

**ASHRAE Technical Committee 4.3: Ventilation Requirements & Infiltration**  
**2006 ANNUAL MEETING Draft MINUTES**

Monday, June 26, 2006, 4:15-6:30 pm

Quebec Convention Center, 205A (2)

**Subcommittee Meetings:**

|              |                                   |                                |
|--------------|-----------------------------------|--------------------------------|
| Research:    | Monday, June 26, 2006, 2:15-4:15p | Quebec Convention Center, 205A |
| PMS 1167-RP: | Sunday, June 25, 2006, 4:00-5:00p | Quebec Convention Center, 208A |
| Handbook:    | Sunday, June 25, 2006, 5:00-6:00p | Quebec Convention Center, 208A |
| Program:     | Sunday, June 25, 2006, 6:00-7:00p | Quebec Convention Center, 208A |

*Sponsoring: Seminar 43. Ventilation and IAQ: The New Standard 62.1 User's Manual; Seminar 78. IAQ and Carbon Monoxide Issues Related to Attached Residential Garages; Poster Session 13. Infiltration Heat Recovery, Part 1: Field Studies in an Instrumented Test Building (RP-1169) (QC-06-056) and Poster Session 14. Infiltration Heat Recovery, Part 2: Laboratory Studies of Two Test Panel Geometries (RP-1169) (QC-06-057)*

**Scope:** TC 4.3 is concerned with ventilation requirements and the analysis of infiltration, airflow around buildings, and exhaust re-entry, including their integration with indoor air quality and energy calculations for building and HVAC system design and operation.

**1. Welcome & Introductions**

- Chairman Steven Emmerich called the meeting to order at 4:15 pm
- Voting members sit at the table; all please 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, Schoen, Stathopoulos, Walker, Yang, Yuill, Zhang, Liddament (IM), Olesen (IM)

Those attending are underlined, a quorum was established

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

**3. Approval of Chicago Meeting Minutes** (distributed at this meeting): minutes were reviewed and approved, with the correction that SPC152P be changed to SPC152-2004 [**8-0-1** (For-Against-Abstain)].

**4. Announcements & Liaisons**

- Update on letter ballots since Chicago meeting (*Emmerich*):
  - 1) To approve TC 4.3 Scope Change: Motion passed 11-0-0.
  - 2) To approve revised FAQs: Motion passed 8-0-1.
  - 3) To submit MURB RTAR: Motion passed 10-0-3.
  - 4) To submit Commercial Kitchen RTAR: Motion passed 8-1-4.  
(Note: will be revised to address negative vote before submittal.)
  - 5) To submit Refrigerant Exhaust RTAR: Motion passed 10-0-3.
  - 6) To approve Applications Handbook Chapter 44: Motion passed 9-0-0.
  - 7) To approve Handbook example: Motion failed 6-4-1.
- Society liaisons

