

				Mark Hallman
				Mike Craig
				Andy Bosscher
				Ronald L. Wendorski
				William A. Kumpf
				John S. MacMurray
				Paul Pelczynski
				Anthony J. Rossi
				Glen P. Schuyler
				Kelley Cramm
				John Glaesser
				Dan Frasier
				Carol Donovan
				David Rausch
				Nathan Ho
				Gwelen Paliaga
				Doug Hartloy
				John Carter
				Nolan Hosking

DISTRIBUTION

<i>All Members of TC/TG/TRG plus the following:</i>	
TAC Section Head:	Thomas Lawrence
TAC Chair:	Donald Brundage
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	
Manager Of Standards	Claire Ramspeck
Manager of Research & Technical Services	Michael R. Vaughn

**ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes**

1. Call to order 3:30

Coogan called the meeting to order and established a quorum with 15 voting members present out of 18 (18 Regular and 1 International).

2. Introductions

All present introduced themselves and were invited to sign the attendance sheet.

3. Membership Update

All interested to be corresponding members should give their card to Jim, Wade or Roland with their ASHRAE number.

4. approval of previous minutes

Minutes from the Montreal meeting were reviewed. They were previously distributed by e-mail and posted on the TC website.

Gaylon Richardson moved to accept the minutes.

Wei Sun seconded.

Motion passed. (14-0-0 CNV)

5. House keeping and announcements from Technical Activities Committee

Roland Charneux reported news from the TC Chairs' meeting:

ASHRAE have a new logo with its rebranding "shaping tomorrow's built environment today".

The 2011-2012 hightower award recipient is M. Donard Beaty from TC-9.9.

Reminder that TC member cannot speak in the name of the TC.

CEC is implementing a new process to verify that TC's have truly voted to sponsor a subcommittee program before it is published in the meeting program sponsored by a particular TC.

Each TC will be asked to annually submit a list of volunteers from the TC that are willing to serve as paper reviewers or session chairs for sessions that are related to the TC's scope. CTTC can help to find resources from the general membership.

Starting in Dallas speakers will be required to pay a registration for (25%) ±100\$.

Speakers rating procedure will begin implementation at the Chicago conference. After there low score (below 3.5) speaker will have to receive speaker training.

Future ASHRAE sponsored conferences

High Performance Buildings Conference – A Focus on Deep Energy Savings, March 12-13, 2012 – San Diego, CA <http://www.ashrae.org/events/page/hpbconf>

International Conference on Energy Research and Development April 9-11, 2012 – Kuwait, info@icerd5.org or www.icerd5.org

CIBSE ASHRAE Technical Symposium – Buildings Systems and Services for the 21st Century, April 18-19, 2012 – Imperial College, London, <http://www.cibse.org>

**ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes**

Cold Climate HVAC 2012, November 12-14, 2012, Calgary, Alberta, Canada.
<http://www.ashrae.org/events/page/coldclimate2012>

ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes

6. Electronic communications

Roland Charneux will resend messages to members to join TC-9.10 Goggle Group will not be used anymore.

7. Program Subcommittee – (Scoggins)

Chicago Meeting:

We have a dedicated track in Chicago for Hi-Intensity HVAC Applications which includes labs, clean rooms and hospitals.

The following TC 9.10 programs were accepted for the Chicago Meeting:

Conference Paper Session #19 – Net-zero labs and Data Center Cooling system design (Jeff Trower – Chair, Roland – speaker) – Tuesday @ 9:45 am.

Conference Paper session #21 – Surgical Operating Theaters, Healthcare worker exposures, pressurization (Wayne – Chair, Jim – speaker) – Tuesday @ 11:00 am

Seminar 54 – Optimizing Cleanrooms for High Performance Energy Reduction and Sustainability (Wei Sun, Mehboob - speakers, Pete Gardner – Chair) - Wednesday (Co-sponsor with 9.11)

San Antonio meeting – June, 2012

- a. Conference papers deadline submission – past.
- b. Jan. 13th – Feb. 13th – Seminar and Forum proposals due
- c. Standard 62 is discussing a forum in San Antonio for use of energy wheels in labs. We will see if we can co-sponsor – Roger Heddrick – Chair of Standard 62.
- d. Charlie Henck has a contact for a firm that has designed labs with energy wheels that has been operational. Possible seminar to be considered. Ginger to coordinate with Charlie.
- e. Seminar on EPC Labs 21 3.0 – Mike Ratcliff (session chair) – mar@rwdi.com (Track 6 – Indoor Environmental Applications)
- f. Seminar on BSL-3 stack effect – Ginger to coordinate with Carol Donovan
- g. Submit online to www.ashrae.org/SanAntonio
- h. Mid-June – Final Powerpoint presentations due (last date)
- i. Session Chair volunteer – Wayne Lawton

