

**ASHRAE TC 9.10 Laboratory Systems
Denver
Tuesday June 25, 2013
Meeting Minutes**

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS, INC.
1791 TULLIE CIRCLE, N.E./ATLANTA, GA 30329
404-636-8400**

TC/TG/TRG MINUTES COVER SHEET

(Minutes of all TC/TG/TRG Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/TRG NO	9.10	DATE	June 25th, 2013
TC/TG/TRG TITLE	Laboratory Systems		
DATE OF MEETING	June 25th, 2013	LOCATION	Denver

Members Present	Year Apptd	Members Absent	Year Apptd	Ex-officio members and additional attendance
Wade Conlan	2012	Pat Carpenter	2009	Roland Charneux
Henry Hays	2009			George Sestak
Adam R Bare	2011			Guy Perreault
Mary Foutz	2009			Charles E. Henck
Brad Cochran	2011			Frank J Spevak
Peter Gardner	2010			Robert H Weidner
Fred Lorch	2012			John P Castelvechi
Mitchell Swann	2010			Charles W Coward
Traci A Hanegan	2011			William A. Kumpf
M Ginger Scoggins	2011			Kelley Cramm
Wayne M Lawton	2011			Carol Ann Donovan
Gaylon Richardson	2012			David Rausch
So-Yeng Chen	2012			Nathan Lewis Ho
Gordon P Sharp	2012			Rajendera K. Kapoor
John O Varley	2012			Kishor Khankari
				Brent Fullerton
				Andy Bosscher

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				Ronald L.Wendorsky
				Jeff Hardin
				Davor Novosel
				Michael Ratcliff
				John G Neubauer
				Jared Ritter
				Jeff Reifschneider
				Lesley Hermann
				Lloyd Le
				Takaharu Saegasu
				Allison Briede
				Jeff Ewin
				Andrew J Wengerd

DISTRIBUTION

All Members of TC/TG/TRG plus the following:

TAC Section Head:	Thomas Lawrence
TAC Chair:	William F McQuade
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	Donald L Brandt Jay D Cederberg
Standards liaison	Cecily M. Grzywacz
Manager of Research & Technical Services	Michael R. Vaughn
Resarch liaison	Kishor Khankari

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1. Call to order 3:30

Wade Conlan called the meeting to order and established a quorum with 15 voting members present out of 15 + 1 non quorum.

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 Wade, Roland or Fred with their ASHRAE number.

As of 01 July 2013, the following voting members become corresponding: Pat Carpenter, Mary Foutz, Henry Hayes and Wayne Lawton.

As of 01 July 2013, the following members become voting members: Roland Charneux, Jihn Castelvechhi, Kelley Cramm, Carl Crow, Charles Henck and Gerhard Knutson.

4. Approval of previous minutes

Minutes from the Dallas meeting were reviewed.

Gaylon Richardson moved to accept the minutes.

Wayne Lawton seconded.

Motion passed. (14-0-0 CNV)

5. Announcements from Technical Activities Committee (Roland Charneux)

Roland Charneux reported news from the TC Chairs' meeting:

Society is seeking Hightower Award nominations

TAC prepared a PowerPoint presentation on TC's that could be used at chapter dinners to explain what the activities within a TC are.

A New MTG has been formed for the development of a Cold Climate Design Guide chaired by Frank Mills.

Each ASHRAE member is requested to complete the Employment Discipline Category under their Bio.

TC subcommittee can request web meetings for times between the winter and annual meetings through Mike Vaughn at ASHRAE

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6. Program Subcommittee (Carol Donovan)

Carol Donovan reported from the Program Subcommittee

Denver meeting – June 22 to 26, 2013

Programs scheduled:

Seminar 23 – Laboratory Retrofits Case Studies –Tuesday 25 June 9:45 – 10:45 AM. Chaired by Peter Gardner. Mark Hydeman and Roland Charneux speakers.

