

**ASHRAE MEETING Minutes – Las Vegas**  
**TC 2.3 - Gaseous Air Contaminants/Removal Equipment**  
**TC Meeting**

Tuesday – February 1, 2011 [13:00 - 15:30 (1:00 – 3:30 PM)]  
Las Vegas Convention Center (Room N255)

The meeting attendee list is as follows:

Last Name	Name	Member Status	Position	Present (P)
<b>Total Voting Members = 11</b>				
Agopian	Mr. Nick H Agopian	V	Chair	✓
Bayer	Dr Charlene W Bayer, PhD	V	-	✓
Burroughs	Mr. H E Burroughs	V	ALI Coordinator	✓
Grzywacz	Ms Cecily M Grzywacz	V	-	
Listvan	Dr Marilyn A Listvan	V	-	✓
Lull	Mr. William P Lull	V	-	✓
Middlebrooks	Mr. Matt Middlebrooks	V	Vice Chair	✓
Muller	Mr. Christopher O Muller	V	-	✓
Owen	Ms Kathleen Owen	V	Research Co-Chair	✓
Roseberry	Mr. Jeffrey Roseberry	V	-	✓
Stanley	Mr. Brad M Stanley	V	Secretary	✓
Zhang	Dr Jianshun S Zhang, PhD	V	-	
Kuiper	Mr. Erik Kuiper	V-NQ	Webmaster	
Stutman	Mark Stutman	V	Research Co-Chair	✓
<b>Total Non Voting Members = 12</b>				
Choi	Kyung-Ju Choi, PhD	NV	-	x
Copley	Mr. Johnnie H Copley	NV	-	x
Culbert	Mr. Robert M Culbert	NV	-	x
Flom	Mr. Michael Curtis Flom	NV	-	x
Kerr	Dr Carolyn M Kerr, PhD	NV	Handbook Chair	x
Lau	Dr. Josephine Lau, Ph.D.	NV	-	x
Lee	Dr Chang-Seo Lee	NV	-	x
Schaaf	Mr. David A Schaaf, Jr	NV	-	x
Sherwood	Scott Sherwood	NV	-	x
Space	Mr. David R Space	NV	-	x
Tronville	Dr Paolo M Tronville	NV	Standards Chair	x
Zitin	Mr. Stephen H Zitin	NV	-	x
<b>Total Visitors = 11</b>				
Alfiler	Rupert Alfiler	none	-	x
Campion	Christopher Campion, PhD	none	-	x
Freeman	Peter Freeman	none	-	x
Handley	Michael Handley	none	-	x

Last Name	Name	Member Status	Position	Present (P)
Lane	Marianne Lane	none	-	x
Mathur	Ashish Mathur	none	-	x
Mayer	Florian Mayer	none	-	x
Rainisch	Uri Rainisch	none	-	x
Scheir	Robert Scheir	none	-	x
Slabinski	Stan Slabinski	none	-	x
Sun	Dr. Christine Sun	none	-	x

### **Summary of TC 2.3 Motions on January 26, 2010**

#	Motion	Vote
1	Motion: Marilyn Listvan proposed to vigorously reject the notion to make speakers pay for registration. Registration is bad now, this will make it worse. – 2 <sup>nd</sup> by Gemma Kerr	Passed 9-1-0 CNV
2	Motion: Chris Muller Moved to approve minutes – 2 <sup>nd</sup> by Barney Burroughs	Passed 10-0-0 CNV
3	Motion: Bill Lull Moved to nominate Barney Burroughs to participate with the EHC subcommittee which is writing the position paper on Air Cleaning –, if or when it is approved by ASHRAE - 2 <sup>nd</sup> by Marilyn Listvan	Passed 9-0-1 CNV
4	Motion: Chris Muller - Moved that TC 2.3 revise standard 145.1 - 2 <sup>nd</sup> by Matt Middlebrooks	Passed 10-0-0 CNV
5	Motion: Marilyn Listvan Moved that SPC 145 be converted to SSPC 145 - 2 <sup>nd</sup> by Barney Burroughs	Passed 11-0-0 CV
6	Motion: Charlene Bayer Moved that TC 2.3 adjourn - 2 <sup>nd</sup> by Jeff Roseberry	Passed 10-0-0 CNV

