



1791 Tullie Circle, N.E./Atlanta, GA 30329
404-636-8400

TC/TG/MTG/TRG MINUTES COVER SHEET

Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.

These minutes have been approved by this committee

TC/TG/MTG/TRG No. TC 3.1 DATE February 7, 2017

TC/TG/MTG/TRG TITLE Refrigerants and Secondary Coolants

DATE OF MEETING January 30, 2017 LOCATION Las Vegas, NV

MEMBERS PRESENT	TERM EXPIRES (June yr. listed)	MEMBERS ABSENT	TERM EXPIRES (June yr. listed)	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Steve Kujak (Vice Chair/Research) –	2018	Bob Richard-voting	2020	Warren Clough (Secretary)
Kevin Connor (Handbook)	2020			Ken Shultz (Research)
Sean Cunningham (Webmaster)	2020			Chris Seeton (VC, Programs)
Knut Petry – voting	2017			
Ganesan (Sonny) Sundaresan – voting	2017			
Kenji Takizawa- voting	2020			
Barbara Minor- voting	2019			
Marc Scancarello-voting	2019			
Debra Kennoy- voting	2019			

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

TAC Section Head: Jay Kohler	SHx@ashrae.net Where x is the section number
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.), Steve Kujak, Malcolm Knight, Sheila Hayter, Darin Nutter	See ASHRAE email alias list for needed addresses.
Mike Vaughn, Manager Of Research & Technical Services	MORTS@ashrae.net

Corresponding Members and Guests

Mark McLinden	Julie Majurin	Greg Linteris
Steve Brown	Felix Flohr	Robert Chevageo
Robert Low	Osami Kataoka	Cheile Estades
Sunil Nanjundaram	Neil Monson	Drew Welch
Dennis Kim	Steve Wujek	William Kopko
Clint Finstad	Tom Leck	Bill Morton
Georgi Kazachki	Vishal Sharma	Brian Fricke
Scott Macleod	Ankit Sethi	Som Shrestha
Gus Rolotti	Michael Petersen	Peter Sunderland
Tatsuro Kobayashi	Mihir Nandkeolyar	Chun-cheng Piao
Roberto Urrego	Chihiro Furuta	Harrison Skye
Shitong Zha	Hitoshi Hashimoto	Jian Sun Blanks
Greg Smith	Dave Wilson	

KEY CONTACTS

Liaisons:

Steve Kujak, Trane, RAC Liaison
 Michael Vaughn, ASHRAE Staff Liaison
 Niels Bidstrup, Grundfoss Management, Standards Liaison
 Jay Kohler, Johnson Controls, TAC Section Head
 Sheila Hayter, NREL, Handbook Liaison
 Michael Bilderbeck, Pickering Firm, TAC Chair
 James Bochat, Commissioning Concepts, ALI/PDC

MEETING MINUTES

1. CALL TO ORDER (S. Kujak, Chair)

- A. Chair called the meeting to order at 4:15 PM and attendees introduced themselves.
- B. Establishment of a quorum, 9 out of 10 voting members were present.

Voting members for this meeting:
 Stephen Kujak- present
 Kevin Connor- present
 Ganesan (Sonny) Sundaresan- present
 Debra Kennoy- present
 Barbara Minor- present
 Marc Scancarello- present
 Sean Cunningham- present
 Bob Richard- absent
 Knut Petry- present
 Kenji Takizawa- present (Joined at 4:40pm)

2. AGENDA REVIEW

No revisions or corrections were noted on the agenda.

Motion to approve Las Vegas draft agenda was made by Barbara Minor and seconded by Marc Scancarello
Motion passed: 8 / 0 / 0 / CV. (For / Against / Abstain / Total [Chair Voting [CV] or Chair Not Voting [CNV]])

3. APPROVAL OF ORLANDO, JUNE 2016 MEETING MINUTES

No corrections were noted on the meeting minutes.

Motion to approve St. Louis draft minutes was made by Debra Kennoy and seconded by Kevin Connor.
Motion passed: 8 / 0 / 0 / CV. (For / Against / Abstain / Total [Chair Voting [CV] or Chair Not Voting [CNV]])

4 CHAIRMAN’S ANNOUNCEMENTS (S. Kujak, Chair)

- A. Section 3 Meeting Report attached.
 The Chairs report is provided in Addendum 1.

