

**ASHRAE TC 9.10 Laboratory Systems
Seattle
Tuesday July 1, 2014
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	September 5, 2014
TC/TG/TRG TITLE	Laboratory Systems		
DATE OF MEETING	July 1, 2014	LOCATION	Seattle

Members Present	Year Apptd	Members Absent	Year Apptd	Ex-officio members and additional attendance
Wade Conlan	2010	Gerhard Knutson	2013	Patrick Carpenter
Roland Charneux	2013	So-Yen Chen	2012	Mary Foutz
Fred Lorch	2010			Henry Hays
Gaylon Richardson	2010			Jim Coogan
Mitchel Swann	2010			Charles W Coward
John O Varley	2012			Carol Ann Donovan
Adam Bare	2011			Nathan Lewis Ho
John P Castelvechi	2013			David Rausch
Brad C Cochran	2011			Tom Smith
Carl A Crow	2013			Frank Spevak
Peter Gardner	2010			Robert H Weidner
Traci Hanegan	2011			Ronald L. Wendorski
Charles Henck	2013			Guy Perreault
Gordon Sharp	2012			Michael Ratcliff
Ginger Scoggins	2011			Mark Hydeman
Kelley P Cramm	2013			Kenneth W Kuntz
				John G Neubauer
				Jason A Atkinson
				Hoy R Bohanon

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				Jeffrey Hardin
				Elizabeth Kolacki
				Christine Reinders
				William Tschudi
				John Bade
				J. Ritter
				Martin Stangl
				S. Rusk
				K. Mead
				D. Novosel
				B. Fullerton
				Kelley Cramm

DISTRIBUTION

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

<i>All Members of TC/TG/TRG plus the following:</i>	
TAC Section Head:	Lynn Werman
TAC Chair:	Eric Adams
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	Darrin Nutter Jay D Cederberg
Standards liaison	Malcolm Knight
Manager of Research & Technical Services	Michael R. Vaughn
Research liaison	Jeff Gatlin Kishor Khankari

1. Call to order 3:30

Wade Conlan called the meeting to order and established a quorum with 15 voting members present out of 17 + 1 non quorum.

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

After 01 July 2014, the following voting members become corresponding: Wade Conlan, Fred Lorch, Gaylon Richardson, Pete Gardner, and Mitch Swann.

After 01 July 2014, the following members become voting members: Jim Coogan, Bob Weidner, Carol Donovan, Charles Coward, Henry Hays, and Mark Hydeman.

After 01 July 2014, the following visitors become corresponding members: Jake Edmonton, Christine Renders, Alexis Gagnon, Steve Snyder, Jarvis Penner and Ken Kuntz.

After 01 July 2014, Roland Charneux will become Chair, Fred Lorch will become Vice-Chair, and Traci Hanegan will become Secretary.

4. Approval of previous minutes (Fred Lorch)

Minutes from the New York meeting were emailed in February 2014.

Email address problems are as follows: So-Yeng Chen, Vitthal Shah, Kevin Sweeney, Hement Kavathekar, Erik Eaves and Carol Donovan.

Minutes from the New York meeting were reviewed.

Moved and seconded to accept the minutes.

Motion passed. (14-0-0 CNV)

5. Announcements from Technical Activities Committee (Roland Charneux)

Lynn Werman is our new Section Head.

ASHRAE is searching for technical paper reviewers, if interested, contact CEC.

ASHRAE's new strategic plan has been published.

ASHRAE will host web meetings for TC subcommittees, 4 weeks advanced notice is required.

CEC is searching for ideas for the tracks at the Orlando meeting.

TAC has prepared a power point presentation for use at local chapter meetings on the role of the TC's in ASHRAE.

Society is seeking Hightower Award nominations

Outstanding TC award created for best TC in section. Scoring criteria has been developed. Will implement in 2015.

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All members are requested to review the ASHRAE code of Ethics. Go to <https://www.ashrae.org/about-ashrae>

Updated TC/TG/MTG information continuously posted on ASHRAE website. Go to <https://www.ashrae.org/standards-research-technology/technical-committees>

ASHRAE meeting app for smartphones available on the app store

TC's are encouraged welcome guests and encourage more engagement in TC activities.