### **Summary of TC 2.3 Action Items from January 26, 2010, Meeting**

#	Action Item	Owner
1	Finalize Albuquerque minutes and distribute to committee	Brad Stanley
2	Pass TC 2.3 votes and comments on the EHC Air Cleaning and Filtration position document to Pawel Wargocki.	Brad Stanley
3	EHC is requesting information on performance of air cleaning devices for ozone performance. Manufacturers are encouraged to provide any such information for filter performance to Larry Schoen ( <a href="mailto:larry@schoenengineering.com">larry@schoenengineering.com</a> ) of EHC.	All Members
4	EHC has an RTAR existing for ozone air filtration – Charlene to investigate TC 2.3 involvement (WS 1491, WS 1579)	Charlene Bayer
5	Follow up with Erik Kuiper with Erik Kuiper regarding website revisions and future of website.	Nick Agopian
6	Review handbook abstracts (Applications Ch. 45 & Fundamentals Ch. 11) and get back to Gemma Kerr ( <a href="mailto:gkashrae@magma.ca">gkashrae@magma.ca</a> ) by March 1, 2011	All Members
7	Distribute draft minutes from the Joint Meeting on Energy Rating	Brad Stanley

#	Action Item	Owner
8	After SSPC 145 is formed, submit an official request to make an addendum to 145.2 regarding the need for an IAQ gas set.	Barney Burroughs or Bill Lull
9	PMC for RP 1457 follow up with Dean Tompkins to complete whatever is needed for no cost extension	Kathleen Owen or Mark Stutman

*Meeting Minutes Begin*

1. Call to order. Introduction of guests and members. Identify & Reporting from ASHRAE liaisons.
  - a. The meeting was called to order at 1310 hours by Chairman Nick Agopian.
  - b. 11 voting members were present
  - c. Review of general Items from Chairs Breakfast
    - i. CEC is considering making Speakers pay for registration. This is potentially a tiered scale, or something similar. Discussion ensued on this topic.
    - ii. **Motion: Marilyn Listvan proposed to vigorously reject the notion to make speakers pay for registration. Conference attendance is bad now, this will make it worse.**
      1. **2<sup>nd</sup> by Gemma Kerr**
      2. **9-1-0 CNV**
    - iii. MTG – ASHRAE is developing a new type of group which is multidisciplinary group (MTG) for certain issues (examples may be TRG 4.IAQP, building security is another example). This is planned to formerly begin at the Montreal meeting. These groups are directed at research that is broad based and covers multiple (>2) TC's.
    - iv. No liaisons were present to give reports.
2. Review as needed and Approval of previous meeting minutes from Albuquerque, NM
  - i. **Motion: Chris Muller Moved to approve minutes**
    1. **2<sup>nd</sup> by Barney Burroughs**
    2. **10-0-0 CNV**
3. Subcommittee Reports
  - a. Handbook - *Subcommittee Chair Gemma Kerr*
    - i. Two Chapters come under TC 2.3 – Ch. 45 in Applications and Ch. 11 in Fundamentals. Applications was revised and submitted last year. Ch. 11 in Fundamentals will be reviewed and revised accordingly for the 2013 handbook.
    - ii. Feedback is desired from committee members on short (~150 words) Abstracts for Fundamentals Ch. 11 and Applications Ch. 45 to be posted on TC webpage (see abstracts contained in addendum at the end of these minutes).
      1. **Action Item - Please get back to Gemma Kerr by March 1, 2011. – All Members**
      2. Suggestion was made to possibly have an open area for comment on these abstracts on the website or on the Linked-In outreach group.
  - b. Membership – *carried out by Nick Agopian*

- i. The leadership is balancing the membership so that large numbers of voting members are not rolling off at the same time.
  - 1. Members rolling off after the June 2011 meeting – Nick Agopian, Erik Kuiper, possibly Mark Stutman (Mark may stay because of issues with voting membership at ASHRAE)
  - 2. Members rolling on after the June 2011 meeting – Mick Flom, Brian Hafendorfer, Paolo Tronville
  - 3. The committee will be moving from 13 to 14 members and maybe 15. The Chair would like to have 15 members as a future target and would like additional consultants, specifiers (i.e. BOMA), and users to join the committee.
  - 4. 4. Guests were encouraged to become corresponding members, but applying on-line after ensuring that their biographical profile was up-to-date.
  
