoming TC chairs; discussions of sale of seminar recordings - no reason for TCs not to post theirs on website but server space may be an issue.*
 - Web Site: *Reardon thanked rock for all work to set up initial web site. Emmerich is now webmaster - thanks to Polidoro for doing actual work.*
 - E-communication: *aliases are now available for TC chairs, Section Heads and Liaisons, a full list to be published in Denver. For example: tc0512@ashrae.net*

5. Subcommittee Reports

- a. Research (Walker):
Beginning after the Denver 2005 Annual Meeting, RTARs will be able to be submitted three times per year.
 - Active Research:
 - **“Heat Transfer During Residential Infiltration/Exfiltration”**
1169-RP (PMS: *Reardon/Griffiths/Medina*): **Motion to recommend to MORTS no-cost extension to March 1, 2005 passed (Walker/Carter: 5-0-1-CNV).** *Final project report sent to PMS. PMS to letter ballot the final report. Will need another no-cost extension to March 1st 2005. Extrapolation of measurement agreement to CFD “conclusions” needs to be reviewed (Reardon/Dale). Overall impact is very small – not an issue of concern. Need a post-completion report (put in MORTS box after meeting by Walker). PMS received revised final report through ASHRAE in December, including appendixes. Two technical papers have been submitted:*
Infiltration Heat Recovery, Part 1, Field Studies in an Instrumented Test Building, RP-1169V
Infiltration Heat Recovery, Part 2, Laboratory Studies of Two Test Panel Geometries, RP-1169
 - **“Indoor Environmental Effects on the Performance of School Work by Children”, 1257-RP** (PMS: *Sipes/Reardon/Federspiel*): *PMS report at TC2.1 Research Subcommittee Meeting Sunday, 6 February 2005, 3:00-5:00PM. Fall experiments completed with fresh air through opened windows. TC 2.1 Research Subcommittee members concerned that the ventilation rates not being adequately measured, and that CO2 source strengths of students not correctly understood by PI. PMS Liaison Reardon does not have copy of progress report. Need to provide some input on ventilation rates using CO2 as an index. Sunday 3-5 is when TC 2.1 meets. Work is continuing.*

- **“The Effect of Ganging on Pollutant Dispersion from Building Exhaust Stacks” 1167-RP** (PMS: Chen/Kato/Wilson/Ratcliff): *PMS Chair Yan Chen. Reardon report for Yan Chen: CFD simulations are requiring extraordinary processor times, so cases (and data generation) intended to have been addressed by CFD may need to be addressed in the wind tunnel tests. The PI will sort out logistics and provide conclusions regarding feasibilities to the PMS Chair. Work is continuing.*
- **“Multiple Space Effects on Ventilation System Efficiency in Standard 62” 1276-TRP** (PES: Taylor/Wray/Reardon/Emmerich): *JTR successfully defended the recommendation of the sole bidder as the contractor, at both the RAC and Tech Council meetings on Wednesday morning in Nashville. PMS Chair report Taylor. Project underway. Getting data from Les Christensen (sp?) is proving to be a problem, but the work can continue without this data.*
- **Long-Range Research Plan (LRRP) for 2004-2005 (was submitted August 01, 2004): Motion that the priority LRRP as listed below be approved, passed (Walker/Emmerich: 5-0-0-CNV)**
 - 1) **“Minimum Acceptable Dilution of Commercial Kitchen Exhaust”** with TC 5.10 (Carter/Cardenal/Ratcliff/Wyon): *RTAR was revised as requested and was resubmitted with this Long Range Research Plan as TC 5.12’s 1st priority (RTAR 2005-40) – returned by RAC RTAR-04-0512-01377 in October 2004. Carter to revise with help from TC5.10 and resubmit.*
 - 2) **“Dilution and Normalized Concentration Design Criteria for Laboratory Exhaust”** (Petersen): *(RTAR approved and assigned Priority status by RAC in October 2001.) RAC comments to be incorporated into the Work Statement by Ron Petersen. RAC comments were forwarded from Jim Reardon to Ron.*
 - 3) **“Influence of noise effects on usage of mechanical ventilation in residences”** (Yuill): *Gren Yuill has prepared an RTAR. Went to 62.2 for comments. Gren to edit this and then bring to TC 5.1 Fans and 5.10 kitchen ventilation for input.*
 - 4) **“Simplified Procedure for Calculating Exhaust/Intake Separation Distances”** (Wilson/Taylor/Carter/Petersen): *RTAR and WS status update. John Carter & Ron Peterson are of the opinion that that attempts to further simplify the procedure that exists in the handbook (AHRN-70), which is already inadequate, is not likely to be successful. Discussion followed about re-writes to Handbook Chapter and possibly look at what is/was in Standard 62 (largely empirical - Taylor) or the Green code (Fred K). Need a WS this year. It may be that the result of the research would show that further simplification would not make sense (Carter/Taylor). Carter to draft a WS for next meeting.*
 - 5) **“Characterization of Infiltration and Ventilation in Mid- and High-Rise Multifamily Buildings”** (Emmerich/Reardon/Hill): *Steve Emmerich had a couple of replies to insights request for input from designers – but got input from researchers sharing research results. Emmerich and Modera will work to refine the focus of the existing version of the RTAR.*
 - 6) **“Transport of pollutants between house and garage.”** (Yuill): *Co-sponsor - 62.2 research subcommittee: NIST and CMHC have looked at this. Steve E. has data from four houses. Gren Yuill to write RTAR.*

