

**ASHRAE TC 9.10 Laboratory Systems  
St. Louis  
Tuesday June 29, 2016  
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**

TC/TG/TRG NO	9.10	DATE	June 30th, 2016
TC/TG/TRG TITLE	Laboratory Systems		
DATE OF MEETING	June 29, 2016	LOCATION	St. Louis

Members Present	Term Expires	Members Absent	Term Expires	Ex-officio members and additional attendance
Kelley Cramm	2017	So-Yeng Chen (INT)		Traci Hanegan
Roland Charneux	2016	Henry Hays	2018	Mary Foutz
Mark Hydeman	2018	Carl Crow	2017	Patrick Carpenter
John Castelvechi	2017	John O Varley	2016	K. Khankari
Jim Coogan	2018	Charles Coward	2018	B. Fullerton
Robert Weidner	2018	Pete Gardner	2019	David Norvell
Guy Perreault	2019	Carol Ann Donovan	2018	Tom Smith
Charles Henck	2017	Nathan Ho	2019	Wei Sun
Gordon Sharp	2016	David Raush	2019	Kenneth W Kuntz
		Gaylon Richardson	2018	Jason A Atkinson
				Hoy Bohanon
				Christine Reinders
				Jacob Edmonson
				L. Le
				Martin Stangl
				Andrew Krenning
				W. Conlan
				Victor Cincola
				J.M Penner

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				H. Sheinman
				E. Ballachey
				D. Neu
				D. Hammond
				B. Dingman
				P. Likhonin
				J. Clark

**DISTRIBUTION**

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

<i>All Members of TC/TG/TRG plus the following:</i>	
TAC Section Head:	Gowri Krishnam
TAC Chair:	Tom Lawrence
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	Michael R. Vaughn Tara Thomas
Standards liaison	Doug Reindl
Manager of Research & Technical Services	Michael R. Vaughn
Research liaison	Jeff Gatlin Kishor Khankari

**1. Call to order 3:30**

Roland Charneux called the meeting to order. Quorum was not met with only 9 voting members present.

**2. Introductions**

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

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### **3. Membership Update (Guy Perreault)**

All interested in becoming a corresponding member should give their card to Roland, Traci, or Guy with their ASHRAE number or go directly online and enter their name to become provisional corresponding member.

Brad Cochran being absent, Guy Perreault accept to act as secretary for the meeting.

After 01 July 2016, the following voting members become corresponding: Roland Charneux, Gordon Sharp, and John Varley. The incoming voting members will be Traci Hanegan, Wade Conlan and Adam Bare.

### **4. Approval of previous minutes**

Minutes from the Orlando meeting were emailed previously.

Minutes from the Orlando meeting were reviewed.

Since we did not have quorum, Roland will send an email next week to proceed with an electronic vote to approve the Orlando minutes.

*Result of the electronic vote:* Minutes approved 10 for, 0 against, 0 Abstain, 8 non-response to e-mail, Chair not vote

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**5. Section Head Report (Roland Charneux)**

- PDC (Professional development courses) is searching for new courses.
- Guideline documents should probably go thru Standards
- CEC is developing two new formats: Panel discussions and debate sessions
- Handbook Review. Online tool with track change. An explanation Power Point will be available soon.
- 2 new MTG IAST and OBB (Occupants behavior in building)
- 1 new proposed MTG on Air Change Rates (ACR) From TC-9.6, 9.10 and 9.11 promoted by Kishor Khankari.
- Speaker evaluation to be 3.5 out of 5.0 minimum. Three strikes, after that proof of training will be required by ASHRAE.
- Long Beach Track 4 could be interested for TC-9.6, 9.10 and 9.11
- Use of Go-To Meetings by Sub-committees favored (Ask Mike Vaughan to arrange these)
- Technical bulletins instead of White papers.

**6. Program Subcommittee (Kelley Cramm)**

Carol Donovan is absent, Kelley Cramm accepts to chair the meeting, (see attached minutes)

**7. Research Subcommittee (Bob Weidner)**

See attached subcommittee minutes.