- c. *Planning - Subcommittee Chair Matt Middlebrooks*
  - i. Planning meets at 6:30 AM on Tuesdays, anyone is welcome to come. 8 members attended planning at this ASHRAE meeting.
  - ii. The Planning meeting focuses on the broader issues for the committee (succession planning, chairs, subcommittees, long-term research goal).
  - iii. Request for action from Subcommittee Chairs
    - 1. All Subcommittee Chairs are requested to begin coming to this meeting to assist in this process.
    - 2. The TC 2.3 management will begin a process of having Subcommittee Chairs follow-up with subcommittee members to spur on completion of the agreed upon tasks in a timely manner.
  - iv. Potential new standard
    - 1. There was a request to develop a new standard that will build upon 145.2. This proposed standard would specify a set gases to be tested for two application areas: Outdoors or Indoors.
    - 2. There exists a title, purpose, and scope for this proposal.
    - 3. Discussion on this topic took place and the title, purpose, and scope was presented to the committee (see addendum of these minutes for Title, Purpose, and Scope)
    - 4. The current plan is for this to go to the Standards Subcommittee meeting at the next meeting. The comments were as follows.
      - a. There may not be enough people willing to work on this.
      - b. SPC 145 may become a SSPC 145 which could address this.
      - c. The desire is to have something specified – somewhat similar to “ASHRAE Dust”
      - d. A separate Standard is a 4-7 year process, whereas an appendix to the existing 145.2 standard may get it out much quicker, potentially 1 year.
      - e. A recommendation or request needs to be proposed to SPC 145 to add this as an Appendix.

- f. Action Item – f. Barney Burroughs is going to put this forward as an addendum to 145.2. The SPC 145 will choose to accept, reject, or accept with modifications.**
- d. Professional Development Coordinator - *Barney Burroughs*

  - i. Environmental Health is planning to develop additional training topics (particulate and gas-phase) under paid contracts. Plan is to package this in a training form as courses.
- e. Program - *Nick Agopian filled in for Subcommittee Chair Dean Tompkins*

  - i. Discuss session sponsorship success

    1. Discussed problem with TC 2.3 programs not getting into the actual program.
    2. All members were tasked to try to determine better methods and approaches to be successful in getting 2.3 programs on the conference list. Concerns were expressed that there was a seminar about which 2.3 should have been consulted and sponsored, but 2.3 was not consulted by the program committee before scheduling the “Air Quality” seminar. Other committees, such as 62 are having similar problems. Matt Middlebrooks attended the Program Subcommittee Chairs training meeting to better understand ASHRAE’s viewpoint and to help guide 2.3 in achieving better success in programs.
    3. Programs were presented to the committee on projector as displayed below

Type	Title	CoSponsor	Chair	Rank
seminar	Myth-Busting Ozone ...– add to title [Engineering Tools?]	62.1, 189.1, EHC	B. Stanley, w/ Nick	3
forum	What is Needed to “Fix” the Standard 62.1 for IAQP? .. Validation [Alternative Technologies?- IAQP: Engineering Tool of the Future, Making Netzero Buildings Possible]	2.4, 62.1, 189.1, TRG 4.IAQP	C. Muller w/Nick	1
seminar	The Role of Aldehyde Cleaning Devices in Improving IAQ for Zero Energy Buildings [HVAC Systems?]	none	KJ Choi	3
forum	Experience with Field-Measurement of Gaseous Contaminants [Engineering Tools?, HVAC Fund & Applications?]	GPC 27	W. Lull	2
seminar	Case Studies: Gas-Phase Filtration for Data Centers (as follow-up to TRANS entitled “Data Center Environmental Control” in Orlando of Joe P.) [to include The Science & Technology of Sacrificial, Coupon-Based Gas Sensors]	9.9, 2.4	Chris Muller	4
forum	What is Needed in the FUNDAMENTALS Handbook? Rvise to “What is need in Applications Ch. 45” for Winter Meeting 2012 vote on it in Montreal. This one was delayed until discussion at Montreal when it will better fit the handbook chapter timeline.	none	B. Lull, G. Kerr	n/a