6. Program Subcommittee (Carol Donovan)

General House Keeping Notes:

1. Presentations are due 1 month prior to the conference. Initial presentation upload for committee review and commercialism review is necessary. Presentation changes can be made after the initial upload. Waiting for the last minute or not meeting the initial upload deadline may result in a speaker strike. CEC is considering a 3-strike policy.
2. Strongly recommend speakers to use the sample presentation located in speaker's tool kit on the ASHRAE website. Need to include the AIA slide/disclaimer. Need to follow the commercialism policy.
3. CEC is still looking for conference paper reviewers. Please let your committee chair know if you are interested in volunteering for this.
4. Speaker's need to score at least a 3.5. Below a 3.5 will result in a strike. Feedback will be provided for the speaker's.
5. If session submissions are rejected for a conference it can be resubmitted for the next conference. Recommend follow-up with the track chair to find out why the session did not make the conference.
6. Workshops – Focus of the workshop is to unite senior/experienced members with young members/professionals for learning. Format will be 2- 15 minute presentations followed by a 30 minutes interactive workshop.

Seattle Meeting, June 28 – July 2, 2014

No.	Type	Title	Chair/Back-up	Accepted
1	Seminar, 2-3 speakers	Fire/Safety Shut-downs in labs and Resultant Pressurizations	Reinhard Seidle Mark Hydeman	Moved to Chicago 2015
2	Seminar, 3 speakers	Tools and Methods to Manage Laboratory and Research Facilities for Effective and Efficient Long-term Operations	Carol Donovan	Accepted for Seattle

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3	Seminar, 2-3 speakers	Laboratory Exhaust Stacks (Co-sponsor with 4.3)	Brad Cochran Mike Radcliff	Moved to Chicago 2015
4	Co-Sponsor 2.2, Seminar, 3 speakers	Vivarium Environment: Objectives, Requirements and Possibilities	Jim Coogan	Accepted for Seattle

Chicago Meeting – Jan 24-28, 2015

Website: www.ashrae.org/chicago

No.	Type	Title	Chair/back-up	Accepted
1	Seminar, 2-3 speakers	Laboratory Exhaust Stacks (Co-sponsor with 4.3)	Brad Cochran Mike Radcliff	
2	Seminar, 2-3 speakers	Fire/Safety Shut-downs in labs and Resultant Pressurizations	Reinhard Seidle Mark Hydeman	
3	Short Course	Laboratory Design: Basics and Beyond	John Varley	

Chicago Tracks:

- 1 Systems and Equipment -The proper selection of HVAC for a job is critical. This track covers considerations for a proper functioning system.
- 2 Fundamentals and Applications - Basic HVAC principles are key in any project. Knowing what they are helps to apply in specific projects. This track covers a broad array of pertinent information.
- 3 Industrial Facilities -Manufacturing and processes can have some different requirements for HVAC. This track explores design and practices for industrial buildings.
- 4 Large Buildings: Mission Critical Facilities and Applications -_Facilities like data centers have some different characteristics. This track will look at what is required for these unique applications.
- 5 Energy Efficiency -_Energy efficiency is on everyone’s mind as energy costs continue to rise. This track will cover an array of considerations to help drive towards net zero energy.

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- 6 Life Safety - This encompasses egress, sprinklers, alarms, emergency lighting, smoke barriers, and special hazard protection. This track gives you the tools for all the factors to consider in life safety and lessons learned.
- 7 Design of Energy and Water efficient Systems - The trend is to green sustainable buildings. This track will look at what works and what doesn't to attain these efficient systems.
- 8 Hospital Design and Codes - Healthcare design takes into account some unique aspects. This track explores design and code requirements to ensure patient comfort.

Publication schedule for the 2015 Winter Conference, Chicago

- June 1 Web Site Opens for Seminar and Forum Proposals
- July 9 Final Conference Papers Submitted for Review
- Aug. 11 Seminar and Forum Program Proposals Due
- Sept. 14 Conference Papers Accept/Reject Notifications and Notifications of Seminar and forums
- Dec. 7 Upload of PPTs Begin
- January 7 All PPTs Due Online

Atlanta Meeting – June 27-July 1, 2015

Website: www.ashrae.org/chicago

Current Goal for Atlanta is to present a Mini-conference on Labs including seminars and forum. This will require a minimum of 10 presentations for 4 sessions (2-1.5 hour sessions and 2-1 hour sessions). Suggested topics are outlined below:

No.	Type	Title	Chair/Back-up	Accepted
1	Forum or Seminar 2-3 speakers	Lab Classification -	Adam Bare, Kelly/Roland	
2	Seminar, 2-3 speakers	Cxing of BSL-3 laboratories, CDC Atlanta, USDA	Pete Gardner/ Chris Kiley/Scott Rusk/Henry Hayes	
3	Seminar,	Lab Renovations- Case Study	Dave Rausch	

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	2-3 speakers		
4	Seminar, 2-3 speakers	Vivarium – ACH/environmental parameters, Vented cage racks (TC 2.2) – Dave – Renovation lab vivarium	Carol Donovan/ Dave Rausch
5	Seminar, 2-3 speakers	Codes/Standards/Guides/I2SL	Jim Coogan
6	Seminar, 2-3 speakers	Labs – Air Change Effectiveness (TC 5.3 – Std 129)	Carol Donovan/Tom Smith
7	Seminar, 2-3 speakers	Comparison of Fan Coil Units and Chilled Beams (TC 5.3) – Gus Fams and Jerry Sipes, One more for design	Gaylon Richardson/ Jason Atkinson
8	Seminar, 2-3 speakers	Plug Loads in laboratories - NIH	Don -
9	Seminar, Speakers	UCLA – Fume Hood Summit – Howard Hughs Study	Gordon Sharp, Tom Smith
10	Paper Session, 2-3 speakers	Test Procedures for Lab Controls Results from Manufacturers	Mark Hydeman, Gaylon Richardson
11.	Seminar, 2-3 Speakers	Clean Space – TC 9.11	Phil Naught
12.	Seminar, 2-3 Speakers	O&M – TC 7.3	Sonya Pouncy
13.	Seminar, 2-3 speakers	Smoke Control – TC 5.6	Paul
14.	Seminar	Lab Design Guide	Henry Hayes
15.	Seminar	Case Studies for High Performance Labs	Traci Hanegan

Laboratory Program Ideas: (David Claridge Atlanta Program chair)

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1. Commissioning Research Facilities (with TC-2.2), Understanding hazard and risk, lab classification effort
2. Equipment Loads in Labs, Freezers, refrigerators
3. Vivarium Design – TC 2.2
4. Lab Users, Safety and sustainability
5. Renovation and Retrofit
6. Rad Cooling and Chilled Beams
7. Lab Ventilation effectiveness
8. Exhaust Modeling, heat recovery

7. Tom Lawrence - Section 9 Liaison. Presented Wade with document of appreciation for chairmanship.

8. Research (Bob Weidner)

RTAR 1540 Turbulence Intensity at the Fume Hood Face. John Varley is looking for new volunteer to champion. New RTAR to be written.

1573 Investigate Replacement of SF₆ as a test gas. Work Statement still needs further input to complete. Difficult getting SOW input from lab community. Two Net Meetings with Tom Smith and Martin Burke to keep things moving. Goal is to try and finish the work statement by Chicago. (July 25th is first Web Mtg.)

RTAR 1201. The Effect of Passive and Active Chilled Beams on the Performance of Fume Hoods. Gaylon Richardson went to their subcommittee and they didn't discuss this. Tom Smith wondered why TC 9.10 would be interested as it might not impact lab performance. This RTAR will be dropped.

An RTAR for Method of Testing Balancing Enclosures. Tom Smith discussed with ASFE and CIFA and they do not want to take this on. Tom will assist with writing the RTAR to move this forward.

An RTAR for Cross Contamination of Energy Recovery Devices in Laboratory Exhaust Systems. Initiated at NY Meeting; Roland Charneux to push forward this RTAR.

An RTAR for Certification of Ductless Fume Hoods. Per Tom Smith, SIFA is undertaking this effort. Wait and see until they complete their standard. This RTAR will not be pursued at this time.

An RTAR for Validation of Plume dispersion models. Existing dispersion models are conservative. Brigg's plume rise equations need to be validated for this application. This was based on a power plant exhaust. Guess the turbulence and test at 2X and 0.5X. This may need a full scale test. Brad Cochran to push forward this RTAR.

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An RTAR for Defining and characterization of air-change effectiveness in labs. ASHRAE Standard 129 is related but does not fully address this research project. It deals with the aging of air. Lots of interest in this item but looking for new volunteer to champion for this RTAR. Tom Smith is going to use IPA with detector array to look at lab spaces. This will vary the airflow and air temperature. They will look at the change of concentration over time. Tom will review 129. Tom will present his results in Chicago.