- TAC (*Wray*)
  - (1) The Society has approved a new Strategic Plan. Available at <http://www.ashrae.org/strategicplan>
  - (2) TAC is re-organized with more focus on guidance for whole building design and operating/maintenance cost issues. Section 4 is working with section 7 (building performance) for TRG.
  - (3) Future research should be related to the Strategic Plan.
  - (4) Section 4 will provide activity report including what has been accomplished, plan for the next year, how the objectives are met, etc.
  - (5) New section 4 head Suzanne LeViseur was introduced.
  - (6) Need web-based format of handbook. Section 4 has established a goal to develop a plan by the end of September for making chapters available on the web.
- RAC Brandemuehl, attended the Research Subcommittee meeting
- Handbook 2007 Rock visited Handbook Subcommittee meeting  
2009 Coad, not present
- Standards Reeves, not present
- Program Fedelman,
- CTTC Abernathy, not present,
- PDC De Bullet, not present
- Spec.Pubs Ferguson, not present
- Section 4 Chairs breakfast meeting announcements (*Emmerich*)
  - Volunteers are being sought to review the Society's existing position document on Energy (available on-line). Contact Mike Vaughn or Steve Emmerich for more information.
  - Volunteers are being sought to help respond to technical questions from university students competing in the national Solar Decathlon Design Competition. Contact Mike Vaughn or Steve Emmerich for more information.
  - ASHRAE is now accepting abstracts for the Indoor Air Quality 2007 (IAQ 2007) titled Healthy and Sustainable Buildings. Other upcoming ASHRAE Co-sponsored and related conferences include SimBuild 2006, Roomvent 2007, Clima 2007, Indoor Air 2008, Building Simulation 2007.
  - A password-protected link to each TC or TG roster for Society year 2006-2007 will be emailed to all members of the TC or TG. This TC's website still needs to be updated (from 5.12 to 4.3) and will include a members only section.
  - ASHRAE President has offered to send letters to employers thanking them for supporting their employees who have participated in ASHRAE TCs and TGs this past society year. Please contact Steven Emmerich if interested.
  - Volunteers are being sought to serve for Strategic Plan groups. Zhang volunteered for Group 3. Reardon/Taylor volunteered for Group 1.
- PDC: ASHRAE Professional Development Committee (*Sekhar*)  
No report.
- EHC: Environmental Health Committee (*Schoen*)  
The new leadership of EHC is re-organizing the EHC subcommittee structure to focus on research and education & outreach. The future plans include addressing what is acceptable IAQ in sustainable buildings and a position document on vent-free combustion appliances.

- ARTI: Air-Conditioning & Refrigeration Technology Institute (*Emmerich*)  
Research projects: an ongoing simulation study of residential ventilation options to meet Standard 62.2 should be completed soon.

## 5. Subcommittee Reports

### a. Research (*Walker*):

#### ○ General:

There are new rules for WS authors to bid for a project. WS authors are eligible bidders as long as: (i) WS has at least three co-authors, (ii) there are at least three responsive bids scored higher than 70, (iii) the WS author/bidder prices his/her project more than 90% of the estimated cost in WS, and (iv) project cannot be awarded to the WS author/bidder based on specialized test facility.

#### ○ Active Research:

- “The Effect of Ganging on Pollutant Dispersion from Building Exhaust Stacks”  
1167-WS (PMS: *Chen/Kato/Ratcliff*).

PMS report: PES met with PI and went through the project work. Contractor has completed over 80 wind tunnel measurements. End of 06 final report is done. Project will be completed in August 2006. Meet the project deadline.

- “Indoor Environmental Effects on the Performance of School Work by Children”,  
1257-TRP (TC2.1; PMS: *Sipes/Reardon/Federspiel*)

PMS report: TC2.1 has approved a 6-month no cost extension. PI is preparing the final report. Two papers have been published in Transactions. One more paper to come.

- “Multiple Space Effects on Ventilation System Efficiency in Standard 62”  
1276-WS (PMS: *Taylor/Wray/Reardon/Walker*)

PMS report: Project was broken into two parts. Part 1 results look correct and encouraging. One paper is being prepared. Contractor requested no-cost extension through end of February 2007. Motion to approve passed **9-0-0**

- 1301-TRP “Quantification of Ventilation Effectiveness for Air Quality Control in Plant and Animal Environment” (TC 2.2; PMS: *Zhang/...*)

PMS report: project is on schedule and in good progress.

#### ○ Long-Range Research Plan (LRRP):

- 1) “Characterization of Infiltration and Ventilation in Mid- and High-Rise Multifamily Buildings” RTAR 1425 (*Emmerich/Reardon/Hill*)

RTAR is approved. WS to be written by Emmerich with help from Parekh, Hill, and others.

- 2) “Ventilation requirements for refrigerating machinery rooms” (*Taylor*)  
RTAR is approved. WS to be written by Taylor.

- 3) “Minimum Acceptable Dilution of Commercial Kitchen Exhaust”  
(*Carter/Cardenal/Ratcliff/Wyon*).

RTAR to be revised by Carter and sent to TC for new letter ballot.

- 4) “Transport of pollutant between houses and attached garages”  
(*Brennan/Emmerich/Yuill/Walker*)

RTAR returned with comments to be rewritten by Brennan/Emmerich. (SSPC 62.2 is the lead.)

