

## Appendix A

### **ASHRAE MEETING MINUTES – ATLANTA TC 2.3 - Gaseous Contaminants/Removal Equipment Handbook Sub-Committee Meeting**

Monday, June 29, 2015  
4:15-6:00 p.m.  
Atlanta Hilton, Fourth Floor, Room 401

The meeting was chaired by Gemma Kerr. Participants introduced themselves. Present were:

Name	Affiliation
Gemma Kerr (Chair)	Retired
Nick Agopian	Renewaire
Dan Haas	Clarcor
Sanjeev Hingorani	Lennox Industries
Brian Krafthefer	BCK Consulting
Chang-Seo Lee	Concordia University
Paula Levasseur	Cameron Great Lakes
Bill Lull	Garrison Lull Inc.
Ashish Mathur	UVDI
David Schaaf	Freudenberg
John Zhang	3M

TC 2.3 is responsible for editing two handbook chapters. These are:

- Applications Chapter 46 – Air Cleaners for Gaseous Contaminants; and
- Fundamentals Chapter 11 – Air Contaminants.

Chapter 46 was submitted to ASHRAE in 2014, and the galley proofs were reviewed by Gemma Kerr and Brian Krafthefer in March 2015. Errors were discovered in the equations which required extensive revision but produced a simpler and more easily-used result. The example prepared for the SI Handbook was also used for the IP Handbook because several of the parameters do not have IP equivalents.

Chapter 11 is under revision with submission in 2016. Draft 3 (including revisions from the Chicago meeting) was distributed before the Atlanta meeting. Further changes were discussed as described below.

Brian queried the accuracy of the particle settling time numbers shown in Table 1.

**Action: Brian will try to verify the information.**

**Action: Brian will see if the settling information can be incorporated into Figure 3.**

Regarding Figure 3 (Sizes of Particles), Brad Stanley has generated a new soft copy with a small number of entries. It was decided that the upper size limit should remain the same at 1000 microns, with the lower limit reduced to  $10^{-4}$  microns.

**Action: Brian will transfer all information from the existing Figure 3 into the new template.**

**Action: Ashish will supply Brian with particle info for the size range  $10^{-2}$  to  $10^{-4}$  microns.**

There has been no action on the proposed new section on harmful effects of particulates (especially PM<sub>2.5</sub>, nanoparticles and biological material).

**Action: Chang-Seo will send information and references to Gemma on this topic.**

**Action: Gemma will write the paragraph.**

The location for this information will be selected after the section is completed.

Regarding revised Table 6, it was decided to change the heading “Family” to “Table 5 Family” and remove the footnote relating to this. Also to add chemicals from Table 10 and Standard 145. Table 10 chemicals should be tagged as common IAQ contaminants.

**Action: Gemma will implement these changes, including adding CAS numbers for the new chemicals.**

Table 10 can be removed after this implementation.

Brian, who is taking over as Handbook Sub-committee Chair after Atlanta, said that he would also take over from Gemma as reviser of Chapter 11.

The section on bio-aerosol sampling needs to be updated to include PCR.

**Action: Ashish will provide info and references on PCR to Brian.**

It was agreed that we should include more material on mercury.

**Action: Ashish will provide info and references on mercury to Brian**

It was agreed that we add information on chip manufacturing contaminants to the section on industrial contaminants.

**Action: Gemma will check the cleanroom Chapter and report back to Brian,**

Regarding environmental tobacco smoke: Chang-Seo noted that we do not mention e-cigarettes, which have recently become an issue. Standard 62.1 does mention them in an Addendum. We should check this and add a reference to it. Note that it is now possible to view Standard 62.1 for free on the ASHRAE website, but only one page at a time.

Regarding review of the 46 old references found by Brian, and suggesting replacements: it was agreed that a forum where these references were all posted, and where everyone could suggest new references would be the best approach for getting action. Nick agreed to set this up on Google Docs (this has been done, and all attendees invited to participate).

**Action: everyone to add what they can.**

The section on commercial, institutional and residential contaminants, is old and needs significant change.

**Action: everyone to review and provide ideas for change.**

Since the completion deadline for Chapter 11 is approaching fast, a telecom was proposed for Wednesday September 2 at 4 pm EDT (1 pm Pacific).

**Action: Brian to arrange the telecon with ASHRAE.**

The meeting was adjourned at 5:40 pm.