ASHRAE TC 9.10 Laboratory Systems
Chicago
Tuesday January 23rd , 2018
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	Jan 23rd , 2017
TC/TG/TRG TITLE	Laboratory Systems		
DATE OF MEETING	Jan 23rd 2018	LOCATION	Chicago

Members Present	Term Expires	Members Absent	Term Expires	Ex-officio members and additional attendance
Jim Coogan	2018	Charles Coward	2018	Roland Charneux
Mark Hydeman	2018	Carol Ann Donovan	2018	Mary Foutz
Gaylon Richardson	2018	Henry Hays	2018	K. Khankari
Robert Weidner	2018	Pete Gardner	2019	B. Fullerton
Guy Perreault	2019	Nathan Ho	2019	T. Smith
David Raush	2019			J. Castelvecchi
Adam Bare	2020			D. Hammond
Wade Conlan	2020			G. Augustini
Traci Hanegan	2020			C. Henck
Jason A Atkinson	2021			Jacob Edmonson
Patrick Carpenter	2021			C Reinderds-Caron
Kenneth W Kuntz	2021			L Hartman
Tom Smith	2021			B. Burley
				J.S. Mac'urray
				P.R. Lemester
				D. Hammond
				E. Ballachey

				T. Wheeler
				B. Valbracht
				M. Malkin
				Gordon Sharp
				Brad Cochran
				B . Burley
				K. Thompson
				M Ratcliff
				K. Monteiro
				R. Seidl
				J. Carter
				L. Meisenzah
				K. Cole
				M. Nesbitt
				K. Rindoks.

DISTRIBUTION

All Members of TC/TG/TRG plus the following:	
TAC Section Head:	
TAC Chair:	

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All Committee Liaisons As Shown On TC/TG/TRG Rosters:	
Standards liaison Manager of Research & Technical Services	
Research liaison	

Call to order 3:30

Traci Hanegan called the meeting to order. Quorum is met, 13 of 18 members are present. (11 at the time of roll call).

Traci proposes some changes to the agenda to accommodate flight schedules.

Lab Classification:

Adam presents the lab classification document and is put forward to vote.

Motion passed.

Vote: 12-1-0

Existing Laboratory refurbishing (Vince Sakraida)

Vince presents a case study on refurbishing a BSL-3 lab

Introductions

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

Membership Update (Guy Perreault)

Guy mentions the members rolling off after the Houston Meeting and the new members who will be rolling on. He also explains to the committee the new procedure for those interested in joining through the ashrae.org website; https://www.ashrae.org/technical-resources/technical-committees/applying-for-membership-on-a-technical-committee .

Approval of previous minutes

Minutes from the Las Vegas meeting were emailed previously.
Minutes from the meeting were reviewed.
Minutes approved 11 for, 0 against, 1 Abstain

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Section Head Report (Traci Hanegan)

- IF you have publication ideas, please contact the Publications committee (Books, papers, articles…).
- New 90.1 Portal (www.ashrae.org/901portal)
- New Technology portal
  - Articles and research reports (Free for members)
  - Transactions, Papers and seminars available subscription)
  - www.ashrae.org/technologyportal
- ASHRAE Authoring Portal
  - Multiple authors review and edit.
  - Approved secure platform
  - www.ashrae.org/authoringportal
- ASHRAE terminology, free online glossary.
  - More than 3700 terms relative to the built environment
  - www.ashrae.org/ASHRAEterms

Program Subcommittee (Ken Kuntz filled in for Carol Donovan)

- See report in the attachments (see attached minutes)

- Gaylon Richardson suggests that TC 9.10 co-sponsor a seminar out of TC 5.3 on ventilation effectiveness.

- Approval of the proposed program: Vote 13-0-0

Research Subcommittee (Bob Weidner)

- RP-1573 It is recommended that the STD 110 committee be able to address the final report for the research project.
- WS-1780 Test method to evaluate cross-contamination of gaseous contaminant within total energy recovery wheels. Vote: 10-0-0 (Mark Hydeman and David Raush were out of the room at the time of the vote)
- WS-1835 Characterizing the Performance of Entrained Flow Stacks
  - Brad asks for reviewer, participants on the PES as well as potential bidders

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Handbook Subcommittee (Lou Hartman)

- No report
- If applicable, reference the Lab Classification document.

Standards (Gaylon Richardson)

- STD 110 is reforming.
- 90.1, Jason Atkinson – There is a proposal on changing the fan power limitations. To be classified a VAV you need to be able to turn down to 50% which could be an issue for labs.