- 5) “Occupant Response to the Noise of Residential Ventilation Fans ” RTAR 1426 (*Yuill*). Comments back from RAC. Yuill to revise.
- Other research ideas:
    - Measuring envelope air tightness in tall buildings (non-residential). Emmerich to draft RTAR.
    - Definition of standard office environmental conditions for evaluating IAQ control strategies. Zhang to draft RTAR.
    - Submit new research ideas to new Subcommittee chair Jensen Zhang.
  - Relevant research of other TCs:
    - TC 1.2, RTAR-04-0102-01350 “Measurements of Air Change Rates in Occupied Homes”. No report
    - TC 5.3, RTAR-04-0503-01373 “Air-change Effectiveness with Stratified Air Distribution Systems”. No report
    - EHC: Ongoing project “ASHRAE RP-1443 Scientific Review of Existing Information Related to the Impact of Ventilation Related to Health”. Expect report by winter.
  - b. Program (*Griffiths*):
    - Quebec City, Seminar 43 “Ventilation and IAQ: The New Standard 62.1 User's Manual” (*Rock*) Monday, June 26, 2006 10:45 AM-12:15 PM. Very well attended with a packed room of some 70 people.
    - Quebec City, Seminar 78 “IAQ and Carbon Monoxide Issues Related to Attached Residential Garages” (*Emmerich*) Wednesday, June 28, 2006 10:45 AM-12:15 PM
    - Poster Session “Infiltration Heat Recovery, Parts 1 and 2”, RP-1169.

Proposed or planned program elements for:

- Dallas – January 27-31, 2007 (Submittal packages due Aug. 4, 2006).  
Program Theme – *Get Energized in Dallas: Energy Efficient Strategies for Buildings*
  - Seminar “Ventilation and IAQ in Apartment Buildings”, Parts I & II (*Emmerich*) – Priority 1
  - Forum “Is ASHRAE done with ETS?” (*Rock*) – Priority 2
  - Seminar “New Developments in Modeling Hazardous Pollutants near Buildings” (*Carter*). Resubmitting so does not need a Priority ranking. May change the name. Note: should be ranked Priority 1 if needed.
  - Transaction Session “Ventilation in Hot and Humid Climates” (*Griffiths*). SSPC 62.2 is co-sponsoring. 3 papers in review, 1 other withdrawn after critical review. No Priority ranking needed.

**Moved that the first two program items proposed for Dallas be assigned the priorities as listed above [Motion passed 8-0-1].**

- Long Beach – June 23-27, 2007 (Deadline for papers Sept. 29, 2006, packages due Feb. 2007).  
Program Theme – *ASHRAE the Natural Way*
  - Transaction Session “Evaluation of CFD for Modeling External and Internal Flows” (*Carter*). TC 4.10 is co-sponsoring.

- Transaction Session “Air Leakage Performance for Non-Residential Buildings” (*Carter*). Seeking co-sponsorship from SSPC 90.1.
- Transaction Session “Commercial Ventilation” (*Taylor*). RP-1276 results, 2 papers.
- Seminar “Retrofit of Commercial Buildings to Reduce Air Leakage” (*Emmerich*)
- Seminar “What’s New in Residential Ventilation?” (*Martha Brook, CEC; Emmerich and/or LBNL to coordinate* ) Potential topics include the 62.2 User’s Manual and 2008 Title 24. Emmerich to get 62.2 co-sponsorship.
- New York – January 19-23, 2008
  - Transaction Session “62.1 Validation – The Multiple Spaces Methodology” (*Taylor*)
- Other Ideas
  - Transactions Session: “Evaluation of CFD for Modeling External and Internal Flows” (*Yang*).
  - Seminars: “Chapter 43”, “Residential Ventilation Design”, “Effect of Air Cleaning Equipment on Ventilation Requirements” (*Zhang*). “Duct Leakage” (*Modera*)
  - Forums: “62.1 Issues”, “62.2 Issues”
  - Submit new program ideas to the subcommittee chair
- c. Handbook (*Carter*):
  - Chapter 44 - Exhaust and Intake Design, 2007 Applications: Submitted.
  - Chapter 16 - Airflow Around Buildings, 2009 Fundamentals status: Stathopolous to lead with help from Wilson.
  - Chapter 26 - Ventilation and Infiltration, 2009 Fundamentals status. Rock to lead with help from Walker/Emmerich.
  - CD+: Goal to finish the Handbook example.
  - Section 4 initiating effort to put Handbook Chapters on the web.
- d. Standards (*Modera*):
  - TC 4.3 is the cognizant TC for:
    - 62.1-2004/SSPC 62.1, Ventilation for Acceptable IAQ (in Commercial, Institutional, and High-Rise Residential Buildings): No update.
    - 62.2-2004/SSPC 62.2, Ventilation and Acceptable IAQ in Low-Rise Residential Buildings
      - Two addendum to come out for public review
      - Six code change proposals to put pieces of 62.2 into ICC (Ask Emmerich for more details).
  - 119-1988 (RA05), Air Leakage Performance for Detached Single-Family Residential Buildings
  - 136-1993 (RA01), A Method of Determining Air Change Rates in Detached Dwellings  
SSPC 62.2 agreed with Standards Committee motion to accept cognizance for Std 136.
  - SPC 161P (CoC, TC 9.3 is Lead), Air Quality Within Commercial Aircraft  
A second Public Review Draft was completed.
- Others of interest:

- 129-1997 (TC 5.3), Measuring Air Change Effectiveness - no update
  - SPC 152-2004 (TC 6.3), MOT ... Residential Thermal Distribution Systems  
TC 6.3 voted to create revision committee for Std 152.
  - SPC 170 (TC 9.6) Ventilation of Healthcare Facilities- no update
  - TC6.3 is proposing a new standard to test air handler and furnace leakage. TC 4.3 voted to co-sponsor this new standards effort.
- New standards ideas to the Subcommittee Chair
- e. Honors (*Cardenal*):
- Membership upgrades (associate member to member, fellow, life, etc.)  
Max Sherman was elevated to distinguished fellow.
  - Distinguished Service Award (15 pts.), Exceptional Service Award (45 pts.)  
Yan Chen & Bjarne Olesen received Exceptional Service Award.  
Andrew Persily received Distinguished Service Award.
  - Other honors & awards (Hightower, Research Service, ...)  
Dennis Stanke received best Journal Paper award.
- f. FAQs (*Taylor*)
- g. Membership (*Yuill*)
- 2006/2007 Roster was distributed. Please send corrections to Emmerich.
  - Voting Members after 2006 Annual Meeting: Carter, Emmerich, Griffiths, Liddament (IM), Modera, Rock, Schoen, Sekhar (IM), Stathopoulos, Walker, Yang, Yuill, Zhang.
  - Subcommittee assignments after 2006 Annual Meeting:

| <b>Position</b>                     | <b>Name</b>           |
|-------------------------------------|-----------------------|
| <b>Chair</b>                        | Steven J Emmerich     |
| <b>Vice Chair</b>                   | John J Carter         |
| <b>Secretary</b>                    | Xudong Yang           |
| <b>Research Subcommittee Chair</b>  | Jianshun Zhang        |
| <b>Standards Subcommittee Chair</b> | Steven J Emmerich     |
| <b>Program Subcommittee Chair</b>   | Dianne M Griffiths    |
| <b>Handbook Subcommittee Chair</b>  | Iain S Walker         |
| <b>International Member</b>         | Martin W Liddament    |
| <b>International Member</b>         | Chandra Sekhar        |
| <b>Webmaster</b>                    | Steven J Emmerich     |
| <b>PDC Coordinator</b>              | Chandra Sekhar        |
| <b>Honors</b>                       | Bernardo Cardenal, PE |
| <b>Membership</b>                   | Gren Yuill            |
| <b>EHC Liaison</b>                  | Larry Schoen          |

6. **Old Business:** Emmerich attended first PMS meeting on building performance measurement scoping study.
7. **New Business:** ASHRAE may start a new project 'Advanced IAQ Design Guide'. Watch for more info when/it it becomes official.
8. **Adjourn**
  - o Next meeting: January 29, 2007, ASHRAE Winter Meeting, Dallas