- Other research ideas ():
 - Backdrafting from flued appliances is a contentious issue still for 62.2. *Research may be needed. Wray and Yuill to work on this.*
 - Work Statements are requested from TCs 2.4, 5.12, 9.6 & 9.12 by Tech Council's Ad Hoc committee of Hermans, Halstrom, Persily on SARS
 - Tech Council has referred to TC 5.12 the Regions Council motion that ASHRAE contract for research on effectiveness of reduced classroom ventilation rates based on the North Carolina Building Code's claimed lack of problems at 7.5 cfm per person.
 - The California Air Resources Board (ARB) announced Nov 10, 2004 the release of RFP 04-310, titled "Ventilation and Indoor Air Quality in New Homes", Bob Aldrich.
 - Chandra Sekhar: From TC 1.2 (measurements and instruments) from Jan Sundell. Measurements of air change rates in occupied homes.
- **Co-Sponsor Requests**
 - Tall buildings infiltration: *This is an issue that this Research Subcommittee feels can already be done with existing knowledge, and research doesn't need to be undertaken. However, TC 5.12 perhaps should improve description of how to do this in our handbook chapters. Walker will correspond with RAC liaisons for Sections 5 and 9 and will send around the RTAR for comment by the membership of TC 5.12.*
- Relevant research of other TCs:
 - TC 1.2, RTAR-04-0102-01350 "Measurements of Air Change Rates in Occupied Homes": *Accepted by RAC in on November 2004 Research Plan. The topic refers to continuous measurement of health and energy relevant air change rates. The objective is to develop a MOT that is cheap and does not require sophisticated expertise. Jan Sundell is the author of the RTAR David Yuill to discuss with TC 1.2. Walker to copy and send pdf to TC 5.12 members and will also correspond with Section 1 and Section 5 RAC Liaisons.*
 - TC 5.2, RTAR-04-0502-01369 "Snow Penetration at Louvers": *Returned by RAC November Oct 2004.*
 - TC 5.3, RTAR-04-0503-01373 "Air-change Effectiveness with Stratified Air Distribution Systems": *Accepted by RAC November 2004.*
 - TC 2.2, 1301-TRP "Quantification of Ventilation Effectiveness for Air Quality Control in Plant and Animal Environment": *Jianshun Zhang, CM serving as TC 5.12 liaison and representative on PES/PME.*

ISW provided e-copy of RSC report/LRRP to JTR/JJC on diskette.

b. Program (Griffiths):

- Orlando, 2005
 - Steve Hancock, liaison from TC 8.11, brought invitation to co-sponsor Forum for Denver "What is the Role of Unitary Equipment in Meeting Ventilation Requirements for Std 62.2" <mailto:steve.hancock@trane.com>
 - Orlando, Seminar 3 "Design and Constructing Buildings in Hot and Humid Climates" Sunday 6 February 2005 8:00-10:00 AM (Cardenal): *Chandra Sekhar reported, he was one of the speakers, and there was a large and interested audience who engaged in the discussions.*
 - Orlando, Seminar 19 "What's New With Standard 62.2?" Sunday 6 February 2005 1:00-3:00 AM (Emmerich): *Emmerich reported 50 to start and audience grew. Engaging*

discussion followed each paper. Emmerich asked for guidance regarding posting the Power Point files for each presentation in this seminar. Wray reported on draft “Objection Form Policy” being considered by APC. Our previous in-house policy has been, with permission by individual authors/presenters, that the session chair, the Program Subcommittee Chair, and the TC Chair approve each file for posting. Emmerich refused to allow his presentation to be included on the Seminar DVD for this meeting, due to institutional concerns at his employer. Emmerich will ask his presenters and forward what is available.