4. If your submission has been rejected previously, please note this on the submission. This increases the chance to get your topic into the program.
5. Note will be made on program table above that “What is needed in Fundamentals” should be retitled “What is need in Applications Ch. 45” for summer 2012 and the committee should vote on it in Montreal.

f. Publications (Subcommittee Chair Marilyn Listvan)

- i. Publications meeting did not occur, but a Joint Meeting on Energy Rating was carried out.
- ii. Many TC’s attended the Joint Meeting on Energy Rating Filters (90.1, 2.3, 2.4). There was a general consensus in that meeting that ASHRAE should be involved in this effort in some capacity.
- iii. If you are interested in participating, please contact Christine Sun ([christine.sun@freudenberg-filter.com](mailto:christine.sun@freudenberg-filter.com))
- iv. This group opines that the MTG process may be appropriate for this effort.
- v. Minutes for that meeting will be distributed to the committee
- vi. **Action Item – Distribute draft minutes from the Joint Meeting – Brad Stanley**

g. Research (Subcommittee CoChairs Kathleen Owen & Mark Stutman)

- i. TRP 1557 will go out in the spring.
- ii. The use of the MTG is being encouraged for research which crosses multiple TC purposes.

- iii. RP 1457 presentation by Dean Tompkins did not occur because of a family emergency. Additionally, plans for co-funding from manufacturers fell through, which has halted the full scale testing. Testing in a smaller environmental chamber is planned before the next ASHRAE meeting. A no cost extension is overdue (since September 2010) and still needs to be submitted for this project to go forward. The PMC for this RP is following up with Dean Tompkins to resolve these issues.
  - 1. **Action Item – PMC for RP 1457 follow up with Dean Tompkins to complete whatever is needed for no cost extension**
- iv. Other details regarding existing research work can be found in the Research minutes.
- v. New Research Project Suggestion – A new research project was suggested at the Research meeting which would the ASHRAE HQ as a “living lab” for the IAQ Procedure of 62.1. – Barney Burroughs is leading this effort and has begun correspondences with ASHRAE.
  - 1. This building has the ability to monitor many aspects of building operation (energy, outdoor air, etc.) and can serve as a “Living Lab”. Results would relate to the quality of air and the energy savings achieved through the various retrofits. Initial discussions have been made. The thought is to do this with TC members who are in the Atlanta area on a mostly volunteer basis to limit required funds. There are several systems and floors that may allow for different approaches to be taken. Some outcomes would be as follows.
    - a. Is a LEED building working?
    - b. What is the basis for typical buildings in this region for conditioning outdoor air?
    - c. Demonstrate that particulate filtration and gas-phase filtration can equal the quality of outdoor air?
    - d. Net benefit – energy savings and indoor environmental quality improvement.
  - 2. The current plan for this project is to submit this as a formal RTAR and covered by a formal PMS with the major part of the work donated. Barney Burroughs will lead this effort.
- vi. EHC is writing a position paper on Air Cleaning – not yet approved.
  - 1. Pawel Wargocki has requested a member of 2.3 participate with the drafting of this document.
  - 2. **action item - need to pass our TC 2.3 votes and comments on this to Pawel Wargocki. – Brad Stanley**
  - 3. **Motion: Bill Lull Moved to nominate Barney Burroughs to participate with this committee, if or when it is approved by ASHRAE**
    - a. **2nded by Marilyn Listvan**
    - b. **9-0-1 CNV**
- vii. **Action item - EHC is requesting information on performance of air cleaning devices for ozone performance. Manufacturers are encouraged to provide any such information for filter performance to Larry Schoen of EHC. – all members**
- viii. **Action item - EHC has an RTAR existing for ozone air filtration – Charlene Bayer to investigate TC 2.3 involvement (WS 1491, WS 1579)**
- ix. Liaison Report on 8.12 – Bill Lull