9. Handbook (John Varley)

Chapter has been revised and reviewed. Motion made to approve chapter with minor changes suggested by Kelley Cramm, motion made by John Varley, seconded by Traci Hanegan, approved 14-0-0 cnv (17+1 total).

10. Standards (Gaylon Richardson)

Standard 90.1 – Nothing to report

ASHRAE 110- Wade reported the committee is reviewing public review comments.

ASHRAE Std. 62.1 – Addenda K is at the Board level for acceptance. States energy recovery units cannot be used with fume hood exhaust. It has an exception that the safety officer can analyze the contaminants and allow energy recovery to be used with certain kinds of contaminants.

Labs 21- Group writing a process of achieving sustainability.

11. Design Guide (Henry Hays)

Lab Design Guide to be finished in Chicago. Kelley Cramm and Pat Carpenter will do start to finish review.

ASHRAE LABORATORY DESIGN GUIDE CHAPTER STATUS

FTP SITE: <ftp://tc910pub:3dg3waT3r@ftp.ashrae.org> userid: tc910pub password: 3dg3waT3r

Permissions Status	CHAPTER	Chapter Leaders	Reviewers	Graphics Status
None Needed	1. Introduction	Henry Hays	Gardner (C) Sharp(NC) Weidner (C) Wendorski (NC) Crow (C)	No revisions needed
Torcon Permission received. DONE	2. Background	Pete Gardner	Hays (NC) Weidner (C)	Graphics complete
Possibly from one source	3. Laboratory	Mitchell Swann	Foutz Le	Minor or reuse existing

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	Planning			
	4. Design Process	Erik Eaves	Ho, Varley, Castelvechhi	
Some needed	5. Exhaust Hoods	John Castelvechhi	Smith (C), Hays (C), Rindoks (C)	Draft Graphics submitted for review
Needed	6. Primary Air Systems	Carl Crow	Sharp(NC) Gardner (C) Wendorski (C) Cochran (C)	Done, but will have some minor revisions based on feed
None Needed	7. Process Cooling	Pete Gardner	Sharp(NC) Hays (NC)	None
Needed	8. Air Treatment	Charles Henck	Sharp(NC) Wendorski (NC)	No revisions needed
Some permissions needed	9. Exhaust Stack Design	Brad Cochran	Ho, Sharp(NC) Coogan (C) Wendorski (C)	Graphics complete
Need for smart guide animation only	10. Energy Recovery	Roland Charneux	Ho, Sharp(NC), Wendorski (NC)	Done Reuse existing (None new)
None Needed	11. Controls	Jim Coogan, Gordon Sharp, John Castelvechhi	Ho (C), Sharp(NC), Kiley (C), Guy Perreault	ALL GRAPHICS DONE
Not needed for original graphics. May not need any new graphics	12. Air Flow Patterns and Air Balancing	Gaylon Richardson	Weidner, Le, Coogan to look at controls overlap, Smith to look at fume hood section	May not need new graphics
None Needed	13. Operation and Maintenance	Jeff Traylor	Smith (C) Gardner (C) Foutz	Maintenance of Fume Hoods/BSCs needs revision (by To
NONE	14. Laboratory Commissioning Process	John Castelvechhi	Sharp(NC) Crow, Foutz (C) Smith Kiley (C) Ratcliff (C)	NONE
None Needed	15. HVAC System Economics	Henry Hays	Sharp(NC) Wendorski (NC)	No revisions needed
Needed	16. Microbiological and Biomedical Laboratories	Henry Hays	Has a subcommittee but others welcome	Good progress made
Mike's Company Only	17. Ventilation Effectiveness and Modeling	Mike Ratcliff	Ho, Sharp(NC) Cochran, Weidner (C)	DONE Appears that no permissions needed for graphics

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Roland's Company Only (both graphics and Smart Guide)	18. Sustainability	Roland Charneux	Crow, Sharp (NC), Rausch, Coogan will get someone to look at	DONE

Notes from June 2014 Meeting and immediately following:

1. Permissions: Dibernardinis graphics – Cannot track down who to get permissions – Delete these graphics and tables from chapters and either get new or delete reference to these items
2. Patrick Carpenter and Kelly Cramm will do overall review of the guide
3. David Rausch will keep listing of future comments for the next revision
4. Will the guide have color graphics? Henry to check
5. Mike Ratcliff to check with Mark Owen about incorporating smart guide items
6. Gordon gave Henry the contact for Paul Lemestre who may be able to review the lab types in Chapter 4