- B. Roster Review
 Summary of TC3.1 membership and changes, effective July 1st 2016

Position	Members
Chair , voting	Stephen Kujak
Standards Subcommittee Chair, voting	Debra Kennoy
Handbook Subcommittee Chair, voting	Kevin C Connor
Webmaster, voting	Sean Cunningham
Voting	Sonny Sundaresan
Voting	Barbara Minor
Voting	Marc Scancarello
Voting	Bob Richard
Member Non-Quorum, voting	Knut Petry
Member Non-Quorum, voting	Kenji Takizawa

Other committee officers (non-voting):

Warren Clough, Carrier, Secretary
Christopher Seeton, Shrieve Chemical, Vice-Chair and Program Subcommittee Chair
Kenneth Schultz, Ingersoll Rand, MTG-GWP Liaison and Research Subcommittee Chair

5. RESEARCH (Ken Shultz)

A. Report from Research Subcommittee Chairs Meeting

RAC Meeting summary

- All 3 RTARs submitted were accepted
- Work Statement- one was accepted and two were returned
- Restarted innovation research grant, 6 were invited to submit proposal, 1 or 2 of them will be awarded.
- PMS is a very important function. A webinar is being created to train PMS members.

B. Status of current research projects

1507-RP “Binary Refrigerant Flame Boundary Concentrations”

Contractor: Safety Consulting Engineers

Status- A Kusmeirz. R Richard and D Kennoy are working with the contractor to jointly write the final report.

Action: Voting members have been asked to review the draft report. A letter ballot approval will be sent out after comments are received and incorporated into the report. Comments are to be received by February 17th.

1717-RP “Improve Accuracy and Reproducibility of ASTM E-681 Flammability Test Method for Flammability Measurement of 2L Flammable Refrigerants”

Contractor: University of Maryland, with Peter Sunderland as the P.I.

PMS: consists of D Kennoy (lead), S Cunningham, S MacLeod, B Minor, R Richard, and X Wang.

Status- Work is on track by the University of Maryland. Six areas of improvement have been identified.

Action: Finish work by the June/July timeframe. Contractor will also submit paper to the ASHRAE Journal.

C. AHRI/ASHRAE/DOE Collaboration on Flammable Refrigerants

Three projects have been developed into work statements and are funded by ASHRAE.

1806-RP “Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update”

Contractor- Gexcon, PI is Scott Davis

PMS: PES K Schultz (chair), O Abdelaziz, B Minor, G Linteris, P Johnson, K Takizawa, X Wang

Status- The contract has been finalized. Two meetings were held with the contractor to establish a direction on the project that will provide accurate models.

Action: PMS will monitor progress of the project.

1807-TRP “Guidelines for Flammable Refrigerant Handling, Transporting, Storing, and Equipment Servicing, Installation and Dismantling”

Contractor- Selected, but cannot be shared as of this meeting.

PMS: B Fricke (lead), R Cooper, S Kulankara, W Mooris, K Nawaz, X Wang.

Status- Work Statement went out for bid. The one bid received was awarded to the contractor. It needs to go to RAC for final approval.

Action: PMS will monitor progress of the project.

1808-TRP “Servicing and Installing Equipment using Flammable Refrigerants: Assessment of Filed-made Mechanical Joints”

Contractor- TBD

PMS: B Fricke (lead), X Wang, P Geoghegan, D Halel, M Scancarello, K Nawaz

Status- Work Statement was posted on 1/10/2017. Proposals are due back by 2/20/2017. Selection of a contractor should be decided by March.

Action: Review proposals and select a contractor. PMS will monitor progress of the project.

D. Proposed Research Projects

1773-WS “Ignition Potential from Electrical Devices in Commercial and Residential Applications using 2L Refrigerants”

Contractor:

PMS: W Clough (Lead), M Scancarello, B Minor, E Smith, K Takizawa, R Richard.

Status: A decision by the TC was made to put this project on hold till the completion of a related AHRI project is complete. At that time the final report of that project will be reviewed to determine the need for any additional information this project could add.

Action: Place this Work Statement on hold until the AHRI 8017 is completed in March.

1791-WS “Humidity effects on burning velocity”

PMS: D Kennoy (lead), R Richard, J Majurin, T Leck, E Baert.

Status: Working on addressing RAC comments. It may not need to go back for RAC approval depending on changes to the work statement.

Action: Incorporate comments into the work statement and re-submit to RAC for approval.

1792-WS “ASHRAE 34 Toxicity data documentation and mixture calculation”

PMS: S Sundaresan (lead), B Richard, J Majurin

Status: A work statement was sent out for letter ballot, no comments returned. It is being sent to RAC for approval.

Action: Submit work statement to RAC for approval.

1794-WS “The Incorporation of Odorants in Flammable Refrigerants to Improve Leak Detection and Safety”

PMS: M Scancarello (lead), V Baish, J Majurin, E Clark

Status: RAC accepted the revised RTAR with comments. A draft work statement will be written. PMS is looking for more team members. Need WS by May 15th. Incorporate comments within the work statement.

Action: The work statement will be drafted by May 15th incorporating the comments from RAC.

1797-WS “Risk Assessment Investigations to Develop Alternative Acute Toxicity Classification Approaches to the A or B Chronic Toxicity Classification of Refrigerants used by ASHRAE 34.”

PMS: D Kennoy, G Rusch, G Jepson, C Seeton, S Kujak.