1. Odors from desiccants has been discussed by TC 8.12. Someone from TC 2.3 could champion this as a research project.
  - x. TRG 4.IAQP is meeting second Monday of every month. Contact Nick Agopian or Charlie Seyffer if interested ([nagopian@circul-aire.com](mailto:nagopian@circul-aire.com), [seyfferc@camfilfarr.com](mailto:seyfferc@camfilfarr.com))
- h. Standards (Subcommittee Chair Paolo Tronville)
- i. The Subcommittee discussed the items found in 145.1 by ASHRAE Standards (SEE Addendum A for details)
    1. Some questions from ASHRAE Standards to be considered are:
      - a. Is the standard an MOT referenced and utilized by a trade association's rating standard?
      - b. Is the standard a rating standard (that includes an MOT) where the cognizant trade association has elected not to issue a rating standard for the subject product?
      - c. Is the standard referenced by another ASHRAE standard?
      - d. Is the standard a code intended standard (CIS)?
      - e. Is the standard or guideline a code-utilized (CU) document?
      - f. Are TC members aware of use of the standard or guideline? (TC members should review the lifetime sales and twelve month sales of the document. Just because the standard or guideline has low sales does not mean it is not being used.)
    2. SPC 145 is recommending that TC 2.3 sends in the form to ASHRAE informing them that TC 2.3 will revise standard 145.1
    3. **Motion: Chris Muller - Moved that TC 2.3 revise standard 145.1**
      - a. **2nded by Matt Middlebrooks**
      - b. **10-0-0 CNV**
  - ii. SPC 145.2 has gone through public review, with one positive comment. ASHRAE staff has indicated that some drawings need to be updated. It should be published by the next meeting.
  - iii. TC 2.3 Standards discussed making SPC 145 a standing committee. This will allow the committee to deal with change proposals quickly and will only require modifications to the standard in part instead of in total. This needs volunteers to head up and participate on each committee (145.1 and 145.2). The consensus at the SPC 145 committee meeting was to proceed forward making it a standing committee (SSPC). (Typically the existing committee becomes the SSPC)
    1. **Motion: Marilyn Listvan Moved that SPC 145 be converted to SSPC 145**
      - a. **2nded by Barney Burroughs**
      - b. **11-0-0 CV**
  - iv. GPC 27P met and made good progress in assigning jobs. Close to 50% of the document is complete.
  - v. For further details on the Standards meeting, please see the subcommittee minutes.
- i. *Website - Nick Agopian filled in to provide an update*
- i. At the previous and current ASHRAE meeting, TC 2.3 was voted as the 2<sup>nd</sup> to worst website.



- ii. TC 2.3 will discuss with Erik Kuiper if he wants to continue in this position, as it can be done easily without attending meetings.
  - iii. Christine Sun volunteers to be involved with the website, if needed.
  - iv. **Action Item – Nick Agopian follow up with Erik Kuiper.**
4. Report from TC liaisons.
- a. None provided.
5. New Business
- a. 2.3 & 2.4 Discussion of Energy Rating Program of General Ventilation Air-Cleaning Devices (*discussed in Publications Subcommittee*).
    - i. See publication notes above.
  - b. Management Transition
    - i. Nick Agopian's last meeting as Chair will be in Montreal.
    - ii. Matt Middlebrooks will become Chair, Brad Stanley will become VC, and Charlene Bayer will become Secretary.
  - c. EHC position Document: Air Filtration and Cleaning
    - i. Already discussed above. This is an opportunity for 2.3 to be involved.
    - ii. There are several other position documents taking place, which TC 2.3 should be reviewing.
  - d. TC 2.3 encourages its members to attend the EHC meeting, Mondays at 8AM because of the many issues they discuss and its influence on gas-phase.
  - e. TRG on HVAC Security meets which involves gas-phase filtration.
    - i. The meeting is right after the TC 2.3 planning committee meeting (1-1.5 hours).
    - ii. They are interested in gas-phase and have already written a handbook chapter.
    - iii. TC 2.3 needs to be involved in this.
6. Agenda suggestions for the Summer Meeting in Montreal.
- a. Charlene Bayer suggested working on a 5 year plan for the TC coordinating through a Research plan, programs, and publications.
  - b. TC 2.3 will begin taking an active role in reminding members of their agreed upon task to help more work get completed between meetings.
7. Adjournment
- a. **Motion: Charlene Bayer Moved that TC 2.3 adjourn**
    - i. **2nded by Jeff Roseberry**
    - ii. **10-0-0 CNV**

