

ASHRAE Technical Committee 4.3: Ventilation Requirements & Infiltration

2017 Winter Meeting

Meeting Minutes

Monday January 30, 2017, 4:15 pm-6:30 pm

Room Emperor I at Caesars

COMMITTEE AND MEETING INFORMATION

Subcommittee Meetings:

Research: During Main Meeting

Program: During Main Meeting

Handbook: During Main Meeting

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.

TC Web Site: <https://tc0403.ashraetcs.org/>

CALL TO ORDER

Voting Members					
	Name	Position	Company	Roll Off June 30	Present?
1	Josephine Lau	Chair	Univ of Nebraska-Lincoln	2018	Yes
2	Martin Stangl	Vice-chair	RWDI	2019	Yes
3	John Carter	Secretary	CPP	2017	No
4	Brian Rock	Handbook	The University of Kansas	2017	Yes
5	Ed Light	Member	Building Dynamics	2019	Yes
6	Mini Malhotra	Membership	Oak Ridge National Laboratory	2019	Yes
7	Nathan Ho	Member	P2S Engineering	2020	Yes
Non-Voting Officers					
	Steve Duda	Honors	Ross & Baruzzini, Inc.	-	Yes
	Steve Taylor	Research	Taylor Engineering	-	Yes
	Anil Parekh	Program	HBC – CanmetENERGY	-	No
	Xia Fang	Webmaster	McKinstry	-	No

Quorum > 1/2 all VM, excluding NQM; super majority $\geq 2/3$ VM present; simple majority > 1/2 VM present

APPROVE AGENDA

[Stangl/Light - 6/0/0]

APPROVE MINUTES FROM PREVIOUS MEETING

- a. [Rock/Malhotra - 6/0/0]

ANNOUNCEMENTS (TC Chair)

- b. ASHRAE members for SY 16-17 now have free online access to ASHRAE's Science and Technology for the Built Environment (STBE) through their existing ASHRAE.org account
- c. New ASHRAE Technology Portal is Now Available. The new ASHRAE Technology Portal provides easier free member access to ASHRAE Journal articles and ASHRAE Research Reports through a new robust search feature.

- d. Peer Review of Advanced Energy Design Guide for K-12 School Buildings: Achieving Zero Energy. (DOE, ASHRAE, AIA, IES, and USGBC) will be available for review and feedback from February 6 to February 17, 2017.
- e. New MTG.ACR – Air Change Rate (Steve Taylor as TC 4.3 representative)
- f. Updated TC Website Template – Initial Feedback, if any?

LIAISON REPORTS

Technical Activities Committee (TAC) (Michael Bilderbeck; presented by Dennis (section head)).

- TAC is trying to encourage subcommittees to have their meetings ahead of time via conference call.
- TAC looking for suggestions on track topics for Houston.

Standards (Cecily Grzywacz).

- No update

Conferences and Expositions Committee (CEC).

- No update

Handbook Committee (Harris Sheinman).

- No update

Professional Development Committee (PDC) – (Donald Brandt).

- No update

Special Publications (Francis Mills).

- No update

Environmental Health Committee (Josephine Lau).

- Drafting position document and emerging issues topics:
 - e-cigarettes
 - Physiological effects of CO₂ in indoor spaces
 - WS1657 – effectiveness of ventilation systems on infection control

SUBCOMMITTEE REPORTS

Research (Steve Taylor)

Research Subcommittee Meeting Chair Report

- 3 RTARS submitted and all accepted. RTAR volume is low.
- 33 innovative research grant pre-proposals submitted. 6 qualified.
- PMSs have to approve invoices

- Active Research Project Status

Name	Project	PMS	Status
RP-1450	Transport of Contaminants from Garages Attached or Integral to Low-Rise Residential Buildings	Mike Moore (chair) Steve Emmerich	Research is done, report is being written.
RP-1747	Implementation of RP-1547 CO ₂ -based Demand Controlled Ventilation for Multiple Zone HVAC Systems in Direct Digital Control Systems	Dennis Stanke (chair), John Murphy Raj Daswani Heejin Cho	All field testing is complete and on to simulations. Control sequences seem to be working. Asking for no cost 6-month extension to August 30 th Motion approved : [Ho/Rock] 6/0/0 Pls: U. of Alabama with Iowa State and Taylor Engineering. PMS meeting postponed.