Status: The first submission of the work statement was returned. RAC is looking for more background information that explains SSPC 15 and 34. This will not need another TC 3.1 vote.

Action: Re-submit work statement with corrections to RAC by August 15th.

1802-WS “Defining the 2/2L Flammability Boundary in Standard 34”

PMS: B Minor (lead), D Kennoy, F Flohr, B Richard, S Kujak, G Linteris

Status: A work statement was circulated to TC 3.1. Some comments came back, one being editorial the other was substantial. The work statement will be corrected re-circulated for letter ballot. Comments to be submitted by 2/17, then go out for letter ballot.

Action: All comments need to be submitted by 2/17. The work statement will be re-circulated to letter ballot.

E. Update on the TC Research Plan

TC 3.1 Research Sub-committee meeting plans to join the TC 3.2, 3.3, & 3.4 on Sunday afternoons from 4-6pm. This will provide better collaboration on research activity between the TC's.

6. HANDBOOK (Kevin Connor)

The 2017 revisions are complete. The next revision will be for the 2021 edition.

For 2021-

Chapter 31, K Connor will stay on as lead.

Chapter 30, M McLinden will stay on as lead.

Chapter 29, Steve Kujak will lead this chapter.

A new authoring portal, web based share point site is being launched for future chapter revisions. 2021 changes to the chapters will be started at Long Beach.

7. PROGRAM (Chris Seeton)

A. Current Program Session (Las Vega 2017)

Seminar 39- Low-GWP Alternative Refrigerants and Their Applications: Part 1

Tuesday, January 31, 9:45 AM - 11:00 AM

1. **Oil Retention of Lower GWP Refrigerants and Lubricant Mixtures and Its Effect on Heat Transfer and Pressure Drop in Microchannel Type Air Conditioning Evaporators**
Lorenzo Cremaschi, Ph.D., Member, Auburn University, Auburn, AL
2. **Miscibility of POE and PVE Oils with Low-GWP Refrigerant R-1234ze(E)** Man-Hoe Kim, Ph.D., Member, Kyungpook National University, Buk-gu, Daegu, South Korea

Seminar 56- Low-GWP Alternative Refrigerants and Their Applications, Part 2

Tuesday 11:15 AM - 12:45 PM

1. **Insights into the Next Generation HVAC&R Refrigerant Future** Stephen Kujak, Member, Trane, Ingersoll Rand, La Crosse, WI
2. **Model Validations for Low-GWP Refrigerants in Mini-Split Air-Conditioning Units** Omar Abdelaziz, Ph.D., Member1 and Bo Shen, Ph.D., Member1, (1)Oak Ridge National Laboratory, Oak Ridge, TN
3. **Experimental Evaluation and Field Trial of Low GWP R404A Replacements for Commercial Refrigeration** Ankit Sethi, Associate Member1 and Michael Petersen, Associate Member2, (1)Honeywell International, Buffalo, NY
4. **Horizontal Convective Boiling of R448A, R449A and R452B within a Micro-Fin Tube** Mark A. Kedzierski, Ph.D., Member, National Institute of Standards and Technology, Gaithersburg, MD

Seminar 64- "Research Update on Activities Toward the Safe Use of Low GWP Flammable Refrigerants"

Wednesday, 8:00-9:30

1. **AHRTI Research Projects on Flammable Refrigerants**
Xudong Wang, Ph.D., Member, Air-Conditioning, Heating and Refrigeration Technology Institute, Arlington, VA
2. **ASHRAE Research Projects on Flammable Refrigerants**
Kenneth Schultz, Ph.D., Ingersoll Rand, La Crosse, WI
3. **ORNL Research Effort on Charge Limits for Various Types of Equipment Employing Flammable Refrigerants** Omar Abdelaziz, Ph.D., Member, Oak Ridge National Laboratory, Oak Ridge, TN
4. **NIST Effort on Modeling Tools for Flammability Ranking of Low-GWP Refrigerant Blends** Gregory Linteris, Ph.D., National Institute of Standards and Technology, Gaithersburg, MD

Conference Paper Session 22 (not sponsored or co-sponsored by TC 3.1)

Wednesday 11:00 AM - 12:30 PM

1. **Refrigerant-Compatible MEMS Pressure and Temperature Sensor Chip (LV-17- C084)**
Tom Kwa, Ph.D., Associate Member, DunAn Sensing LLC, San Jose, CA
2. **Assessment of Next Generation Refrigerant R514A as Replacement for R123 in Centrifugal Chillers (LV-17-C085)** Kenneth Schultz, Ph.D., Member1 and Erica Gallant, Member2, (1)Ingersoll Rand, La Crosse, WI, (2)Trane, La Crosse, WI
3. **Chemical Stability Assessments of R-514A and R-1233zd(E) (LV-17-C086)** Julie Majurin, Associate Member1, Elyse Sorenson, Associate Member1, Daryl Steinke1 and Morgan Herried1, (1)Trane
4. **Continuous Tuning of Refrigerant Charge to Improve DX Equipment Performance (LV-17-C087)** Michael K. West, Ph.D., P.E., Member, Advantek Consulting Engineering, Melbourne, FL
5. **Modeling of Total Equivalent Global Warming Impacts of Supermarket Refrigeration Systems (LV-17-C088)** Meredith Woy1 and A. S. (Ed) Cheng, Ph.D., P.E., Member1, (1)San Francisco State University, San Francisco, CA