Laboratory Energy Efficiency (Eric Ballachey)

- Refocus the ideas on the next Design Guide revision.

Journal (Roland Charneux)

- No articles in the last 6 months.

Laboratory Design Course (John Varley)

- 61 registered in Chicago
- Good variety of participants.
- John is looking for someone to take over the presenting of this course within the next 5 years.
- An advanced course has been requested by members.

Liaison Reports

TC 1.4 Control Theory and Applications – (Jim Coogan)

- Making progress on the Guideline 36P: High Performance Sequences of Operation. The third public review just closed. Comments look easy to resolve. The GPC may vote for publication before the next conference. The text is close to final, even if it takes more calendar time to publish.

- The Standard 195: Method of Test for Air Terminal Controls is in revision. To increase use of the standard, the SPC is adding a test of the controller alone. Currently the only tests apply to a terminal and controller together.

TC 2.2 Plant and Animal Environment (David Raush)

- Focus is on agricultural and plant growth and HVAC guidance for growth facilities. Nothing major for TC 9.10

TC 4.3 Ventilation Requirements and Infiltration (Brad Cochran)

- They are stepping away from MTG on AC rates

TC 5.1 Fan Design and Application (Ken Kuntz)

- They have a monitoring committee made up of multiple manufacturers for the RTAR Characterizing the Performance of Entrained Flow Stacks

TC 5.3 Room Air Distribution (Gaylon Richardson)

- Standard 113 – testing to be done in a mock up or manufacturer's lab.

TC 5.8 Industrial Ventilation

- No report

TC 7.6 Building Energy Performance (Patrick Carpenter)

- Building EQ – Standard 105 being revised.
- Green Guide
- Guideline 14

TC 7.7 Test and Balance (Gaylon Richardson)

- Guideline 11 voted for public review
- Standard 111 –not for public review yet

TC 7.9 Building Commissioning – no report

TC 9.2 Industrial Air Conditioning

- Combined with report from TC5.8

TC 9.6 Healthcare Facilities (George Augustini)

- Further updates to the Standard 170 table could impact lab spaces.

TC 9.11 Clean Spaces (Kishor Khankari)

- New Design Guide is out for sale

62.1 – Read email report from Nathan Ho.**90.1 See report in the Standards S-C section.**

I2SL (Gordon Sharp)

- Lab accelerator program – no funding from DOE
- Call for presenters is now open through March 16th for the 2018 I2SL conference in Raleigh October 14 – 17.
- I2SL is considering starting a program to rate and recognize lab buildings that excel in energy efficient performance.
- The I2SL lab benchmarking initiative is looking for funding from sponsors and other sources to fund the development of a front end for the LBNL lab benchmarking data.
- The I2Sl benchmarking and the ASHRAE bEQ groups are looking to cooperate.

Kishor Khankari makes a presentation on Airflow management for Laboratory Facilities

Old business

- No old business

New business

- Gaylon Richardson noted that he is helping to revise the lab chapter in the AABC publication. Please send any comments to him.

Main Meeting adjourn at 5:44.

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Program Sub Committee Meeting, Chicago 2018 Winter Conference
Sunday January 21

Attendance:

Bob Weidner	Ken Kuntz	Roland Charneax	Matt Nesbitt
Jake Edmondson	Jim Coogan	Brendan Dingmand	Brad Cochran
Gaylon Richardson	Jason Atkisson	Adam Bare	

Chicago Programs

Sponsored Programs

Seminar 4	Modeling and Testing: Do Air Change Rates Have Lab Safety Covered?	Room: Adams	Sunday 9:45-10:45 AM

Co-Sponsored Programs

Forum 1	Ventilation Effectiveness: What Is It?	Room: Monroe	Sunday 8:00-9:00 AM
Seminar 44	The Best of "Engineer's Notebook" 2nd Edition	Room: 202AB	Tuesday 11:00-12:30 AM

Short Courses

ALI Course	Laboratory Design: The Basics and Beyond	McCormick Place	Sunday 3:30-6:30pm

Houston Tracks

Track 1: HVAC&R Systems and Equipment

Track Chair: Frank Schambach
Email: frankschambach@mindspring.com
Selection of equipment and systems is paramount to HVAC&R design. Papers and programs in this track will assist designers, engineers, and operators in the design, selection, and operation of HVAC&R systems and equipment.