- Orlando, Seminar 54 (co-sponsored with SSPC62.1) “How to comply with ASHRAE 62.1-2004”, Wednesday 9 February 2005 10:15-12:15 PM (Howard): No report.
- Proposed or planned program elements for
 - Denver – June 2005: Motion to approve priorities as listed for program submission for Denver Meeting, passed (Griffiths/Modera: 6-0-0-CNV) two bumped forums, originally proposed/submitted for Orlando:**
 - (1) Forum “Can You Design an Exhaust Stack Using the Building Air Intake and Exhaust Design Chapter of the HVAC Applications Handbook?” (Carter)
 - (2) Forum “What Should be in the 62.2 Companion Guideline?” (Emmerich)
 - (3) Forum “Should Standards 119,136 and 129 Be Adopted into Codes?” (Blatt)
 - (-) Symposium proposed “Air Leakage Performance for Non-Residential Buildings” (Parekh): no progress or news reported or known. EMMERICH was Program Subcommittee Chair for TC 4.10 for years – advised that you must keep in close touch with volunteer chairs.
 - Future Meetings
 - Chicago - January 2006**
 - Symposium “Ventilation in Hot and Humid Climates” (Griffiths/Lstiburek?)
 - Seminar “Addenda for Standard 62.2” (chair to be recruited by Emmerich from SSPC 62.2)
 - Seminar “Designing hybrid and mixed-mode ventilation systems in commercial buildings” (Taylor), Emmerich offered a paper, European contributors, MIT . MHS suggested issuing a call for paper – on-line with Mary McGee’s help. Maybe turn this into a symposium for a later meeting.
 - Quebec City - June 2006**
 - Symposium “Evaluation of CFD for Modeling External and Internal Flows” (Carter): three papers are on their way, but one may hold this up until Quebec.
 - Symposium “Design for ETS in Hospitality Facilities” (Wray)
 - Symposium “Innovation and Advances in Integrated Building Design” (Haghighat) – should request co-sponsorship by TC 7.1.
 - Other**
 - Symposia: “Airflow Around Buildings”, “Air Leakage Performance for Non-Residential Buildings” (Parekh), “Infiltration Heat Recovery”, “Ventilation in Hot and Humid Climates” (Lstiburek)
 - Seminars: “Chapter 43”, “What Should be in the 62.2P Companion Guideline?”, , “Residential Ventilation Design”,
 - Forums: “62.1 Issues”, “62.2 Issues”,

c. Handbook (Carter):

- Society-wide Handbook series rewrite: *all members are encouraged to review and comment on all chapters - Rock has available copies of the official reviewers and revisers guide.*
- 2005 Fundamentals Special Review: *update*
- Building Air Intake and Exhaust Design (AHRN-43): *review/revision for the 2007 Applications volume is underway, led by Wilson, assisted by Carter, Ratcliff and Petersen.*
- Airflow Around Buildings (AHRN-70): *Carter is lead reviser for 2009*
Ventilation and Infiltration (AHRN-80): *Walker lead for 2009 with help from Emmerich, Rock & Yuill. Rock has also prepared a pdf contribution regarding the ASHRAE HQ design charrette exercise.*
- *Carter recommends that future meetings of Handbook Subcommittee be scheduled for only one half hour due to small attendance. It was noted that the TC Chair can appoint members to these subcommittees.*

d. Standards (Emmerich):

- TC 5.12 is the cognizant TC for:
 - **62-2001/SSPC 62.1**, Ventilation for/and Acceptable IAQ (in Commercial, Institutional, and High-Rise Residential Buildings): *Finally published with new ventilation rates, a sell-out already by Saturday morning. The Users Manual is well underway with the contractor expected to deliver it by May 2005. A guideline is underway using the outline produced by SSPC 62.2. Addendum that fixes the Relative Humidity limits is well along. Addendum G addressing transfer of air from ETS areas to non-ETS areas has been approved for publication. Unofficial word is that David Butler plans to retire, Dennis Stanke served as Acting Chair at Orlando meeting. Future Chair is unknown.*
 - **62.2-2003/SSPC 62.2**, Ventilation and Acceptable IAQ in Low-Rise Residential Buildings: *Published in 2004 including its two addenda. The appeals to ANSI in November 2004 were rejected, and the appeal rejection is being appealed by the American Gas Association. Work to begin soon on a Users Manual. Work, not so far along on getting work started on the Companion Guideline. Work on several addenda is continuing. Several research topics suggested by MHS.*
 - **119-1988 (RA04)**, Air Leakage Performance for Detached Single-Family Residential Buildings: *recently released for Public Review for reaffirmation with editorial updates.*
 - **136-1993 (RA01)**, A Method of Determining Air Change Rates in Detached Dwellings: **Motion to recommend to SRS that Std 136 go out for Reaffirmation Public Review, and that it will adopt dual-units, primary I-P rational, secondary SI rational passed (Emmerich/Modera:6-0-0-CNV)**
Requires action at this meeting: Reaffirm, Revise, Reject. Mark Weber has reported to EMMERICH on staff review of existing Std. It is used as a reference in Std 62.2. SSPC 62.2 feels that its key parts should be incorporated into future versions of Std 62.2. Also, before recommending discontinuance of Std 136, should determine whether it is referenced by other active standards and regulations. EMMERICH has reviewed it for currency of its references. John Hogan our SC Liaison and will take this result back to ASHRAE Standards Committee.
 - **SPC 161P** (Cognizant Committee, TC 9.3 is Lead), Air Quality Within Commercial Aircraft: *Modera SPLS Liaison reported that SPLS rejected recommendation to put it*