OTHER NOTES from January 2014 Meeting:

1. Appendix A-1: Delete this and refer to the Military Standard (from Carl Crow)
2. Chapter 4 Page 29 refer to EPA (Pete Gardner)
3. Look at certain words. Use confirm, shall do NOT ensure, warrant, guarantee, assure, assuring. There is a liability aspect of using the wrong words (Traci Hanegan)
4. PERMISSIONS: David Rausch will head this up to assist in overseeing permissions are gotten for diagrams, videos, illustrations, etc.
5. SMART GUIDE: Mike Ratcliff will assist in overseeing the Smart Guide and other Figures, tables are in the proper format
6. REFERENCES/TABLES: Guy Perreault will check to see if there are obsolete references or tables that should be revised or deleted.
7. Comments on chapters that are on the FTP site are due Feb 7, then Chapter leaders to revise by Feb 21.

OTHER NOTES from June 2012 Meeting:

1. Will there be color printing?
2. Peer Review required? – No per Traci Hanegan
3. Brad Cochran question on Chapter 9– Can there be an e-mail address for application support? Can it be commercial account?

OTHER NOTES from January 2013 Meeting:

8. Appendix A-1: Carl Crow will look at.
9. Need someone to look at/update References and Annotated Bibliography at the end of the design guide.
10. Save the documents as .doc instead of .docx as some cannot open the later.

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12. Journal (Roland Charneux)

Roland Charneux reported 2 lab related articles (Crime Lab Construction and Low Energy Science Building) were published in the Journal within the last 6 months.

13. Laboratory Design Course (John Varley)

Waiting for invite from PDC. Charlie Henck will follow up. Discussing possibility of expanding the class to a full day. Will need additional instructor to do this.

14. Laboratory Classification (Adam Bare)

Discussed the mission of the Lab Classification subcommittee, and explained that ASHRAE needs assistance from the EH&S industry in order to proceed much further.

The current proposed approach would be for ASHRAE TC 9.10, with assistance from the EH&S industry, to publish a guideline or standard that establishes the design criteria for a defined set of parameters, where the lowest chemical safety level (CSL) would have the baseline requirements for any chemical lab, and as the CSLs increase the design criteria would be increasingly more stringent. The ASHRAE guideline/standard would not address the risk assessment/control banding processes, which would need to be covered by publications from other organizations

See the attached draft tables, which include:

- CSL Parameters: including the current list of parameters, along with some examples of what the criteria might be.
- CSL Indicators: indicating potential indicators for what might (and might not) be appropriate for the different CSLs.
- Example Lab Types: indicating potential lab types that might fall under the different CSLs.

Updates from other organizations

- ACS Committee on Chemical Safety: Ralph Stuart provided an update regarding the efforts of the CCS, and encouraged everyone to refer to the new publication that can be downloaded from the CCS website.

Open Discussion:

- The air change rate, ventilation system design, etc. do not control explosions.
- The intent is for the CSLs to be "design" levels, and that the initial hazard assessment would dictate which design level is appropriate.
- Changes in the lab operations should lead to reassessing the required CSL.
- All agreed that the lowest CSL should allow for the lab air to be recirculated. The code implications of that (referencing NFPA and ANSI Z9.5) need to be considered.
- CSL signage is imperative to make it clear to the lab operators what the space is designed for.
- Rebecca Lally has a contact with Dow Chemical that should be asked to join in on this effort.
- James Stubbs mentioned that compliance with building codes should also be considered. The NIH Guidelines may also need to be referenced, however compliance would only be applicable to NIH projects.
- Nathan mentioned that ASHRAE 62.1 should be referenced for minimum ventilation standards when there are no minimum CSL requirements.
- Ralph Stuart mentioned that university EH&S departments cannot handle assessments for all projects, so they'll need to be performed by the chemists that will be using the labs.
- AIHA EH&S could be the connection between the chemists and the design community. They should review the risk assessment process.

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- All agreed that the proposed CSL guideline/standard cannot be a stand-alone document, there needs to be one or multiple documents published by the EH&S industry to address the control banding/risk assessment process, and how that correlates with the CSL guideline/standard.
- The committee will need to discuss further how to address different types of labs, such as wet labs, dry labs, hybrid labs, and labs with several 3-D printers.
- The ACS CCS publication provides some guidance as to which chemicals would be acceptable in the lower CSLs.
- There was some discussion regarding which types of labs might fall under the lower CSLs. For example:
 - CSL-1: labs with chemicals that could be found in a common household.
 - CSL-2: teaching labs, with low concentrations of chemicals.
 - CSL-3: research labs.