- Pending Research Project Status

Name	Project	Champion	Status
Work Statement (WS)			
WS-1730	Pressure Coefficients and Pressure Drop for Standard Venting Strategies and Components in Residential Attic Spaces	TC 4.4 Anthony Fontanini Mike Ratcliff	Anthony is working on the WS. TC4.3 needs to vote to be co-sponsor once complete. March 15 deadline.
WS - 1819	RP-1547 follow-up for systems with multiple recirculation paths	Steve Taylor /Josephine Lau	Conditionally approved. TC5.3 will vote to co-sponsor on Jan 31.
Research Topic Acceptance Request (RTAR)			
RTAR (Pending)	Improve Dispersion equation around Hc crit	Ron Petersen	Need to convert URP to RTAR. TC4.3 needs to vote (email vote)
RTAR (Draft)	Characterizing the Performance of Entrained Flow Stacks	Brad Cochrane	To look at the characteristics of the exhaust plume at the top on an entrained flow exhaust (or any stack without fully developed flow). RTAR in draft. 5.1 and 9.10 also involved. Looking for 4.3 to co-sponsor.
Multidisciplinary Task Group (MTG)			
MTG	Idea of MTG around VOCs and VOC mixtures and what constitutes air quality.	Ed Light	Established tentative interest from four ASHRAE committees. Ed hopes to draft MTG proposal by next meeting.
New Ideas			
New	Moisture Generation Rates in homes	Iain Walker	RTAR in progress
New	Infiltration vs. Pressurization impact with ERVs		Tradeoff of reduced infiltration due to reduced exfiltration vs. energy recovery from exhaust air needs champion
New	What is the right ventilation rate for x?		Work to be moved to new ACH MTG discussed above - this will drop for now.
New	Cost effectiveness of sealing between floors in multistory buildings to reduce stack effect	Gren Yuill	
New	Cost effectiveness of code requirements to reduce multi-family internal partition leakage	Gren Yuill	both pollutant transport and energy conservation
New	1) Penetration factors 2) Loss rates to indoor surfaces in naturally ventilated spaces	Jordan Clark SSPC 62.1 (TC 2.3, 2.4, 4.3)	
New	E _z research (from 1-D to 2-D)	Jordan Clark TC4.10 TC5.3	
On Hold or Inactive			
Hold	Is CO ₂ a pollutant or an indicator?	Steve Taylor	On hold. Will let existing research mature/evolve

Regular deadlines: March 1 (for spring RAC meeting), May 15 (for June meeting), August 15 (for fall RAC meeting), December 15 (for January meeting)

Program (Anil Parekh)

Las Vegas program

City	Title	Type	Time	Chair/Speakers
Las Vegas	Toward a 21st Century Standard for Natural Ventilation: Review of existing and presentation of new research	Seminar 44	Tuesday, January 31, 2017: 9:45 AM-11:00 AM	Jordan Clark (Lead by TC 9.12) Commercial and Industrial IAQ Cosponsor by SSPC 62.1
Las Vegas	The Best of "Engineer's Notebook"	Seminar 66	Wednesday, February 1, 8:00 AM - 9:30 AM	Chair: John Kuempel, Co-Sponsor: 9.1 Large Building Air- Conditioning Systems,

Long Beach Tracks

- Track 1: Fundamentals and Applications

Track Chair: Frank Schambach

Email: frankschambach@mindspring.com

It's back to the basics! This track provides the foundation for design and construction of HVAC&R components and their application. This track seeks papers and programs of varying levels to provide discussion on theories, models, designs and shared experiences. Topics may range from fan laws and psychometrics to room air distribution and heat transfer and much more.