Dallas meeting – Jan., 2013

- a. Conference Papers abstracts due – March 19th, 2012
Roland – Might submit a conference paper for Dallas - Roland will confirm
Gaylon – Two conference paper submittal on challenges of lab controls and different responses
- b. Seminars – NFPA 45 – Under codes/standards track – Wayne to handle
- c. Session Chair volunteer – Pete Gardner

ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes

Denver meeting – June, 2013

Wayne Lawton – 2 conference papers (one session)

High containment Bio-lab BSL-3AG (by Ken Gow) and BSL-3 Enhanced Greenhouse (Yang Lu)

July/August – Abstract date due

Future topics discussed at previous meetings:

Technical Paper -Wei Sun - Results of Project 1344

Seminar – Integrated Systems testing

Seminar – Energy Reclaim for Labs

Seminar - Reducing Tonnage on laboratory buildings

Laboratory Design Short-course:

John Varley provided an outline and learning objectives for a short-course

Submitted to ASHRAE staff for review and approval

Send PDC outline and learning objectives to Roland for minutes.

Jim Coogan moved to accept the San Antonio program. Seconded by M. Wei Sun.

14/0/0 CNV

Ginger Scoggins is processing the paperwork with Ali for a short course on lab ventilation design. John Varley will provide this training.

ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes

8. Research (Wayne Lawton)

List of RTAR attached to the present minutes.

Wayne Lawton moved that TC-9.10 accept to present to RAC RTAR-1573 "Determination of suitable replacement to SF₆ when used as a tracer gaz in accordance with ansi/ASHRAE Standard 110". Seconded by Fred Lorch.

14/0/0 CNV.

9. Handbook - Hartman

Lou Hartman mentioned that capter 16 of Application was published on 2011..

Georges Sestak is the new liaison for chapter review and mentionned that is revision should start now.

Need to add on energy efficiency and O & M.

Need to add color.

10. Standards – (Richardson)

Gaylon Richardson reported for the standards subcommittee. 14 persons was present.

Standards: Gaylon Richardson submitted the following report:

Gaylon Richardson opened the meeting at 3:05. Attending the meeting were Wade Conlan, Wayne Lawton, Brad Cochran, Roland Charneux, Mike Ratcliff, Gaylon Richardson, Traci Hanegan, Nolan Hosking, Gwelen Paliaga, Raj Kapoor, Carol Donovan, Ronald Wendorski, So-Yeng Chen and Ginger Scoggins.

Current standards and codes were updated on status of Review.

Standard 90.1 – Jeff Bolt- If you are controlling to a pressure and not a design CFM offset, then it would save air and energy. If the building is just controlling to a design CFM offset, then the fans would not change off of the design minimum ACHR for that space. It would make it a better pressure differential though.

Some systems use pressure differential to change the desired offset to keep it in range (Siemens promotion) but most engineers just use CFM Offset unless required by others to control to pressure mainly because spaces aren't built tight enough (which is why I like the requirement's intent just not how it is currently worded or required for testing).

But, if you indicate that CFM offset is not allowed – many of the manufacturer's will love it because they get to sell more controls parts and pieces – except when it doesn't pass and it is the GC who created the problem by not controlling install quality. General construction cost will increase. If CFM offset is allowed (and it is the most used) without testing most would do that if possible.

I did some rough economics based on a hospital operating rooms, where we had some information that leakage can be quite high, and that appeared to easily meet the ROI requirements of 90.1.

My thinking was that leakage testing should apply to all rooms with substantial pressurization requirements, since even when they are required to have high air change rates, leakage still adds to the total flow required. I could also see an argument to only apply this to rooms that have no minimum airflow requirements when they are unoccupied.

ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes

This originated as an idea from the healthcare working group of the 90.1 mechanical subcommittee.

Jeff Boldt, PE, LEED® AP, HBDP

Principal | boldtjg@kjww.com

From: Ned B. Heminger [<mailto:NBHeminger@HAWAinc.com>]

Sent: Monday, September 19, 2011 4:43 PM

To: Wade Conlan

Cc: Jeff G. Boldt

Subject: FW: SPV Room Airtightness

Wade

Jeff Boldt has been thinking that spaces that require differential pressure to be maintained should have some requirements for confirming the space envelope is well sealed. Attached is just the start of a thought he has. He is referencing an exception to simultaneous heating and cooling.