out for Public Review, SPC voted to send out both the standard and its guideline for PR, which now goes up to SPLS.

- Others of interest:
 - **129-1997** (TC 5.3), Measuring Air Change Effectiveness: *no activity to report.*
 - **152-2004** (TC 6.3), MOT ... Residential Thermal Distribution Systems: *was published in 2004. A revision SPC will probably be formed in a year or so.*
 - **GPC 10** Impact of IE on Occupants: *voted to put out for PR*
- **ETS Design Guide:** *update (Persily PMS Chair/Rock PI)*
- New standards ideas:
 - ASHRAE Standard on Evaluating Energy Efficient Buildings: *Inaugural meeting. Monday 7 Feb 10:00-noon, Westminster Room in the Wyndham Hotel, chaired by Gerald Kettler (Chair TC 7.9).*
 - Proposed new standards policy being deliberated in SAC involves Standards 62 explicitly: *nothing to report, BOD meets on Thursday morning.*
- e. Honors (Cardenal):
 - Membership upgrades (associate member to member, fellow, life, etc.)
 - Distinguished Service Award (15 pts.), Exceptional Service Award (45 pts.)
TC members recently recognized: Rock, Taylor, Wray – 2004 Annual Mtg.
 - Other honors & awards: Brian Rock has been elected to Fellow of ASHRAE.
 - Our Honors Subcommittee needs to consider submitting a nomination for the Hightower award of superlative service on a TC over the past year. CPW encourages us to act!

6. Old Business

- Technical Bulletins/FAQs (Reardon): *The A's provided by Art McIvor on behalf of the TC reside on the ASHRAE website. It was suggested that someone should be put in charge of FAQs.*

7. New Business

- 2004-2005 Roster Changes: rollovers, new members, subcommittee assignments. (*due to TAC Section 5.0 Head by end of February*). Gren Yuill to Voting Member.
- Adjourned at 18:18
- Next meeting: June 27, 2005, ASHRAE Annual Meeting, in Denver, Colorado

Attendance listing table – checked off by chair, Jim Reardon

First	Last	Affiliation	Email
Voting Members			
John	Carter	CPP	jcarter@CPPWIND.com
Steve	Emmerich	NIST	steven.emmerich@nist.gov
Dianne	Griffiths	Steven Winter Associates	dgrif@swinter.com
Jim	Reardon	National Research Council Canada	James.Reardon@nrc.gc.ca
Mark	Modera	Carrier Aerospace	Mark.Modera@carrier.utc.com
Iain	Walker	LBNL	iswalker@lbl.gov
Jianshun	Zhang	Syracuse University	JSZhang@syr.edu
Corresponding Member			
Brian	Rock	University of Kansas	hvacman@ku.edu
Max	Sherman	LBNL	MHSherman@lbl.gov
Steve	Taylor	Taylor Engineering	staylor@taylor-engineering.com
Theresa	Weston	DuPont	theresa.a.weston@usa.dupont.com
Craig	Wray	LBNL	CPWray@lbl.gov
Others			
*Jason	Alphonso	ASE, Inc. (TC 9.6 Liaison)	jasona@ufl.edu
Doug	Dale	University of Alberta	Doug.dale@ualberta.ca
Richard	Grot	Lagus Applied Technology	ragrot@tracergas.com
John	Hogan	City of Seattle	John.Hogan@seattle.gov
†Chandra	Sekhar	National University of Singapore	bdgscs@nus.edu.sg
Dennis	Stanke	Trane	dstanke@trane.com
John	Talbott	Talbott Consulting	jmtalbott@Comcast.net
Gren	Yuill	University of Nebraska at Omaha	Yuill@unomaha.edu
Raoul	Webb	Raoul A. Webb, P.E.	Raoul.webb@verizon.net
†Chandra Sekhar has asked to become a Voting Member			
* Jason Alphonso asked to become a Corresponding Member.			