Track 2: Fundamentals and Applications

Track Chair: Dennis Alejandro
Email: denzjac@yahoo.com
Fundamentals are the foundation for understanding applications in engineering. Key components of ASHRAE fundamentals include thermodynamics, psychrometrics, fluid and mass flow. 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.

Track 3: District Energy and Cogeneration Plants

Track Chair: Kimberly Pierson
Email: kdpwildcat@gmail.com

As our world resources become more and more sparse there is an industry-wide movement toward efficiency and sustainability. One of the ways in which we can look to minimize our carbon footprint is to combine our resources. District energy systems and cogeneration plants do just that and are quite popular in some locales but have yet to gain traction in other developed cities. We will look at the advantages and limitations, do's and don'ts and best practices of utilizing this type of shared system.

Track 4: Safeguarding your HVAC&R System

Track Chair: Rich Rose
Email: richr@mticontrols.com

From seismic events to power outages and human error, how secure is your HVAC&R System? Mechanical, plumbing, electrical, and control systems all work together to create our living buildings, so it is imperative that designers and operators take into account the reactivity and interaction of these systems in response to natural disasters, human interference and other catastrophic events. Topics in this track include considering your design layout and accessibility, backup systems, supports and bracing, and more.

Track 5: Residential - Modern Buildings in Hot and Humid Climates

Track Chair: Dimitris Charalambopoulos
Email: dimitris@ashrae.gr

Residential dwellings require designers to consider a different scope of building functions, occupant use, and comfort. With increasing utility rates and a movement toward net zero housing, the traditional residential design models are continuously diversifying and evolving. This track will discuss how we can integrate modern residential design and building practices into hot and/or humid climates with specific challenges ranging from indoor comfort to ventilation and mold.

Track 6: Professional Skills

Track Chair: Kevin Marple
Email: kmarple@benzco.com

This track is designed to provide professionals an opportunity to develop in the areas of presentation skills, leadership, teambuilding, understanding various business operations, interpersonal skills, etc. In short, the Professional Skills Track can cover all aspects of business outside of engineering/technical applications and lends itself to interactive session types such as workshops and forums.

Track 7: Research Summit

Track Chair: Melanie Derby
Email: derbym@ksu.edu

Active research, and the exchange of those research findings are critical to the development of our HVAC&R industry and environment. The sixth annual research summit invites researchers to share those results; and this year we announce an exciting collaboration with ASHRAE's archival research

publication, *Science and Technology for the Built Environment* (STBE). Researchers are invited to present papers, seminars, forums or participate in panel discussions. Authors may also pursue an opportunity to further develop their submissions for later publication in STBE

Track 8: HVAC&R Control Freaks

Track Chair: Gary C. Debes
Email: gcdebes@verizon.net
This track will focus on all things controls (note: please see track 9 "MiniTrack" as well). We invite you to join this exchange addressing one of the most dynamic areas in HVAC&R. Topics may range from design innovations spreading through our industry to the latest in building integration and observation, or even troubleshooting the most common issues occurring in building management systems.

Track 9: HVAC&R Analytics

Track Chair: Vikrant Aute
Email: vikrant@umd.edu
This track will focus on the application of analytics algorithms/tools to automate systems. The tools and data are readily available, but the challenge is in using them in a timely and effective manner to add value to our HVAC&R Systems. By discussing the basics of analytics, methods, case studies and lessons learned we can consider if machine learning is ready to replace conventional controls.

For Track 8 (Control Freaks)

Jim Coogan will re-submit "Airflow Control" topic idea

Track 4 (Safeguarding)

Gaylon will re-submit "Test Procedures for Lab Controls" – Sponsored by TC 5.3

For Track 2 (Fundamentals and Applications)

Kishor is submitting;

Tentative Title: Contaminant generation rates – do we really know?