B. Future Program Plans (Long Beach deadline is Feb 6th)

1. For Long Beach: "How to design systems with refrigerants – "The perils and pitfalls of NOT using Guideline 6", Steve Kujak
2. Leak detection technologies and sensors; potential co-sponsor with TC 3.8
3. Seminar on R404A replacements (TC 10.7 is leading and submitting)
4. Results from AREP II testing (Alternative Refrigerant Evaluation Program, organized by AHRI—Air Conditioning, Heating, and Refrigerating Institute
5. Workshop on A/B toxicity classification. (Wait until proposed research project is started; give an update on progress and get feedback.)

ACTION: 10.7 wants co-sponsorship at Long Beach: High Efficiency Commercial Refrigeration Systems with Natural Refrigerants

Motion was made by Sonny Sundaresan and seconded by Sean Cunningham to co-sponsor with TC 10.7 on "High Efficiency Commercial Refrigeration Systems with Natural Refrigerants"

Motion passed: 9/ 0/ 0/ [CV]. (For / Against / Abstain / Total [Chair Voting [CV] or Chair Not Voting [CNV]])

Chicago – AHR Mini track ideas

Equipment - R410A, R404A, R134a, R123 replacements
Codes and Standards
Regulatory Overview
Flammability work, what is flammable?
Standard 15 work
MTG research

C. Program tracks Long Beach and Chicago

June 2017—Long Beach	January 2018—Chicago
Fundamentals and Applications	Fundamentals and Applications
HVAC&R Systems and Equipment	HVAC&R Systems and Equipment
Refrigeration	Standards, Guidelines and Codes
Building Life Safety Systems	Earth, Wind & Fire
Controls- Smart building systems and the Security Concerns as Technology	Beyond the "L": IAQ and Air Conditioning in Transportation Applications and Enclosed Vehicular Facilities
Commissioning- Optimizing New and existing Buildings and their Operation	Tall Buildings
Zero Net energy Buildings- The International Race to 2030	Modeling Throughout the building Life Cycle
Residential Buildings- Standards Guidelines and Codes	Performance and Design of Heat Exchange Equipment under Real Field Type Conditions
Research Summit	Refrigerant Mini Track @ Expo

8. STANDARDS (Debra Kennoy)

- A. ASHRAE Standard 34, *Designation and Safety Classification of Refrigerants* (D. Kennoy)
 - 2016 standard has been published
 - Twelve refrigerants have been posted to the ASHRAE website.
 - Five new refrigerants are for BoD approval in Las Vegas.
 - Six new refrigerants for review, four are on hold.
- B. ASHRAE Guideline 6
 - The 2015 edition of this Guideline has been published and is available through the ASHRAE bookstore.
- C. ASHRAE Guideline 39p (formerly SPC-177P), *MOT Fractionation Measurement of Refrigerant Blends* (R. Richard)
 - This MOT was converted to a Guideline. It was sent out for a 45-day public review (March 4 – May 9, 2016).
 - Went out for public comment, and no comments were received. It is complete and will be going to publication.

9. WEB SITE (Sean Cunningham)

ASHRAE has migrated the TC websites to a new format, and TC 3.1 website is now in this new format. Our web page has the agenda for the current meeting, minutes from past meetings, slides from past presentations, and more. The new URL for the TC 3.1 web page is:

<https://tc0301.ashraetcs.org>

Sean is looking for a volunteer to take over this responsibility.

10. OLD BUSINESS

None

11. NEW BUSINESS

None

12. NEXT MEETING

2017 ASHRAE Annual Meeting; Long Beach, CA; June 24 – June 28th, 2017.
TC 3.1 will meet Monday, June 26th, 2017.

13. MEETING ADJOURNED at 5:40pm.

Addendum 1

Announcements and Reminders for TC/TG/TRG & MTG Chairs LAS VEGAS 2017

A. NEW!

1. 2016-2017 Hightower Award Recipient – Paul Lindahl, TC 3.6 & TC 8.6

Mr. Paul Lindahl's contributions to ASHRAE TC 3.6 and TC 8.6 in the past four years include being a handbook contributor to multiple chapters, a special liaison assignment to SSPC 90.1, and tours in various leadership positions on both TCs.