Seminar 32 – Laboratory Exhaust Fans and Energy Conservation – Tuesday 25 June 11:00 AM – 12:30 PM. Chaired by Aresh Raychaudhuri. Chuck Coward, Andy Bosscher and Ron Wendorski speakers.

Submitted but not scheduled (will be resubmitted as Forum or Seminar for New York)

Forum on Fire/Safety shut downs in Laboratories and resulting pressurization issues. Scheduled moderator- Reinhard Seidi

New York meeting – January 18 - 24, 2014

Website: www.ashrae.org/newyork

Schedule:

March 15, 2013 – Conference Paper abstracts due

April 19, 2013 – Technical Papers due for review

May 5, 2013 – Conference Paper Abstract Accept/Reject Notifications

June 3, 2013 – Web Site opens for Seminar, Forum, TPS and CPS proposals.

July 2, 2013 Final Conference Papers submitted for review (Approved abstracts only: please include learning objectives and Q&A)

August 12, 2013 – Seminar, Forum, TPPS and CPS program proposals due.

August 12, 2013 - Technical Papers final review due.

December 6, 2013 – Upload of PPT's begin.

January 3, 2014 – All PPT's due online.

January 18, 2014 – Speaker's Lounge opens.

Tracks:

1. Systems and Equipment. Papers in this track will assist designers, engineers, and operators in the design, selection, and operation of HVAC&R systems and equipment.

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2. Fundamentals and Applications. This track provides opportunities for papers and presentations of varying levels across a large topic base. Concepts, design elements and shared experiences for theoretical and applied concepts of HVAC&R design are included.
3. Indoor environmental Health/Indoor Environmental Quality: Track seeks papers and programs on developing, evaluating and predicting optimal indoor environmental conditions, especially as they pertain to environmental health.
4. Building Information Systems; Integrating Technology for Control, Management, Optimization and Efficiency: Track investigates how building control system technologies are integrated and used for building management, operation and efficiency.
5. International Design: This track provides an opportunity to share innovative and necessary design elements that can be shared internationally.
6. Improving Building Performance through Commissioning, Operation and Maintenance: Track provides an opportunity to provide papers and presentations surrounding building operation and commissioning practices as well as case studies in performance and commissioning.
7. Hydronic System Design for Efficiency and Large Buildings: Track is designed for papers and presentations for innovative hydronic system design, components, research and case studies of their application, including unintended consequences.
8. Tall Buildings: Performance Meets Policy: Papers and presentation topics on performance will include, but not be limited to the discussion of the measured and measurable use of utilities, envelope (infiltration and exfiltration), building pressure, waste handling, elevators, carbon and adaptive reuse.

Programs discussed

Seminar on Fire/Safety Shut-downs in Labs and Resulting Pressurization Issues – Reinhard Siedl to chair. Speakers needed.

Seminar on Lab Classifications – Roland Charneux to chair – Adam Bare and Gordon Sharp to speak. Will be a special session.

Seminar on Lab Fume Hood VAV System Controls and Operations – So-Yeng Chen to chair- one speaker assigned. Need additional speaker(s)

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Seminar on Fundamentals of start-up and commissioning BSL-3 Laboratories – Carol Donovan to chair – need speakers.

Seminar on Back to Basics on Laboratory Exhaust Stacks – Mike Ratcliff reported. Co-sponsored with TC 4.3 Three speakers and a chair have been selected.

Seattle meeting – June 28 – July 2, 2014

Website: www.ashrae.org/seattle

Schedule:

September 23, 2013 – Conference Paper abstracts due

September 23, 2013 – Technical Papers due for review

Tracks:

1. Research Summit: Seeks papers that report on HVAC&R research with particular emphasis on high performance building design and its role in a clean energy economy, and brings together researchers to present and discuss the latest research. Papers describing ASHRAE related research are encouraged as well as papers from societies and associations worldwide.
2. The Indoor Environment – Health, Comfort and Productivity: This track seeks papers highlighting the state of knowledge of the balance of environmental health and energy efficiency in buildings and research directions. The complex relationship between indoor and outdoor environmental conditions, coupled with the impacts of climate change, requires buildings that are comfortable and healthy for the occupants yet also energy efficient..
3. Ground Source Heat Pumps State of the Art: Design, Performance and Research: This track requires papers addressing all aspects of design that lead to optimally performing systems in addition to avoiding common pitfalls that lead to poorly performing systems.
4. Installation, Commissioning, Operation and Maintenance of Existing Buildings: This track seeks papers focusing on lessons learned, improvement of process and team communications and efforts to improve the installation, startup, O&M, and commissioning of HVAC systems. With low energy and zero energy buildings becoming more prevalent, there are many issues that will arise with installation, startup, commissioning and operations and maintenance (O&M)
5. Refrigeration: This track has an emphasis on global perspectives on new refrigerants, variable refrigerant flow applications, magnetic bearing

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compressors and refrigerant management. Papers on non-comfort cooling applications in food preservation and medical cryogenics are sought also.

6. Standards, Guidelines and Codes: This track seeks papers highlighting the application of ASHRAE's standards to practice as well as European (CEN) and ISO standards that support building performance.
7. Professional Skills
8. HVAC&R Systems, Equipment, Fundamentals and Applications

Programs discussed:

Seminar on Hood Controls / Case Studies. Carol Donovan to chair. Justin Garner and Jim Coogan speakers

Seminar on Hood Energy Usage

Chicago meeting – January 24 – 28, 2015

Website: www.ashrae.org/chicago

Schedule:

March 15, 2014 – Conference Paper abstracts due

April 19, 2014 – Technical Papers due for review

May 5, 2014 – Conference Paper Abstract Accept/Reject Notifications

June 3, 2014 – Web Site opens for Seminar, Forum, TPS and CPS proposals.

July 2, 2014 Final Conference Papers submitted for review (Approved abstracts only: please include learning objectives and Q&A)

August 12, 2014 – Seminar, Forum, TPPS and CPS program proposals due.

August 12, 2014 - Technical Papers final review due.

December 6, 2014 – Upload of PPT's begin.

January 3, 2015 – All PPT's due online.

January 18, 2015 – Speaker's Lounge opens.

Programs discussed:

Laboratory Design Guide Short Course. John Varley to finalize

Seminar on Design Guide. Henry Hayes to finalize.

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7. Research (Bob Weidner)

Wayne Lawton reported from the Research Subcommittee

RAC now has approval of research projects costing less than \$200,000.00.

RTAR 1544 Turbulence Intensity at the Fume Hood Face. John Varley will confer with the Section 9 Research Liaison to determine how to rewrite and submit a new RTAR

A new RTAR for the Development of a Mathematical Model to Determine the Optimum Airflow Requirements for a Safe Energy Efficient Laboratory Environment has been dropped.

RTAR 1573 Investigate a Replacement Gas for SF₆ has been approved. Mark Hydeman will chair a committee of 4 to write the work statement. Looking for background information. Goal is to submit for review before September 2013. Need to identify at least three research facilities. Looking for volunteers to help write the work statement and to serve on the PES/PMS.

An RTAR on a Method of Test for Balancing Enclosures will be expanded to include Ductless Hoods has been put on hold.

RTAR 1201 The Effect of Passive and Active Chilled Beams on the Performance of Fume Hoods is on hold pending the results of activity in TC 5.3 Room Air Distribution.

The RTAR for Energy Recovery in Labs is on hold pending activity resulting from the issue of an addendum to 62.1 using ERV in laboratory exhaust.

A brainstorming idea for research will be conducted at the New York Research Subcommittee. Everyone is encouraged to bring ideas.

8. Handbook (Bob Weidner)

Bob Weidner reported

Proposed Revisions

1. Review appropriateness and if the statement "There should be no entry into the laboratory during unoccupied setback times and occupied ventilation rates should be engaged possibly 1 hour or more in advance of occupancy to properly dilute any contaminants". Does this reflect actual and desired practice. – Gordon Sharp and Jim Coogan to review and comment.
2. Add new "colorful" features that will make the chapter attractive on the electronic version.
3. Review and expand the section on energy conservation and O&M issues. – Roland Charneux and Guy Perreault to review and comment.
4. Review references for accuracy and state of the art information. – Gordon Sharp to review.
5. Add sales pitch for design guide in chapter. – Bob Weidner to provide statement.