Future RTAR – Ventilation Effectiveness

Other topics of interest –

What type of exhaust devices should be used – literature research

Minimum flows in fume hoods and ducts

**8. Handbook Subcommittee (Roland Charneux)**

Lou Hartman is absent, Roland Charneux chairs the meeting, (see attached minutes)

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**9. Standards (Roland Charneux)**

See attached subcommittee minutes.

Hoy Bohanon mentions the MTG that wants to generate training programs targeting maintenance and operation personnel to better use and maintain the more complex technologies present in all types of buildings. This is in line with the initiative of I2SL to have a similar effort related to more complex labs.

**10. Design Guide (Henry Hays)**

No report [\[HT1\]](#)

**11. Lab Classification Subcommittee (Roland Charneux)**

Adam Bare is absent, Roland Charneux chairs the meeting, see attached subcommittee minutes. Documents in progress from the committee are available on the TC9.10 Website

**12. Laboratory Energy Efficiency (Eric Ballachey)**

See attached sub-committee minutes.

**13. Journal (Roland Charneux)**

- Article in the Journal on College Labs

**14. Laboratory Design Course**

- Jim Coogan – reports that an initial outline is started, Guy Perreault and Jon Castelvechi contributed material. Mark Hydeman also has some material that he is willing to share.

**15. Liaison Reports**

TC 1.4 Control Theory and Applications – (Jim Coogan reported)

- Working on better sequence of operations. Better training for controls.

TC 2.2 Plant and Animal Environment (Jim Coogan reported for Henry Hays)

- Research on demand based ventilation.

TC 4.3 Ventilation Requirements and Infiltration (Martin Stangl reported)

- Program separation distance between exhaust and supplies for Las Vegas

TC 4.10 Indoor Environmental Modeling (no Report)

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TC 5.1 Fan Design and Application (Chuck Coward reported)

- No update on DOE for fan efficiencies

TC 5.3 Room Air Distribution (no report)

TC 5.8 Industrial Ventilation (no report)

TC 7.6 Building Energy Performance (Patrick Carpenter reported)

- Research project how to apply the measurement protocols (air quality, water use ... overall performance) to eventually modify the applications guide.
- Also discussion about how to integrate the various committees activities who are concerned, (commissioning, measurement, building efficiency).

TC 7.7 Test and Balance (no report)

TC 7.9 Building Commissioning (John Castlevecchi)

- Commissioning track in Long beach

TC 9.2 Industrial Air Conditioning (no report)

TC 9.6 Healthcare Facilities (Traci Hanegan reported)

- The Infectious Diseases subcommittee is going to take the ASHRAE Design guide Manual for Hospitals and Clinics information on pressurizations, isolations rooms and provide more detailed information to designers, potentially in the form of a white paper or technical bulletin. Vegas meeting, Sunday from 11-noon.

TC 9.11 Clean Spaces (Wei Sun reported)

- New ASHRAE book on Clean room Design Guide to be available in the fall. , 5 year effort, 25 co-authors.
- Project for demand flow controls for clean rooms based on particle count.

SSPC 62.1 Ventilation for Acceptable Indoor Air Quality (Hoy Bohanon reported)

- 62.1 was out in the bookstore last April. Looking for revisions on IAQ procedure, ventilation procedure. 62.1 is a minimum standard. They will put out a guide to help make better designs. Publish a user manual. User manual will be how to meet the minimum requirements. The Guide will be how to do better than the minimum.

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SSPC 90.1 (Mark Hydeman reporting)

- Nothing relevant to this committee.

SMACNA (no report)

NFPA 45 (no report)

NSF (no report)

ISPE

AIHA Z9.5 (Tom Smith reported)

- Z.9 met in April but no information came out of what happened at the meeting. Jim Coogan and Tom Smith will meet with ASSE in Chicago. [Jim Coogan is now the Vice Chair.](#)

I2SL (Gordon Sharp reported)

- Annual conference in Kansas City in September. Main topic, laboratory benchmarking.
- Mark Hydeman, they benchmarked many equipment efficiencies like freezers and other lab equipment used in labs. Information is very useful to designers.