- Track 2: HVAC&R Systems and Equipment
- Track 3: Refrigeration
- Track 4: Building Life Safety Systems
- Track 5: Controls
- Track 6: Commissioning: Optimizing New and Existing Buildings and their Operation

Track Chair: Dennis Alejandro

Email: denziac@yahoo.com

High efficiency building systems come at a cost, and after the owner's initial investment it is important to verify that the system components are operating as the designer intended. Secondly, the systems need to be operated properly to reach and maintain the system efficiency levels. This track seeks papers and programs providing lessons learned and recommendations for successful commissioning projects. This track also seeks case studies of existing buildings with a retro-commissioning plan to reduce energy consumption and evaluate the payback of these modifications.

- Track 7: Net Zero Energy Buildings: The International Race to 2030
- Track 8: Residential Buildings: Standards Guidelines and Codes

Track Chair: Kimberly Pierson

Email: kdpwildcat@gmail.com

ASHRAE is known for its standards and design guidelines and their evolution to improving the built environment and its systems. This track will inform designers, contractors and owners of the current requirements and upcoming changes to ASHRAE’s low-rise residential guidelines: Standard 90.2, Standard 62.2 and Guideline 24. This track also seeks papers and programs for cutting-edge residential systems and the incorporation of ASHRAE standards in the design.

- Track 9: Research Summit

Track Chair: Ann Peratt

Email: ann.peratt@gmail.com

The fifth annual Research Summit brings together distinguished researchers to present the latest research results. Papers are requested on the following topics: 1) building science research that address the performance of buildings systems and occupant usage and 2) renewable energy research and its impact as we move towards net zero energy buildings.

- New program ideas

City	Title	Type	Chair/Speakers
Long Beach	Ventilation, Infiltration and the Effective Design of Stacks and Air Intakes.	Seminar	Martin (Chair). Mike Ratcliff, Brad Cochrane
??	62.2 update	Seminar	Iain Walker
Chicago?	Garage contaminants (RP-1450 results)	Seminar	Steve Emmerich
??	Assessment of VOC mixtures	Workshop	Ed Light (with MTG)

- Regular deadlines: August 10 (for winter meeting), February 6 (for June meeting)

Handbook (Brian Rock)

Chapter status

Volume	Chapter	Lead	Status
2017 Fundamentals	Chapter 16 Ventilation and Infiltration	Brian Rock	2017 Chapter approved last meeting. Needs a new lead for 2021 version: Jordan Clark.
2017 Fundamentals	Chapter 24 Airflow Around Buildings	Ted Stathopoulos	Ted agreed to be the lead on revising the “Airflow Around Buildings” for 2021 version.
2019 Applications	Chapter 45 Building Air Intake and Exhaust Design	Jason Urso	Looking for volunteers to help edit the chapter.

Base files: <https://www.ashrae.org/resources--publications/ashrae-handbook-central>

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Standards (Steve Emmerich)

TC 4.3 Cognizant

62.1 Ventilation for Acceptable Indoor Air Quality (Nathan Ho)

- Formed some working groups

62.2 Ventilation for Acceptable IAQ in Low-Rise Residential Buildings (Iain Walker)

- No update

TC 4.3 Co-Cognizant

161: TC 9.3: Air Quality within Commercial Aircraft (Byron Jones)

- No update

Others Standards of Interest

170-2013: TC 9.6: Ventilation of Healthcare Facilities (Rick Hermans)

- No update

Honors (Steve Duda)

- Brian Rock nominated for Hightower award but unfortunately was not selected.
 - Steve Emmerich recognized as ASHRAE Fellow.
 - Andrew T. Boggs Service award nomination pending
 - F.Paul Anderson Award nomination pending
- a. Webmaster (Xia Fang)
- No update

Membership (Mini Malhotra)

- Need to contact corresponding members and trim the membership list by removing inactive names.

NEW BUSINESS

- b. MTG.ACR (Steve Taylor)
- c. MTG.OBB (Mini Malhotra)
- Discussed 2 RTARs.
 - 1811 – defining occupancy patterns,
 - DRAFT - integrating occupant behavior data into building performance simulation
 - 3 seminar proposals for long beach

Future Meetings

June 24-28, 2017 – Long Beach, CA

January 20-24, 2018 – Chicago, IL

June 23-27, 2018 - Houston, TX

ATTENDANCE

Please fill out attendance sheet.

ADJOURN

Time: 6:00pm PST

[Rock]