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6. Additional information for vestibule / air lock ventilation issues. – John Neubauer to comment.
 7. Expand compressed gas storage requirements? – John Neubauer to comment.
 8. Demand controlled ventilation. – Gordon Sharp to comment
 9. Expand discussion on chilled beam cooling? – Gordon Sharp to comment
 10. Expand discussion on low capture velocity fume hoods?
 11. Check reference source for Tables 1 and 2.
 12. Verify equation below Table 2. – TC 2.2 and ILAR
 13. Expand write-up for BSL 3 and 4 levels, - Henry Hays to assist with input from Lab Design Guide
 14. Check PID description on page 17. – Jim Coogan was suggested for input
 15. Check for commercialization – ASHRAE staff responsibility
 16. Should we include filtered recirculating hoods? – John Varley to review and comment
 17. Consider referencing European animal facility standards. – Gordon Sharp to review with ILAR
- Target is to vote on revisions in New York

9. Standards (Gaylon Richardson)

Gaylon Richardson reported for the standards subcommittee.

Standard 62.1 Addendum K revised section 516.3.4 as follows was approved for third public review (pending continuation letter ballot) with no negative votes.

5.16.1 Classification. Air (return, transfer, or exhaust air) leaving each space or location shall be designated at an expected air-quality classification not less than that shown in Table 5-2, Table 6-1, or Table 6-4 or as approved by the authority having jurisdiction. Air leaving spaces or locations that are not listed in Table 5-2, Table 6-1 or Table 6-4 shall be designated with the same classification as air from the most similar space or location listed in terms of occupant activities and building construction.

5.16.3.4 Class 4 Air. Class 4 air shall not be recirculated or transferred to any space nor recirculated within the space of origin.

Exception: When using any energy recovery device, recirculation from leakage, carryover, or transfer from the exhaust side of the energy recovery device is permitted subject to the following restrictions:

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- a. Laboratory exhaust from facilities where the use of chemicals is related to testing, analysis, teaching, research or development activities and where chemicals are used or synthesized on a nonproduction basis, rather than in a manufacturing process, provided that:
1. The laboratory is classified as BSL 2 or lower.
 2. The exhaust from a BSL 3 laboratory has been HEPA filtered prior to the entry into the heat recovery system.
 3. The laboratory does not handle explosive or reactive chemicals or react on or within the heat recovery system.
 4. The mass balance calculations specified in the IAOP shall be used with the emissions to be handled by the exhaust to ensure that the resulting concentrations in the space are below acceptable limits such as those specified in Appendix B
- b. Recirculated Class 4 air shall not exceed 0.5% of the outdoor air intake flow.

Table 5-2 Airstreams or Sources

Description	Air Class
Diazo printing equipment discharge	4
Commercial kitchen grease hoods	4
Commercial kitchen hoods other than grease	3
Laboratory exhaust	Note A
Residential kitchen vented hoods	3
Hydraulic elevator machine room	2

Note A: Air class shall be 4 unless determined otherwise by the responsible Environmental Health and Safety Department professional.

Mike Ratcliff commented that the 0.5% of the outdoor intake flow is actually greater than that allowed for entrainment of exhaust stack air into return air. This appears to be a discrepancy.

Nathan Ho (voting member of 62) reported that following public review all of the above except for the revised Table 5-2 was rejected.

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SPC 110 Wade Conlan reported the SPC met and addressed previous comments to the proposed document for Public Review. A final vote is being recorded to issue the document to Standards for public review this fall.

10.Design Guide (Henry Hays)

Henry Hays reported for the Design Guide Committee

Eleven chapters are went out for review. Target is to have review completed, so that TC can vote for acceptance in January. Currently looking for reviewers. Wade suggested that the committee have at least two reviewers to review the entire document from start to finish. Two TC members volunteered to review the entire document.