Tentative Abstract

The health and safety of occupants depend on the concentration levels of contaminants in which need to be kept under certain acceptable limits to maintain the quality of indoor air environment. However, the concentration levels depend on the source of the contaminants and their associated generation rates. The estimation of the supply airflow rates to maintain such healthy indoor environment also requires the knowledge of the contaminant generation rates. Further the location, strength, and the ventilation effectiveness of the HVAC system together determine the quality of the indoor environment. Do we really know the generation rates of the contaminant in the indoor spaces? How can those be measured and monitored? What other parameters can affect the generation rates? How can it be implemented as a design parameter? Do the Air Change Rate (ACR) specifications account for the generation rates? This session will brainstorm these questions and will attempt to identify current state of the art about the contaminant generation rates in the HVAC industry. Active participation is required from the attendees

Deadlines

- Friday, February 9, 2018: Program (Seminar, Forum, Workshop, Debate and Panel) Proposals Due
- Friday, February 9, 2018: Revised Conference Papers/Final Technical Papers Due
- Monday, February 19, 2018: Conference and Technical Paper Final Accept/Reject Notifications

Future ASHRAE CONFERENCES

Year	Winter	Annual
2018	Jan 20-Jan 24 – Chicago, IL	Jun 23-27 – Houston, TX
2019	Jan 12-16 – Atlanta, GA	Jun 22-26 – Kansas City, MO

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TC 9.10 Research Subcommittee – 1-21-18 Meeting in Chicago – Final

Robert Weidner	Kishor Khankari	Ken Kuntz
Mark Vanderkooy	Roland Charneux	Mark Hydeman
Mike Ratcliff	John Garnett Neubauer	Wade Conlan
Matt Nesbitt	Brad Cochran	Duane Hammond
Jake Edmondson	Chris Kirchner	Kinberly Thompson
Gaylon Richardson	Tom Smith	Adam Bare
Alisson Farmer	Dan Doyle	

1. Research Project RP 1573 (SF6 Replacement Gas) Status (Sunday 1-2:30PM):
    a. PMS – Bob, Mark, Kelley, Duane (Ken) in attendance; 11 total in attendance to see Tom's 15 minute presentation that took 90 minutes…all good!
    b. Copies of Exposure Control Technologies (ECT) project status included in the minutes (Attachment 1).
    c. ECT presentation to PMS by Tom Smith in both the PMS meeting and Research subcommittee meeting; very impressive and exciting work to date.
        i. Looking at the dispersion methods to provide reproducibility of the tests
        ii. Looking at safer less costly options for SF6 with his most recent experimentation with IPA
    d. PMS is very satisfied with progress to date. We see no issues with ECT meeting the Sept 2018 deadline.
    e. List of Attendees: (See Attachment 2)
    f. Impetus to new push with STD 110.
2. RTAR/Work Statement Status:
    a. RTAR/WS 1780 (Test Method to develop a Methodology to Evaluate Cross Contamination of Gaseous Contaminants within Total Energy Recovery Wheels);
        i. Roland C. completed a re-write and has responded to questions from RAC and other TC's. (See Attachment 3)
        ii. Roland found a 3rd bidder.

iii. TC 9.10 Vote: (*Members will have to vote yes or no or abstain with reasons why they vote no or why they abstain) Votes also by TC 2.3, TC9.6, TC5.5, SSPC 62.1*

iv. TC9.6 did vote 10-0-1 to approve work statement.

v. TC 9.10 10-0-0 vote to approve

vi. TC 5.5? 8-0-2 Vote

b. RTAR/WS 1835 for "Characterizing the Performance of Entrained Flow Stacks"– Brad Cochran w/co-sponsor from TC 5.1 (Fan Systems) and 4.3 (Ventilation & Infiltration). See attached RTAR. (See Attached)

i. TC 9.10 approved 11-0 in Long Beach

ii. RTAR-1835 was accepted as-is by RAC.

iii. Work Statement to be written; Team being formed by Brad.

iv. Lots of discussion in sub committee including velocity profile, effect of plume rise, impact of wind band, etc.

3. New RTARS to be pursued:

a. RTAR to "Survey of sources of contamination in existing labs"

i. Roland C. – will initiate RTAR for this research.

b. RTAR on Air Change Rates: New MTG committee encompassing several TC's looking into the why's and where's of Air Change Rates

i. Several committees involved including 9.10, 9.11, 9.6, NIOSH, etc.

ii. Probably going to be multiple work statements coming out of this MTG…not certain who authors are at this point. I believe I heard Phil Norton's name.

iii. Kishor, Jim Coogan and Roland are involved.

c. Future RTAR - Duct "conveyance" velocity required to protect exhaust systems

i. Tom Smith was working with master degree students from Las Alamos on this subject.

ii. Literature research showed not much out there.

iii. Next step is fining an author.

iv. At low velocities in ductwork, escape has been noted suggesting that some further study is needed.

v. TC 9.10 Meeting discussion on this…suggesting that "conveyance" be pulled from the future title.