Next steps

- All involved parties are encouraged to continue to review the CSL parameter tables, and send comments to Adam.
- Evaluate whether the proposed standard should have five (5) CSLs instead of four (4), and whether it's appropriate for CSL-2 to be a recirculated lab during normal mode, and require a purge mode during an event.
- Continue to define what types of labs might fall under the different CSLs, to help further definition of the proper criteria.
- Hold monthly online meetings, proposed to be the first Monday of every month. The next online meeting is tentatively scheduled for Monday, September 8th, since the 1st is a holiday.

15. Liaison Reports

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

Guideline Committee to publish sequence of operation and functional performance testing.

TC 2.2 Plant and Animal Environment (Henry Hays reported)

Nothing at this time relevant to TC 9.10.

TC 4.3 Ventilation Requirements and Infiltration (Brad Cochran reported)

Started research program on separation between intakes and exhausts. Vivarium sources being investigated. Voted to cosponsor RTAR for Validation of Plume dispersion models and the Seminar in Chicago on Laboratory Exhaust Stacks.

TC 4.10 Indoor Environmental Modeling (No Report)

TC 5.1 Fan Design and Application (Chuck Coward reported)

TC 5.3 Room Air Distribution (Fred Lorch reported)

Nothing at this time relevant to TC 9.10.

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TC 5.8 Industrial Ventilation (Ken Mead reported)

Sub Committee on Ventilation of Hazardous Spaces will develop concepts for life safety issues

TC 7.6 Building Energy Performance (Pat Carpenter reported)

Ad Hoc subcommittee investigating if Overall Energy Use is the only way to characterize building performance. Should the building efficiency be characterized?

TC 7.7 Test and Balance (Gaylon Richardson reported)

Standard 111 and Guideline 11 are being revised

TC 7.9 Building Commissioning (John Castelvechi reported)

Nothing at this time relevant to TC 9.10.

TC 9.2 Industrial Air Conditioning (?? Reported)

Nothing at this time relevant to TC 9.10.

TC 9.6 Healthcare Facilities (Traci Hanegan reported)

USP 800 draft version taking hazardous spaces away from USP 797.

Dan Koenigshofer has pharmacy interested in conducting research.

Trying to get exclusion from NFPA 45 for fire and smoke dampers in airborne infection isolation room exhaust ducts.

TC 9.11 Clean Spaces (Roland Charneux reported)

Design Guide for Clean Spaces being reviewed. Subcommittee on energy efficiency being developed

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

Addendum K has been published.

SSPC 90.1 (No Report)

SMACNA (No Report)

NFPA 45 (Dave Rausch reported)

Second draft for NFPA 45 is being released for public review at the end of July

NSF (Frank Spevak reported)

Nothing to report related to TC-9.10. The steering Committee met at end of May

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ISPE (Pete Gardner reported)

Nothing to report related to TC-9.10.

ASSE Z9.5 (Tom Smith)

All standards have switched to ASSE. First meeting of new organization is 25 July.

I2SL (Gordon Sharp reported)

Next conference in Orlando 22 thru 24 September

Several working groups include Laboratory Continuous Improvement Group, Better Buildings Challenge Laboratory Group, and Training for Laboratory operators and maintenance personnel Group

Five Local level chapter (Denver, Chicago, Kansas City, Boston and Washington DC) meetings are starting.

Big Data (Pat Carpenter)

How does ASHRAE deal with the data feedback issue? TC 1.5 is spearheading it right now, however it is a society wide concern.

16. Old business (Wade Conlan)

CEC is requesting volunteers for technical reviews of CEC papers. Two types of papers, double blind review for technical papers and single blind review for conference papers.

17. New business

Should we form a subcommittee on energy consumption for laboratories? There is a group in 90.1 concerning energy consumption in labs. This group is investigating the use of transfer air for makeup air for hoods.

18. Evaluation and Status of TC

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.

Averaging two programs per meeting.

Standard 110 has gone out for public review, comments are being reviewed.

Work statement for replacement of SF₆ is being prepared.

19. Adjourn 5:12 pm