Do you have any suggestions for him?

From: Jeff Boldt [<mailto:soltari1@charter.net>]

Sent: Wednesday, July 20, 2011 1:05 PM

To: Ned B. Heminger; 'Bob Cox'; 'Donald Wojtkowski'; 'Jeff G. Boldt'; 'Richard Hermans'; 'Roger Lautz'; 'Susanna Hanson'; 'Tim Peglow'

Cc: Jeff G. Boldt

Subject: FW: SPV Room Airtightness

Please review and comment.

This might be better as a "cfm/square foot of room envelope" requirement; but I wrote this as a fixed cfm requirement for this first pass because it would make verifying compliance very simple. Another option would be to allow X cfm per door, pass-through, etc. plus an allowance of X per square foot of wall area.

I did a spreadsheet economics calculation and it appeared that we could pass the scalar with first cost up to \$3,000; which is much more than it costs to have a blower door test done on an Energy Star home. So I'm confident this passes our economic criteria.

Jeff Boldt

Questions

HVAC Zone Air Leakage

Questions

Should this go in 5.4.3 "Air Leakage" or in 6.4.4 "HVAC System Construction and Insulation"?

Should it stand alone, or reference 5.4.3?

Should it use the air barrier method in 5.4.3, or should it specify leakage rates?

Leakage rates would make it much easier for me to do the economic justification, because we have at least a little information about typical leakage rates from operating rooms.

The air barrier method would make a tidy tie-in with 5.4.3.

What economic lifetime should I use?

I'm thinking 20 years before interior remodeling occurs, which results in a scalar of 11.5.

What did the envelope subcommittee use as a first cost per square foot of surface area for estimating the scalar?

5.4.3 Air Leakage

5.4.3.1 Continuous Air Barrier. The entire *building envelope* shall be designed and constructed with a *continuous air barrier*.

ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes

Exceptions to 5.4.3.1:

a. Semiheated spaces in climate zones 1 thru 6.

b. Single wythe concrete masonry *buildings* in climate zone 2B

5.4.3.5 HVAC Zone Air Leakage. *Enclosed spaces* that satisfy all of the following criteria shall be constructed with a *continuous air barrier* as described in section 5.4.3.

a. The HVAC system controls the pressure relationship between that space to be positive or negative by at least 0.01" w.c.

b. The pressure relationship is expected to be maintained at least 4,000 hours per year.

Suggested Answer: Labs designed with offset control are variable volume. Labs could not be maintained using pressure that could be measured is the primary reason offset control was introduced. The variable volume lab has 3 sets of valves that work in unison to maintain the room offset (hood valve(s), supply valve(s) and general exhaust valve(s)). When a sash is lowered on bench hoods the airflow is turned down to 30% of the hoods required airflow with full sash height. The supply will track the hood and general exhaust to maintain the room offset. When the hoods are not manned the sash should be closed. Occupancy sensors are being installed to turn down the supply and general exhaust to a minimum airflow (resulting in a reduced ACH). In BSL3 applications the rooms are pressured controlled. TC 9.10 recommends a minimum pressure differential of 0.05"wc and an alarm at 0.03"wc. It is recommended that rooms with a pressure requirement have hard ceilings and be pressure tested using a door fan.

- **NFPA 45** – New version has been issued and Gaylon Richardson will review and report if there are any concerns for this group once he is done the review.

I could not find any concerns. I also could not find any reference to room air change rates.

- **ANSI Z9.5** – New version has not been yet released. Jim Coogan helped author this document and graciously agreed (after the meeting) to identify any concerns or actions required by this sub-committee.
- **ASHRAE 110**- Committee was disbanded
 - The standards subcommittee recommends George Sestak for the chair of the new 110 committee
- **ASHRAE Std 62.1** – Henry Hays to forward a interpretation from Std 62 on recirculation air in labs with a wheel. It is attached for review. No one in the room was contacted by SSPC-62 for this response and will be asked in the main meeting. Any action will be determined moving forward after the main meeting.
- **Standards 170** – Labs in Hospitals was questioned
 - Gaylon noted it listed certain ACHR that would be violated if there was 1 liter of chemicals.
 - Asked who decided this number.
 - Adam Bare will help Gaylon determine this information since a co-worker is leading 170.
- **BMBL** – discussion on a Reverse Flow and Transients between Pat and Henry. Further action is required by Henry to email the section or paragraph to Pat to get his take.
- **ALAR/AAALAC** – Henry attended a conference in Baltimore where they were talking about a change to their information for ventilated cages versus non-ventilated. Committee will address once it is issued.
- **Std 189.2**: Adam Bare to talk with the 189.2 Chair to find out about the scope of labs. Is this out for public review
- **Std 191** – Nothing at this time.
- **Std 90.1** Users Guide – Wade Conlan got Pat Keith Emerson's card for him to contact.
- **Labs 21** – EPC 3.0 is on website and ready for use.

**ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes**

It is moved by Wayne Lawton that SSPC-110 be chaired by M. George Sestak. Seconded by M. Gaylon Richardson.

13/0/1 CNV M. George Sestak Abstain.

A group will be formed to prepare an official answer from TC-9.10 on standard 90.1 concerning air tightness. Gaylon Richardson, Wayne Lawton and Charles Coward accept to form those group.

It is moved by Jim Coogan that a letter be sent to M. G. Knutsen to thank him for all is commitment to TC-9.10 and Standard 110. Seconded by George Sestak.

13/0/1/ CNV

Formatted: Normal, Justified, Space Before: 0 pt, Hyphenate, Tabs: Not at 3.75"

11.Design Guide - (Henry Hays)

Major push has been done since the Montreal Meeting.

Plan for a vote in San Antonio.

Will include videos, visual documents

All people willing to be involved ar welcomed.

12.Journal - (R. Charneux)

No article published since last June. Two were published in the first half of 2012.

Formatted: Indent: Left: 0"

13.Laboratory design short course – (Scoggins)

Ginger will pursue with ASHRAE Ali.

John Varley provided an outline and learning objectives for a short-course Submitted to ASHRAE staff for review and approval.

Send PDC outline and learning objectives to Roland for minutes.

14. Liaison Reports

TC 1.4 Control Theory and Applications - (Coogan)

"Method of tests for airflow control" draft is approved by committee for public review.

TC 2.2 Plant and Animal Environment - (Hays)

Had been struggling to get a quorum. Henry told them we'd take the lab part if they disbanded.

ASHRAE now has a pilot for electronic TC meetings. They tried it on 2 TCs, including this one.

Had some technical issues, but pulled it off. 5 people attended electronically and did make quorum.

Several new people as corresponding members that attended. So they are going to do the electronic meeting in San Antonio and have a live intermediate meeting to discuss research, etc. between now and them.

TC 4.3 Ventilation Requirements and Infiltration - (Cochran)

No activities related to TC-9.10.

TC 4.10 Indoor Environmental Modeling

Need someone to report.

ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes

TC 5.1 Fan Design and Application - (Coward)

Some discussion of field measuring high plume fans, but that is in the background right now. Just had a recent seminar on instrumentation for measuring flow rates of fans and analyzing fan systems.

TC 5.3 Room Air Distribution - (Lorch)

Chilled beam research – conditionally approved one RTAR. The other one will be submitted at this meeting.

TC 5.8 Industrial Ventilation - (Lawton)

Looking for members badly. Meet at 4:15pm on Mondays.

TC 7.7 Test and Balance - (Richardson)

Going for reworking standard 111 – being revised. TAB standard. Just also voted to revise guideline 11 on testing controls in the field. Send in BIO to ASHRAE if you want to participate. Research project 1245 – just voted out. Compares equal area traverse to log T in rectangular ducts. The key is that log T is showing that it is 3-4% different than the equal area and is closer to the standard that is used. If you use equal area you can use a correction factor Or you can use log T. Can also measure at duct locations that are not at 10 duct diameters so you have more flexibility. Air balancers should not need that much straight duct – Only need 3-4 diameters as long as there aren't any reversed airflows. Fire them if they say otherwise (Gaylon).

TC 7.9 Building Commissioning - (Traylor)

SPC 202 is writing a standard for commissioning process for new facilities. Public review expected after San Antonio. Not a guideline, but a standard.

TC 9.2 Industrial Air Conditioning - (Kumpf)

Nothing related to TC-9.10

TC 9.6 Healthcare Facilities (Hanegan)

Design guide proceeding
Review in progress

TC 9.11 Clean Spaces - (Charneux)

Design guide on clean rooms progress almost 95% completed.