Mr. Lindahl's contributions to ASHRAE technical committees, and especially to TC 3.6 and TC 8.6 in the last four years, have been exemplary and make him a well deserving recipient of the George B. Hightower Technical Achievement Award.

2. 2016-2017 Service to ASHRAE Research Award Recipient - Joseph Huber, TC 1.3

Mr. Joseph Huber's contributions to ASHRAE TC 1.3 (Heat Transfer and Fluid Flow) in the past four years included being a contributor to multiple RTARs and work statements. Research Subcommittee chair for the TC, and Proposal Evaluation Subcommittee (PES) member, and Project Monitoring Subcommittee (PMS) member for multiple projects.

Mr. Huber's contributions to ASHRAE technical committees, and especially to TC 1.3 in the last four years, have been exemplary and make him a well deserving recipient of the Service to ASHRAE Research Award.

3. ASHRAE members for SY 16-17 now have free online access to ASHRAE's *Science and Technology for the Built Environment (STBE)* through their existing ASHRAE.org account

STBE is ASHRAE's archival research publication offering comprehensive reporting of original research in science and technology related to the stationary and mobile built environment, including indoor environmental quality, thermodynamic and energy system dynamics, materials properties, refrigerants, renewable and traditional energy systems and related processes and concepts, integrated built environmental system design approaches and tools, simulation approaches and algorithms, building enclosure assemblies, and systems for minimizing and regulating space heating and cooling modes. The journal also features review articles that critically assess existing literature and point out future research directions.

You can access your free online subscription to STBE through the ASHRAE website under the blue bar drop-down menu – *Resources & Publications*. ASHRAE will reassess the free access option on an annual basis and may discontinue access if interest is low.

4. New ASHRAE Technology Portal is Now Available

The new ASHRAE Technology Portal provides easier free member access to ASHRAE Journal articles and ASHRAE Research Reports through a new robust search feature. We will still sell the reports and articles in the bookstore for nonmember purchase. URL <http://technologyportal.ashrae.org>.

5. Peer Review of *Advanced Energy Design Guide for K-12 School Buildings: Achieving Zero Energy*

In partnership with AIA, IES, and USGBC and with support from the DOE, ASHRAE has embarked on a new series of Advanced Energy Design Guides focusing on achieving zero energy performance. The first guide in the series is for K-12 School Buildings. The project

committee is finalizing the first draft in anticipation of the first peer review. The 65% Complete Technical Refinement Draft for the Advanced Energy Design Guide for K-12 School: Achieving Zero Energy will be available for review and feedback from February 6, 2017 to February 17, 2017. All review input must be received by February 19, 2017. Once received, the input will be compiled and then reviewed by the committee who will make changes to the draft based on that input. To participate in the review, please go to www.ashrae.org/freeaedg to download the review process instructions and review input form as well as a copy of the document for review (in pdf format). The draft will be available for download starting on February 6, 2017 through Friday, February 17, 2017.

6. One New Multidisciplinary Task Groups (MTGs) have been formed since St. Louis meeting

MTG.ACR – Air Change Rate

Scope: MTG.ACR will coordinate TC/TG/TRG/SSPC technical activities to help evaluate the technical basis and adoption of airflow rate specifications in terms of Air Change Rate (ACR) or Air Changes per Hour (ACH) for spaces such as cleanrooms, laboratories, patient rooms, operating rooms, and other similar spaces. Responsibilities include the development of research projects, development and presentation of technical programs for all types of spaces which currently require ACR specifications, and a special publication detailing aspects of the ACR philosophy and practice. The work of this MTG will potentially impact design guidelines, ASHRAE Handbook, and related ASHRAE standards. This MTG intends to involve other national and international groups and organizations in these efforts

The following committees and outside groups are currently represented on this MTG: TC 2.2, 4.3, 5.3, 5.8, 9.2, 9.6, 9.10, 9.11, SSPC 62.1, SSPC 170, I2SL, NIOSH, AIHA and potentially more that wish to also join.

The chair of this MTG is Kishor Khankari.

For more information on this new MTG and the nine other existing MTGs, please go to the MTG section on the following web page: <http://www.ashrae.org/tcs> .

If your TC would like to have a voting representative on a particular MTG, please contact the ASHRAE Manager of Research and Technical Services, Mike Vaughn, at MORTS@ashrae.net.

7. Updated TC Website Template – Initial Feedback, if any?

Since the Atlanta meeting, the Society's Electronic Communication Committee (ECC), ECC staff, TAC volunteers Gage and Cooper, and a consultant have been working to modernize and streamline the template for TC websites and now most of the TC websites have been moved to this new template. The new template so far includes

WIZYWIG editing, automatic rosters, and simplified document uploading. There is no longer a need for HTML editing. If you have any feedback on the new template or suggestions for additional features, please let your Section Head and MORTS know.