## **16. Old business (Roland Charneux)**

- No old business

## **17. New business**

Mark Hydeman mentions that ECC has a license for Basecamp – this is an online tool to post documents and help on collaborative efforts.

Guy Perreault will prepare a survey or questionnaire to identify the field of expertise of the various members of the committee.

Roland Charneux reminds that Go-To Meeting is available if anyone needs for sub-committee work.

[In the future we will schedule the main meeting from 3:30-5:30](#)

## **18. Adjourn at 4:58.**

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TC PROGRAM SUBCOMMITTEE MINUTES

TC9.10 – Laboratory Systems  
June 26, 2016

4:30 PM, America's Center Convention Center, St. Louis, Missouri

In Attendance:

Bob Weidner  
Kelley Cramm  
Harris Sheinman  
Jarvis Penner  
Tom Smith  
Roland Charneux  
Rajendera Kapoor

Ken Kuntz  
Jim Coogan  
Martin Stangl  
Lloyd Le  
Duane Hammond  
Victor Cincola  
Guy Perreault

Brad Cochran  
Jake Edmonson  
Eric Ballachey  
Tom Schlacter  
Jason Atkisson

The tracks for the Winter 2016 meeting in Las Vegas are as follows:

Track 1: Fundamentals and Applications

Track Chair: Chuck Curlin

Email: [ccurlin@shultzeg.com](mailto:ccurlin@shultzeg.com)

Engineering fundamentals are the foundation to understanding modeling, design, construction and operation of HVAC&R applications. This track provides opportunities for papers and presentations on theories, models, designs and shared experiences for both theoretical and applied concepts.

Track 2: HVAC&R Systems and Equipment

Track Chair: Michael Collarin

Email: [Michael.Collarin@parsons.com](mailto:Michael.Collarin@parsons.com)

Selection of equipment and design of systems is critical for effective HVAC&R operation, and for achieving building operators' goals. The papers and programs in this track will assist designers and building operators in the use of traditional, non-traditional and hybrid equipment and systems; with an emphasis on high performance, sustainable and LEED-certified buildings.

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Track 3: Water-Energy Nexus

Track Chair: Gary C. Debes

Email: [gcdebes@verizon.net](mailto:gcdebes@verizon.net)

The interdependencies between our water and energy systems are clear and are becoming more prominent as development requires the use of more resources while over-use and climate change make some resources scarcer. On the macro level, water is used in all phases of energy production and electricity generation (including renewables); and energy is required to extract, convey and deliver water, and to treat wastewaters prior to their return to the environment. On the micro level, the water-energy nexus is a major consideration for the HVAC&R community in determining equipment and system selection and design as well as building operation. This track will present papers and programs highlighting recent research on this issue as well as technologies and designs intended to reduce the gap between energy and water efficiency.

Track 4: Commercial and Industrial IAQ

Track Chair: Kevin Marple

Email: [kmarple@benzco.com](mailto:kmarple@benzco.com)

Indoor Air Quality is a vital consideration in the built environment. As people spend increasingly more time in industrial and commercial facilities, IAQ is closely linked to occupant comfort, satisfaction, productivity and health. This track will offer papers and programs to inform building owners and operators on the value of improving IAQ.

Track 5: Mission Critical Design and Operation

Track Chair: Carrie Anne Crawford

Email: [carriecrawford@eeace.com](mailto:carriecrawford@eeace.com)

As societies become more dependent on mission critical facilities, the design and operation of these facilities has undergone rapid change. This track will present papers and programs which will highlight advances in technologies, controls, design and operation of mission critical facilities to meet their increasing loads while also minimizing their impact on energy/water usage.

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Track 6: Effects of Climate Change on HVAC&R

Track Chair: Rocky Alazazi

Email: [mralazazi@yahoo.com](mailto:mralazazi@yahoo.com)

Climate change will have an increasing effect on the design and operation of the built environment. How does the HVAC&R community design for buildings today that are intended to be highly functional and efficient well into a future where today's standards, codes and practices may not be sufficient to meet tomorrow's climatic conditions? This track seeks papers and programs that will inform the selection of strategies, designs and approaches that will increase building resilience and facilitate climate adaptation.