SSPC 62.1 Ventilation for Acceptable Indoor Air Quality - (HO)

Need someone to report. Nathan Ho. Taylor Engineers. He attended and reported : There was a change proposal for recirculation of class 4 air as it pertains to heat wheels. It is out for public review. It was just voted on this week so watch for it. He will forward the info to Roland to share. Trying to write it so that you can have an exception. Semco proposed the language.

**ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes**

SSPC 90.1 - (Conlan)

Nothing to report.

**ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes**

SMACNA - (Richardson)

Trying to get things ANSI certified. That's the big issue these days.

NFPA 45 - (Pelszinski)

Nothing to report. The 2011 has been out for a while.

NSF - (Spevak)

Full version came out last year, early. Steering committee meeting planned for May. Not sure what is on the agenda for that. Not much else.

ISPE - (Gardner)

Nothing new for this meeting.

AIHA Z9.5 - (Coogan)

They are going out of the standards business. Should ASHRAE pick up this standard? We need to spend some time on that. Is the standard used? Jim thinks so. Its very basic and written from health/safety standpoint. Includes O & M and working in the rooms. Gaylon – many places looking at reducing the air flow in the labs and even further when unoccupied. A lot of concern about how far to take a general lab down to. Gaylon thinks we should do some research and then dig into the actual standard right now. Z9.5. Who else besides ASHRAE – ISO could, but may not have expertise to do some of them. It already overlaps some of ASHRAE, but the health and safety side is important. Kelley Cramm does not want to see it become a defacto part of 62. We might want to find it a home before 62 decides to take and make it part of their standard. GYI, there are Z9.5 – Z9-14.

Labs 21 - (Sharp)

A good conference in September. 758 attendees. San Jose in October. Transition going on that has been happening for the last few years. EPA and DOE started it. Wanted to get out of the conference business. Transitioning to I2SL. They are a nonprofit. Government is accelerating it because of government funding. Example, some of the tools that are on a labs 21 website will get moved to a new website. Conference will be rebranded from Labs 21 to I2SL Conference. Government owns the Labs 21 name and won't let it get used by I2SL. Looking at trying to see what can be done with the EPC – make it more performance type standard or more concrete. LEED for Labs was disbanded. A student design competition going on as we speak. St.Croix. Winners will be announced at the end of the year. Maybe some interest if ASHRAE wanted to do a session or track at this conference. One way to interact more with another society. We could also connect the I2SL newsletter. Jim sent one out the other day. Do we want to share the mailing list? No. Just send it out one more time and say you can sign up for it if you want.

Benchmarking tool created. Something that is being maintained. That will be picked up. Sub metering working group. BIM group. A whole series of best practices. Main purpose of conference

ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes

is related to sustainability in labs. Let's just do an update for them on what's going on in ASHRAE. Maybe present a paper. What does CEC think about this? Asked Ginger.

USGBC - (Swann)

Committee dissolved.
No more need for liaison

SSPC 141.2 - (Spevak)

Spevak - Changed their scope to include velocity.

15. Roster (Coogan)

As of July 1st 2012

Wade Conlan – Chair

Roland Charneux – Vice Chair

Fred Lorch – Secretary

Members rolling-off

Leon Alevantis

Roland Charneux

Jim Coogan

Guy Perreault

George Sestak

Wei Sun

Members rolling-on

Wade Conlan

John Castelvechi

Carl Crow

Gordon Sharp

John Varley

16. Electronic communication

Jim Mainained the ASHRAE TC-9.10 website.

Google Group has only ± 12 people registered, so a conventional e-mail list will be used.

Google site. Roland did 2 things. Set up a google group – email list. Google site to store documents. Fairly few people sing up for either. Google site is better than ASHRAE. Private – only accessed by people who are on the list. There are 24 people who can access it right now. Standrads subcommittee will try to make use of it.

ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 24, 2012
Meeting Minutes

17. Old business

How to attract more people and get more involvement. Maybe setting up a linked in group. 12SL involvement. Linked in group was TC 9.9 – 300 members. The head of the group is a head hunter. So be careful. We could advertise in the YEA group. Send someone to the mixer. The college of fellows finances trips for students to come to the ASHRAE meeting. Fundraising campaign to fatten the coffers. YEA has a blog or some sort of regular dialogue. Could try to get on that to appeal for participation. Jim wants a volunteer to interact with YEA for the future of the TC. Wade will make it happen. DRC from Region 12.

18. New business

Re-starting of standard 110.

19. Evaluation – Coogan

Objectives were met on time.

20. Adjourn 5:40 pm.

Proposed by Georges Sestak, seconded by Gaylon Richards