8. New Restructured TC MOP (Manual of Procedures) to be issued after Las Vegas Meeting

TAC has restructured the TC MOP so that it is easier to navigate and find information.

9. How to Import Your TC Roster Information into MS-Outlook

Detailed instructions on how to import your TC roster information into MS-Outlook has been created and an e-mail announcement will be issued to all TC chairs, vice chairs, and secretaries

once these instructions and the restructured TC MOP are posted to the TC page of the website (www.ashrae.org/TCs)

B. AT THIS MEETING

1. On-Site Training Options

i. TC/TG/TRG Chair's Training Workshop Reminder

Sunday January 29th, 9:45-10:45 AM in Roman I Room (Promenade Level) in the Caesars Palace Hotel. Roster Update training will be the primary topic of discussion, but other information for TCs will also be announced at this meeting. TAC is also interested in any feedback you have to offer on current TC programs and procedures.

ii. RAC's Research Subcommittee Chair's Breakfast

Monday, January 30th, 6:30 AM – 8:00 AM in Roman III Room (Emperors Level) in the Caesars Palace Hotel. Please encourage your Research Subcommittee Chair or another representative from the TC to attend this meeting so that your RAC Research Liaison (RL) can get an update on the TC's research activities and so that your RL can help resolve issues & questions that TC may have concerning their research program. The training portion of this meeting will focus on the duties and responsibilities of Project Monitoring Subcommittee members.

iii. TC Program Subcommittee Chair Training in Las Vegas

Tuesday, 1/31, 11:15 AM – Noon, in Forum 23 Room (Pool Level) in the Caesars Palace Hotel. *Don't complain about the meeting program and your TC's submissions if you have not been to training.*

A few things you might learn in training are as follows:

- Incomplete program submissions is the biggest reason for rejection now. All information is needed up front for CEC selection process.
- A packaged session on a similar topic is the best way to greatly improve your chances for acceptance.
- There is no difference in how CEC handles 60 and 90 minute program slots. 60 minute slots are just as good as 90 minute slots if complete

iv. Handbook Training for TCs

ASHRAE Authoring Portal

Sunday, 1/29, 8 AM to 9 AM, in Turin Room (Promenade Level) in the Caesars Palace Hotel.

This session will introduce the new ASHRAE Authoring Portal for collaborative work on Handbook chapters or other publications. The session will also show new TC Handbook chairs (and TC chairs) what they need to know about Handbook chapter development and revision—the process, the product, and how to succeed. Includes time for Q&A and discussion.

Volume/TC Meetings

Sunday, 1/29, 9 AM to 10 AM

2018 Refrigeration, Room: Forum 19 (Pool level)

2019 HVAC Applications, Room: Forum 3 (Pool level)

2020 HVAC Systems and Equipment, Room: Forum 18 (Pool level)

The agenda for these Handbook-volume-specific meetings will include topics of interest/applicability to all chapters, plus time for Q&A and individual consultation between

Handbook Committee liaisons and TC Handbook chairs. Liaisons will still do their best to attend TC Handbook Subcommittee meetings for additional consultation as needed.

We know some TCs have chapters in more than one volume. If your TC has chapters in more than one volume, **you should go to the volume meeting for the chapters that are due the soonest**. And if your TC hasn't appointed a Handbook Subcommittee chair or representative who can attend one of these meetings, now would be a great time to do so.

On behalf of the Handbook Committee, staff, and ASHRAE Handbook users everywhere, thank you for your continuing dedication to this effort.

v. Seminar 30 – Electronic Project and Document Management: An Introduction and ASHRAE's System

Monday, 1/30, 11 AM to 12 PM, in Augustus III/IV Room (Emperors Level) in the Caesars Palace Hotel.

- *Basecamp Fundamentals* – Cynthia Callaway, P2S Engineering Inc., Long Beach, CA
- *ASHRAE Authoring Portal* – Mark Owen, Handbook Editor, ASHRAE, Atlanta, GA

2. Location of Section Head Mailboxes & Free Wi-Fi Access at this Society meeting

Mailboxes are located just outside ASHRAE Headquarters Office (Forum 8-10 – Pool Level – Caesars Palace Hotel).

Also, Internet access and computers for e-mail are available in the Cyber Café located in the registration area (Palace I, Emperors Level, of the Caesars Palace hotel) during operating hours. Please be considerate to others and limit your usage to five minutes.

Wireless internet will be available in all meeting rooms at Caesars Palace. ASHRAE will be working with the internet provider to manage the bandwidth so that member expectations of accessibility and speed are fulfilled. We would like to request that everyone limit their usage to functions that do not use excessive bandwidth. Applications such as Facebook, YouTube, streaming video, etc. use excessive bandwidth. Wi-Fi Access: **ashrae2017** is the network, **lasvegas** is password (case sensitive).