11.Journal (Roland Charneux)

Roland Charneux reported no lab related articles were published in the Journal within the last 6 months.

12.Laboratory Design Course (John Varley)

John Varley reported.

1. There were 20 positive and 2 negative comments received after the Dallas Class.
2. The class was presented in Mumbai, India where all volumes of the Design Guide that were brought to the class by ASHRAE were sold out. The organizers of the Mumbai class requested that it be presented in New Delhi.
3. The structure of the presentation will remain the same, however additional content (chilled beams and energy recovery) will be added. Also, a common example of a complete lab design will be incorporated.
4. The Design Course will be presented at the New York meeting,

13.Laboratory Classification (Adam Bare)

Adam Bare reported

1. The Lab Classification Subcommittee has been restarted.

14. Liaison Reports

TC 1.4 Control Theory and Applications – No Report

TC 2.2 Plant and Animal Environment (Henry Hays reported)

Research project on Moisture and Heat Production from Swine is being completed, results will be presented in New York

New research project to develop ventilation requirements for laboratory animals.

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TC 4.3 Ventilation Requirements and Infiltration (Brad Cochran reported)

Cosponsoring seminar with TC 9.10 for New York.

TC 4.10 Indoor Environmental Modeling (No Report)

TC 5.1 Fan Design and Application (Chuck Coward reported)

Seminar on fan efficiency

TC 5.3 Room Air Distribution (Fred Lorch reported)

Nothing to report related to TC-9.10.

TC 5.8 Industrial Ventilation (Wayne Lawton reported)

Research on duct transport velocities

TC 7.7 Test and Balance (Gaylon Richardson reported)

Revised Handbook chapter will include test and balance of fume hoods.

Guideline 11 being revised

TC 7.9 Building Commissioning

Standard 20 has been released for Public Review

TC 9.2 Industrial Air Conditioning (Bill Kumpf reported)

Nothing to report related to TC-9.10.

TC 9.6 Healthcare Facilities (Traci Hanegan reported)

Nothing to report related to TC-9.10.

Standard 170 has started revising the categorized Health Care Laboratories

TC 9.11 Clean Spaces (Pete Gardner reported)

Design Guide on Clean Spaces in progress

Research project on particle generation rates

SSPC 62.1 Ventilation for Acceptable Indoor Air Quality (Nathan Ho reported)

Continuous Maintenance requirement changes for air flow systems

Going to +/- 5% accuracy for air velocity measurements

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SSPC 90.1 (No Report)

SMACNA (Mitch Swan reported)

Nothing to report related to TC-9.10.

NFPA 45 (Dave Rausch reported)

First draft for NFPA 45 open for public review (15 Nov 2013 is closing date)

NSF (Frank Spevak reported)

Nothing to report related to TC-9.10.

ISPE (Pete Gardner reported)

Nothing to report related to TC-9.10.

ASSE Z9.5 (Gordon Sharp reported)

Z9.5 has been published. Next revision committee being formed. See Jim Coogan if interested.

I2SL, EPA, DOE (Gordon Sharp reported)

Continued working on Continuous Improvement for Laboratories

Setting up local chapters focusing on laboratories (Denver, Chicago, Boston exist)

Conference on 23 Sept 2013 in Minneapolis.

15. Old business (Wade Conlan)

CEC is requesting volunteers for technical reviews of CEC papers.

16. New business

Gaylon Richardson reported that there are 9 cities that have an existing building testing, balancing and commissioning for existing buildings being driven by green buildings

Mitch Swann reported TC 7.2 Design Build Contracting is looking for members

George Sestek is retiring, Guy Perreault will be new Membership Subcommittee chair

17. Evaluation

Wade Conlan reported the TC is doing well

Design Guide revision in on target

Have presented and will continue to present short course on laboratory design

Standard 110 will go out for public review shortly

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RTAR and work statement for SF₆ is being prepared

18. Adjourn 4:42 pm