Track 7: Energy Efficient Industrial Buildings

Track Chair: Corey Metzger

Email: [corey.metzger@resourcece.com](mailto:corey.metzger@resourcece.com)

Industrial facilities often have different HVAC&R requirements than do commercial and institutional facilities. Oftentimes these are a result of the processes that occur within industrial facilities as well as the life safety issues these processes create. This track will present papers and programs that will inform how energy efficiency can be achieved without compromising life safety considerations.

Track 8: Building Operation and Performance

Track Chair: Cynthia Moreno

Email: [cindym@tmmechanical.com](mailto:cindym@tmmechanical.com)

Modeling has become an essential factor in the design of all aspects of many buildings. Often the operational results of the building do not match the modeled outcome that the owner/operator expected. This can lead to much "finger pointing" or worse. This track will present papers and programs to update modelers, designers, contractors and owners/operators on how to better match building performance with modeled expectations.

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The following seminar was suggested for the Building Operation and Performance Track:

- **Laboratory Modeling Case Studies: Do the Users Follow the Model?**
  - Chair: Guy Perreault
  - Speakers: Brad Cochran and Jason Atkisson – Wind Response Exhaust Fan Control Case Study
  - Speaker: Gordon Sharp – Demand Controlled Ventilation Case Study
  - Speaker: Kelley Cramm – Energy Model vs. Actual Performance Case Study

The following seminar was suggested for the Fundamentals and Applications Track:

- **What's New with the Laboratory Design Guide?**
  - Chair: Roland Charneaux
  - Speaker: Henry Hays
  - Speaker: TBD

Tom Schlacter from TC 7.7, Testing & Balancing, asked if TC 9.10 would co-sponsor a seminar for Las Vegas and provide 2 speakers. The session would highlight a comparison of Blade Dampers vs. Venturi Valves for laboratory VAV systems. Tom Smith and Jim Coogan agreed to speak. Jarvis Penner can also speak if needed. Tom and Jim will work directly with Tom Schlacter on the submission.

NOTE: SEMINAR SUBMISSION DEADLINE FOR LAS VEGAS IS AUGUST 8<sup>TH</sup>

The tracks for the Summer 2016 meeting in Long Beach are as follows:

Track 1: Fundamentals and Applications

Track Chair: Frank Schambach

Email: [frankschambach@mindspring.com](mailto: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.

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Track 2: HVAC&R Systems and Equipment

Track Chair: Jennifer E. Leach

Email: [pennst8jen@yahoo.com](mailto:pennst8jen@yahoo.com)

What system and equipment are best for my building? Selection of equipment and design of systems is critical for effective HVAC&R operation and usually has more than one right answer. This track will provide engineers, designers, contractors, owners and building operators the tools to properly design, select and operate traditional, non-traditional and hybrid equipment and systems. The papers and programs within this track may range from basic concept to the technical analysis of system performance.

Track 3: Refrigeration

Track Chair: Vikrant Aute

Email: [vikrant@umd.edu](mailto:vikrant@umd.edu)

The refrigeration cycle is a key component to our daily needs, as it is used for thermal comfort, food storage, creating ice and medicinal needs. There have been numerous improvements and changes to refrigeration systems and refrigerants to accommodate the increased system efficiency. This track seeks papers and programs that address the wide range of applications of refrigerants and their improvements, including variable refrigerant flow applications, refrigerant management and food storage.

Track 4: Building Life Safety Systems

Track Chair: Robert Alan Neely

Email: [alan\\_neely@pghcorning.com](mailto:alan_neely@pghcorning.com)

Building life safety systems are critical in commercial facilities to protect building occupants from fires and power outages. This track focuses on building egress, fire protection systems, fire alarms, emergency lighting, fire and smoke barriers, and special hazard protection and describes key factors to consider when designing these life safety systems. Papers and programs are sought to evaluate design strategies for the life safety systems noted above along with building specific life safety systems, such as gas detection systems, kitchen ventilation and smoke evacuation systems, etc.