3. RPM (Remote Participation Meetings) being held in Las Vegas

The 11th RPM beta test (Remote Participation Meetings – Formerly known as E&P meetings), which allows some TC members to participate in the TC meeting from a remote location electronically, will occur in Las Vegas and the following twelve TCs have agreed to participate in this test: TC 4.2, TC 4.5, TC 6.8, TC 7.3, TC 7.8, TC 7.9, TC 9.2, TC 9.4, TC 10.3, TC 10.6, MTG.CCDG, and MTG.LowGWP – In addition to these TCs, 19 PCs and 2 Ad hoc committees also hosted RPM meetings in Las Vegas. Overall, RPM requests exceeded our capacity on Monday and Tuesday with six RPM sets, but I'm happy to report that 4 additional RPM sets will be purchased for use at the Long Beach meeting. This will allow us to host 10 RPM meetings simultaneously in Long Beach. The chairs of those TCs participating should provide to their Section Head feedback on their RPM meeting experience before TAC meets on Wednesday morning, 2/1.

C. UPCOMING DEADLINES

1. 17-18 Roster Update Process & TC Input Deadline

Remember, the current 2016-2017 roster for your TC, TG or MTG is in effect until after the June meeting this year. The new committee rosters for Society year 2017-2018 will be created based

upon the update information that each TC, TG or MTG provides to their section head at this meeting **by midnight, Tuesday, 1/31/17** and these new rosters will go into effect on July 1, 2017. Please see your section head for the 2017-2018 Roster Update form if you still need a copy.

2. TC Activity Forms for the Las Vegas Meeting are due to Your Section Head before Wednesday, 2/1/17

TC/TG/TRG Activity Feedback Form (Excel) can be downloaded from the Technical Committee webpage under the "TC Forms and Documents" page - <https://www.ashrae.org/standards-research--technology/technical-committees/tc-forms-and-documents>. Section heads can also provide an electronic copy of the form if requested.

3. Seminar and Forum proposals for Long Beach are due by Monday, February 6th, 2017.

Please visit the following site to submit your proposal:

For more information, go to: www.ashrae.org/LongBeach .

D. REMINDERS

1. 16-17 Rosters Access & Distribution - Remember, the current 2016-2017 roster for your TC, TG or MTG is in effect until after the June meeting this year – through Friday, June 30th.

By now, each TC, TG and MTG chair should have received a PDF & MS-Excel file of their new 2016-2017 roster from their Section Head or staff for distribution to the committee. In addition, each member can view all of the rosters of their committees on the ASHRAE Website. Go to www.ashrae.org <http://www.ashrae.org> , click on the "Membership & Conferences" tab in the header, click on "My Membership" text in the left sidebar, and log in (if you have not logged in lately, you might need to set up a new username and password). Click on the "Update Your Bio / View or Edit Your Profile" link. Now, you should see your current "bio info". Click on "Committees" on the left sidebar; all of the committees you are a member of will appear. Click on the "blue" roster text at the left hand side of a committee to reveal the roster with linked contact information. Make sure everyone on your committee also knows how to access the roster.

The Provisional Corresponding Member (PCM) position is a relatively new position on TC/TG/TRG rosters. This position allows potential new members to be added by staff to the committee roster any time a request for membership is made by an individual. The position has a 2-year term on the committee. Staff will notify the chair and reissue a new roster to the committee chair any time a provisional member is added. The TC/TG/TRG chair has the option each year during the regular roster update process to convert provisional CMs that have been active participants on the committee the past year into regular CMs or voting members or drop them. If no action is taken, they will time expire from the roster and be removed by staff.

2. Useful TC/TG/TRG/MTG Chair Information and forms on ASHRAE website Information for TC/TG/TRG and MTG chairs can be found on the Technical Committee page of the ASHRAE website at the following link: <http://www.ashrae.org/tcs>

An updated draft of the TC/TG/TRG Manual of Procedures (MOP) is being considered for approval by TAC at the Las Vegas meeting and it is expected to be posted soon to this site and announced to all TC chairs once posted.

3. Request for each TC to briefly review ASHRAE Code of Ethics at start of meeting See the following link for the latest version of the ASHRAE Code of Ethics:
<https://www.ashrae.org/about-ashrae/>

4. Make a Special Effort to welcome new Members, and Visitors to TC meeting

Potential new members for your committee have been encouraged to drop-by your meeting. As a result, please make a special effort to recognize and warmly welcome all visitors to your meeting – A TC can never have too many willing and able volunteers.

5. Option for TC Subcommittee Meetings via Conference Calls and Web Meetings More and more TCs are taking advantage of a new Society service that allows TCs to hold subcommittee meetings by phone and/or web. Many TCs are finding this to be a more efficient way for them to conduct subcommittee business and it also allows TC members that can't travel to meetings on a regular basis a way to still contribute to the TC. Such a change can also eliminate potential conflicts with the TC's program sessions at Society meetings. Please pass your conference call/web meeting/webinar requests on to the Manager of Research and Technical Services, Mike Vaughn, at mvaughn@ashrae.org or MORTS@ashrae.net

Is Your Committee Website up to Date?