ASHRAE TC 2.3 2011 Las Vegas - Agenda Addendum A  
Memorandum for Revision, Reaffirmation, or Withdrawal of Standard 145.1-2008

**ASHRAE American Society of Heating, Refrigerating and Air-Conditioning Engineers Inc.  
1791 Tullie Circle, NE · Atlanta, Georgia 30329-2305**

**MEMORANDUM**

TO: Paolo Tronville, Standards Subcommittee Chair, TC 2.3, Gaseous Air Contaminants and Gas Contaminant Removal Equipment

FROM: Mark J. Weber, Assistant Manager of Standards – American

**SUBJECT: ASHRAE Standard 145.1-2008, Laboratory Test Method for Assessing the Performance of Gas-Phase Air-Cleaning Systems: Loose Granular Media**

In accordance with the requirements of Normative Appendix N2 of the Standards Committee Manual of Procedures (MOP –10/3/2008), TC 2.3 (the cognizant Technical Committee) is asked to vote to recommend to the Standing Reaffirmation Subcommittee (SRS) of the Standards Committee whether the subject standard should be

- v Revised,
- v Reaffirmed, or
- v Withdrawn

Section N2.5 of the Standards Committee MOP states that “Following an interval of not more than three years after publication of each standard or guideline, the cognizant committee shall recommend to SRS reaffirmation, revision or withdrawal of the standard or guideline.” The three year date for Standard 145.1-2008 is **8/18/2011**.

When the TC recommends reaffirmation, the TC should include in its recommendation to SRS a Units Format Plan in accordance with the requirements of Normative Appendix E5 of the Standards Committee MOP. Instructions are available in Appendix C of the Project Committee Manual of Procedures (PC MOP – 6/28/2010). In addition, the TC should review the references and their impact in the body of the main text of the reaffirmation draft. Updated references needed to implement the standard shall only include reaffirmations of the referenced standard. Referenced standards that have been revised in lieu of reaffirmed cannot be updated in a reaffirmation. **In addition, the TC shall determine whether or not the standard/guideline complies with the requirement in Section 6.1.2 of PC MOP, which states that “all standards shall be written in mandatory language and all guidelines shall be written in informative language”. If the standard/guideline does not comply with this requirement, the TC shall not recommend reaffirmation, but instead shall recommend revision so the standard/guideline can be brought into compliance.**

A staff review of the subject document has been completed as preparation for an evaluation by the cognizant TC for this standard and is attached for your information and consideration. If the TC has additional information or concerns, Standards Committee wants this input as guidance to SRS.

While information in the attached review sheet has been grouped into certain categories, the assessment as to whether suggested changes should be categorized as described is the responsibility of the TC. Please note that recommendation in favor of some types of changes would result in the formation of a project committee and revision by means of the procedures in the Standards Committee MOP, Appendix N.

To report the TC’s action in this matter the attached TC 5-Year Cycle Form titled “Cognizant Technical Committee Periodic Maintenance Recommendation to SRS” shall be completed and forwarded to SRS through the applicable TC Liaison from the Standards Committee. An electronic version of the form is also available on the ASHRAE website at <http://www.ashrae.org/technology/page/97>.

**Please add this request to the TC 2.3 agenda for the 2011 ASHRAE Winter Meeting in Las Vegas.**

Please contact Standards Committee Liaison Hoy Bohanon or Standards Staff if you have procedural questions or responses for the subject standard.