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Track 5: Controls: Smart Building Systems and the Security Concerns as Technology Emerges

Track Chair: Melanie Derby

Email: [derbym@ksu.edu](mailto:derbym@ksu.edu)

This track will explore smart building systems and how they can be incorporated into commercial facilities to help reduce energy consumption and improve occupant comfort. As these technologies advance and buildings become "smarter," the question is asked ... "Is my building in threat of a cyber attack?" As owners and designers incorporate more controls system with web and cloud access into buildings, there is a concern that this allows more opportunities for hackers to gain access into sensitive and confidential databases. The programs within this track will explore measures to keep this information safe, while maintaining the flexibility of remote control/access of building systems.

Track 6: Commissioning: Optimizing New and Existing Buildings and their Operation

Track Chair: Dennis Alejandro

Email: [denzjac@yahoo.com](mailto:denzjac@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 Chair: Jason DeGraw

Email: [jason.degraw@nrel.gov](mailto:jason.degraw@nrel.gov)

Title 24 and Architecture 2030 have ambitious goals for all commercial buildings in California to be Net Zero Energy (NZE) by the year 2030. This track will assist the design team and owners to evaluate various systems (including HVAC, building envelope, lighting, domestic water and renewable energy system), design strategies, construction measures and building operation to achieve NZE. The programs within the track will also explore the advancing code and regulations that countries around the world are implementing to reduce building energy consumption.

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Track 8: Residential Buildings: Standards Guidelines and Codes

Track Chair: Kimberly Pierson

Email: [kdpwildcat@gmail.com](mailto: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](mailto: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.

The following seminar was suggested for the Commissioning: Optimizing New and Existing Buildings and their Operation Track:

- **Laboratory Commissioning Case Studies**
  - Chair: Raj Kapoor
  - Raj will recruit speakers and present the program in Las Vegas to the full committee.

NOTE THAT THE DEADLINE FOR SEMINAR SUBMISSIONS FOR LONG BEACH IS FEBRUARY 6<sup>TH</sup>. THIS IS ONE WEEK AFTER THE LAS VEGAS MEETING

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RESEARCH SUBCOMMITTEE MINUTES

TC9.10 – Laboratory Systems  
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America's Center Convention Center, St. Louis, Missouri

In Attendance:

Bob Weidner  
Kelley Cramm  
Harris Sheinman  
Jarvis Penner  
Tom Smith  
Roland Charneux  
Rajendera Kapoor

Ken Kuntz  
Jim Coogan  
Duane Hammond  
Guy Perreault  
Brad Cochram  
Jake Edmonson  
Eric Ballachey

Mark Hydeman  
Jason Atkisson  
Victor Cincola  
Brendan Dingman  
Jeff Gatlin

1. Work Statement Status:
  - a. RP 1573 (Determination of Suitable Replacement for SF<sub>6</sub> when Used As a Tracer Gas In Accordance With ANSI/ASHRAE Standard 110
  - b. RTAR was approved in 2012.
  - c. Co-sponsored by TC 5.8 (Industrial Committee)
  - d. Work Statement conditionally approved at Summer 2016 meeting; Once we receive formal comments, TC9.10 will respond with formal cover letter. Then ASHRAE will put WS out to bid.
    - i. Mark Hydeman - Chair
    - ii. Need to confirm PES (Project Evaluation Subcommittee): Mark H., Bob W., Duane Hammond, Carol,
    - iii. Need to confirm PMS (Project Monitoring Subcommittee)
2. RTAR Status:
  - a. RTAR 1780 (Test Method to develop a Methodology to Evaluate Cross Contamination of Gaseous Contaminants within Total Energy Recovery Devices)
    - i. RTAR Conditionally approved with understanding that TC9.10 get co-sponsorship from SSPC 62.1, TC 9.6 (Health Care), TC 5.5 (Air to Air Energy Recovery); TC 2.3 (Gaseous Contaminants) also agreed to be co-sponsor.
  - b. RTAR 1776 (Validation of Plume Dispersion Models) – Submitted and reviewed by RAC at Winter Meeting and rejected 4-0-0; They want it to be dropped.
  - c. Future RTAR - Defining and characterization of air-change effectiveness in labs – On Hold – Tom Smith
  - d. New RTAR Topics that need to be written:
    - i. What types of exhaust devices should be used based on capture effectiveness and/or capture efficiency for personnel safety: Fume Hoods, Snorkels, BSC's, Canopy's, Etc. – Literature search or research? How to test risk factors?
    - ii. Determination of minimum flows for capture of contaminants within hood and ducts.