ASHRAE TC 2.3 2011 Las Vegas - Agenda Addendum A  
Memorandum for Revision, Reaffirmation, or Withdrawal of Standard 145.1-2008

Enclosures (5): - *[not included with Agenda Handouts or Addendum]*

- 5-Year Cycle Staff Review
- Excerpts from Standards Committee MOP (10/3/2008)

Appendix N2, Maintenance of Existing Standard and Guidelines Where No PC Exists

Appendix N3, Procedures for Withdrawing a Standard or Guideline

- Excerpts from Standards Committee MOP (10/3/2008)

Appendix E5, Administration of Units Policy Options and PC Requests for Waivers

- Appendix C from Project Committee MOP (6/28/2010), Instructions for Following ASHRAE Units Policy in Standards and Guidelines

- TC 5-Year Cycle Form (4/14/2009)

cc:

Nick Agopian, TC 2.3 Chair

Hoy Bohanon, Liaison to TC 2.3 from the Standards Committee

Charles Wilkin, TAC Section Head

Carol Marriott, ASHRAE SRS Chair

Michael Woodford, ASHRAE TCLS Chair

Stephanie Reiniche, ASHRAE Manager of Standards

Tanisha Myers-Lisle, ASHRAE Procedures Administrator

Mark Weber, Assistant Manager of Standards - American

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc

1791 Tullie Cir. Atlanta, GA 30329

Direct Line: 678-539-1214 Fax: 678-539-2214 eMail: [mweber@ashrae.org](mailto:mweber@ashrae.org) Web: [www.ASHRAE.org](http://www.ASHRAE.org)

Abstract for ASHRAE Fundamentals Handbook Chapter 11 *Air Contaminants*

Chapter 11 Air Contaminants appears in the ASHRAE Fundamentals Handbook. Its intent is to help engineers understand air contaminants, both particulate and gaseous, and to provide information to help them deal with problems related to contaminant presence in buildings. The chapter contains mainly educational material.

The section on particulates covers types, size ranges, units and measurement methods, and also deals with bioaerosols (mainly molds and bacteria).

The gaseous contaminant section includes basic information on chemical classes, properties such as volatility, sources, units, and measurement methods. Special attention is paid to volatile organic compounds (VOCs) and important gaseous inorganic pollutants.

The chapter also addresses classes of contaminants that have some unifying characteristic such as source or regulatory framework. These include outdoor air contaminants, industrial and non-industrial indoor air contaminants, flammable gases and vapors, combustible dusts, radioactive air contaminants, and soil gases.

Abstract for ASHRAE Applications Handbook Chapter 45 *Control of Gaseous Indoor Air Contaminants*

Chapter 45 Control of gaseous indoor air contaminants appears in the ASHRAE HVAC Applications Handbook. Its intent is both to help engineers to understand the processes that remove gaseous contaminants from air, and to provide information that enables engineers to design and specify gaseous contaminant air cleaners for HVAC systems.

The principal gas removal processes, physical adsorption and chemisorption, are characterized and their terminology explained. Sample source emission data is shown with advice on using it to predict contaminant concentrations in buildings. Information is given on selecting the removal processes appropriate to different contaminant types and occupied spaces, and on sizing duct-mounted gaseous air cleaners.

The chapter also covers air-cleaning system design, installation, start-up, commissioning, safety issues, O&M, and methods of test for efficiency and service life.

Proposed ASHRAE Standard TPS

**Title:** Standard Test for Gas-Phase Filters used in Typical IAQ Applications

**Purpose:** Establish a standard test for gas-phase filters to allow product comparison in typical IAQ applications, including, but not limited to meeting ASHRAE Standard 62 requirements. Two tests will be established: one for filtering outdoor air, and one for filtering indoor air.

**Scope:** Based on the testing equipment and general procedures used in ASHRAE Standard 145.2, this standard will define sets of gas tests for the typical application to filter air to meet IAQ applications. One set of test gases will be based on the Outdoor Air Quality criteria from Standard 62, to rate the performance of the subject filter in meeting those requirements when treating outdoor air. A separate set of test gases will be identified, based on published and solicited references, to rate the performance of the subject filter in filtering indoor air to remove those contaminants.

The standard test on a filter will yield results that reflect the efficacy on each test gas with regards to initial removal efficiency, buffering effect over time, and effective life. A single, composite number will not be used to represent multiple gases, since the mix of gases in applications vary greatly. Filters can be rated on one of the two sets of gases, either “outdoor” or “indoor,” or both. Selective gas tests will not be part of this standard.