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RESEARCH SUBCOMMITTEE MINUTES

TC9.10 – Laboratory Systems  
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America's Center Convention Center, St. Louis, Missouri

Handbook sub-committee met shortly in St-Louis.

The following persons are interested to help for the review:

Bob Weidner  
Guy Perreault  
John Castelvechi  
Gordon Sharp  
David Norvell

There is a new procedure for the revision of the chapter. It will be online with track change in a Word text format.

It can be accessed thru: **authoring.ashrae.org** on internet explorer.

There is also a Power point on the ASHRAE website it the instruction on how the system works.

More than one person can work at the same time.

The only drawback is that you have to be online to make modification. You cannot download and work on it.

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TC STANDARDS SUBCOMMITTEE MINUTES

TC9.10 – Laboratory Systems

June 26, 2016

3:00 PM, America's Center Convention Center, room 127, St. Louis, Missouri

In Attendance: 15 persons were present. Roland chairing in the absence of Galon Richardson.

Bob Weidner  
Kelley Cramm  
Harris Sheinman  
Jarvis Penner  
Tom Smith

Roland Charneux  
Ken Kuntz  
Duane Hammond  
Victor Cincola  
Guy Perreault

Brad Cochram  
Jake Edmonson  
Eric Ballachey  
Mark Hydeman  
Brendan Dingman

Standard 90.1

No report

ASHRAE 110

Review was completed and went out thru publication and is available at bookstore.

Standard 62.1

Nothing special to report

ASSE Z-9.5

Under revision. Next publication in 2017. Tom Smith, Brad Cochran, Gordon Sharp and Victor Newman are part of the committee.

I2SL

Following a survey on the knowledge of HVAC maintenance and operation personnel it seems that complexity of systems outpaced the competence of maintenance people. I2SL develop 4 level training for: High level executive, Stakeholders, Maintenance personnel and Operating personnel.

European EN-178

ASHRAE should look to harmonize standard 110 with European Fume Hood testing standard.

SEFA

SEFA develops guideline on exposure control devices.

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TC 9.10 LABORATORY CLASSIFICATION SUBCOMMITTEE MINUTES

TC9.10 – Laboratory Systems

June 26, 2016 5:15 PM,

America's Center Convention Center, room 127, St. Louis, Missouri

In Attendance: 15 persons were present. Roland chairing in the absence of Adam Bare.

Kelley Cramm  
Harris Sheinman  
Jarvis Penner  
Tom Smith

Roland Charneux  
Duane Hammond  
Victor Cincola  
Guy Perreault

Brad Cochran  
Eric Ballachey  
Patrick Carpenter

Questions from the subcommittee

Does numbers used in the guideline align with EH&S risk assessment? Make clear statement on that. Use letters instead of numbers?

The general text to be reviewed by engineers.

The guideline probably will have to go thru Standard instead of directly to publication.

It was explained to the committee that this guideline does not cover the diversity factor for an entire building. May be this could be covered in a future version

There was again questions about the air change rates. Maybe there could be additional explanation. The intent is not to be prescriptive, but give some guidelines to the designers.

In a future version there could be other way to define the ventilation needs, considering ventilation efficiency and 50 ppm in the breathing zone.

It would be interesting to have some order of magnitude or relative cost of the different class of labs to help designers to discuss with clients.

Some members considers that ACR should remain as a guide for the practitioners.

The ACR defined in the guideline are there to help EH&S to choose which lab type should be used after their risk analysis.

The monthly meeting will continue to complete the document.

A request has been made to the committee to help completing the texts.

Links to the documents are on the TC Web-Site: <https://tc0910.ashraetcs.org/functions.php>

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TC 9.10 ENERGY EFFICIENCY SUBCOMMITTEE MINUTES

TC9.10 – Laboratory Systems  
June 26, 2016 1:30 pm to 2:30 PM,  
America’s Center Convention Center, room 127, St. Louis, Missouri

Sub-Committee Chair: Eric Ballachey

Attendees:

Tom Smith	Roland Charneux	Victor Cincola
Jarvis Penner	Wade Conlan	Martin Stangl
Kurt Rindoks	Karina Saenz	Duane Hammond
Ken Kuntz	Mark Hydeman	Jordan Clark
Matt Gaedtke	Bob Weidner	Harris Sheinman
Mary Foutz	Guy Perreault	

1. Updated proposed mission statement:

*The ASHRAE TC 9.10 Laboratory Energy Efficiency Subcommittee promotes existing energy efficient measures and provides guidance and resources on new and innovative methods of designing energy-efficient laboratories while maintaining safety. The subcommittee will be a forum for providing energy efficiency strategies for laboratories and liaise with other groups within and outside of ASHRAE regarding energy efficiency issues. These strategies will be delivered in the form of articles, short guidelines, design tools, or other.*

Kurt Rindoks raised the question about whether we should be talking about safety as perhaps we are not the correct people to indicate whether a strategy is “safe. Eric Ballachey agrees that we should not be evaluating the safety of including a strategy but we can highlight what the impacts there may be on safety with respect to a certain strategy.

Additionally, if anyone has suggestions of TC’s that have an interest or connection to energy efficiency, they would be welcome.

If anyone if has any concerns or further recommendations, please email them to the chair.

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2. Format and topics for documents:

Eric Ballachey and Ken Kuntz have each authored a 1- and 2-pager document (attached separately) as examples of a suggested format going forward. Certainly open to suggestions for improvement. Features include an indicated level (basic, intermediate, advanced) and four focus categories (hardware, controls, energy recovery, and operational strategies). It would be beneficial if each topic included examples, sample calculations, cost savings analysis, and resources for further investigation. One or two pages seems about right but longer topics can be published in multiple parts.

Current suggested topics:

Enthalpy wheels vs DX Loops – Intermediate - Energy Recovery  
Occupancy Sensors in Labs – Intermediate – Strategies  
Laboratory Air Change Rates – Basic/Intermediate/Advanced – Strategies  
Using Fume Hood Diversity – Basic – Strategies  
Static Pressure Setpoint Reset – Intermediate - Controls  
Exhaust fan type and selection for best efficiency – basic/intermediate –hardware  
Fume hood retrofit (T. Smith)  
Decoupling heat loads and ventilation loads (N. Ho)  
Evaluation of plug loads  
Lower face velocity/pressure in air handlers (specific requirements for labs (N. Ho)  
VAV System sensitivity in large systems (T. Smith)  
Pressure set point reset (G. Perreault)  
Trim and response strategy  
Retro-commissioning specific to laboratories  
Open sash alarms and sash closers  
Combination sashes  
High efficiency mixed flow fans (N. Ho)  
Use the chilled water return to cool high load rooms with fan coils  
Higher delta T (R. Charneux)  
What would be the best typical lab (P. Carpenter)  
Liquid heat recovery desiccant

Looking for additional topics and people willing to author them. Eric Ballachey is willing to take care of formatting so don't let that be an obstacle.

A question of how to obtain graphics for this effort. Roland Charneux will provide the sub-committee the details on what ASHRAE requires to show release of approval. If anyone has libraries of graphics that they or their company is willing to allow us to use, it would be greatly approved.

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With respect to the question of how these documents will be published, the group appears to favour adding them on an ongoing basis to the electronic Laboratory Design Guide. Roland Charneux suggested that peer review should be followed by approval by the voting members of the TC before publication.

The FTP site used for the Lab Design Guide is available for use by the sub-committee. Eric Ballachey will take over access ownership.

3. Follow-up on a report from Std 90.1:

Per Mark Hyndman, nothing to report at this time.

4. Request for any additional items to be added to the list for follow-up:

Nothing at this time.

DRAFT