If not, please ask your webmaster to at least post the latest minutes and the Las Vegas meeting times and agenda. If your website has been neglected, add an action item for this meeting to appoint a responsible member of the TC/TG/TRG who will bring it back to life. The new TC website template has greatly simplified the duties of the TC webmaster and this form of communication is critical to the efficient operation of your committee, and for attracting new members.

The recent conversion to a new TC website platform highlighted a couple areas where a refresher of the ASHRAE rules on website maintenance is warranted. First be aware that ASHRAE Products (i.e., handbook chapters, journal articles, final reports from research projects, etc.) cannot be published on your TC's website. It is very appropriate to post the title and scope of the product and then link the reader to the ASHRAE bookstore or other location on the ASHRAE site where the product may be purchased. Any possible exceptions to this rule must be sent through Steve Comstock for review and approval (scomstock@ashrae.org). The second issue involves timely posting of the draft minutes. Draft minutes (and final, approved minutes from the prior meeting) should be posted to your website (or otherwise distributed to the members) within 60 days after the meeting. Please ensure that your secretary and webmaster are aware of this deadline. To assist your secretary in understanding the procedures for taking and reporting minutes, a video has been developed and posted on the Technical Committees' Training page (<https://www.ashrae.org/standards-research--technology/technical-committees/tc-training-and-presentations>). On the same page, a video has also been posted for use by webmasters to learn about the procedures and schedules for maintain the new websites.

7. TC 2016-2017 Master Calendar – Now Available through Google - The Technical Committee Master Calendar is now available through Google. In order to access this calendar you need to have a Google account.

Once you log into your Google account, follow the instructions below:

To add a friend's calendar, just follow these steps:

- At the bottom of the calendar list on the left, click Add and select Add a friend's calendar.
- Enter the appropriate email address (techservices1791@gmail.com) in the field provided, then click Add.

This calendar is public and will appear under 'Other Calendars' in the left column.

To set up Google Calendar Sync to your Outlook:

- Make sure you're using a supported operating system and Outlook version.
- Download Google Calendar Sync (version 0.9.3.6) at
- http://dl.google.com/googlecalendarsync/GoogleCalendarSync_Installer.exe
- Once a dialog box appears, click Save File. The downloaded file should open automatically. If it doesn't, manually open it from your browser's download window.
- Click OK to confirm that you're aware this is an executable file.
- Read through the Google Calendar Sync Terms of Service, and click I Agree.
- Follow through the Installation Options and click Install to finish the set-up process.

Once Google Calendar Sync is installed on your computer, the Google Calendar Sync Settings window will appear:

In the Settings window, enter your email address and password and select the Sync Option you prefer. Read about each Sync Option.

You'll also be able to set the time interval for syncing to occur. Please keep in mind that 10 minutes is the minimum time interval allowed.

After the initial set-up, you can access the Google Calendar Sync Settings window again by double-clicking the calendar icon in your Windows System Tray.

E. RECENT ANNOUNCEMENT

1. RAC Prioritizing Research Topics Related to the Residential Sector

In 2015-2016, RAC started prioritizing for bid accepted research topics that support Goal #3 below from the Research Strategic Plan.

Goal #3: To reduce significantly the energy consumption for HVAC&R, water heating and lighting in existing homes.

2. CEC's Standing Request for Future Society Meeting Program Track Suggestions

The Conferences and Expositions Committee (CEC) oversees ASHRAE's annual and winter conferences and other specialty conferences and expositions globally. The CEC continually works to improve the conference experience for all attendees. To help keep a "pulse" on the technical issues facing professionals in the HVAC&R marketplace, and to create meetings that reach all of ASHRAE's constituencies, the CEC seeks ideas for tracks for the Houston 2018 meeting and annual and winter conferences beyond as well as topics for specialty conferences from TC members.

Please submit your suggestions to ASHRAE Staff member Tony Giometti (Giometti@ashrae.org). You can also add your track suggestion in the "Comment" section of the TC Activity form for the Las Vegas meeting.

CEC is particularly interested right now in getting suggestions for the 2018 Annual Meeting Program in Houston, TX. Please submit your suggestions before February 20, 2017.

3. CEC Always Seeks TC Volunteers willing to Support Content Development and Quality Control for Society Technical Program at Society Meetings

Provide to your Section Head after each Society meeting a list of qualified volunteers from your TC that are potential Technical Session chairs and reviewers of session papers that are related to TC's scope for use by the Conferences & Expositions Committee (CEC) in developing technical content for future technical programs.

There is also now a link on the following webpage of the ASHRAE website where you can volunteer online to be a paper reviewer: <https://www.ashrae.org/membership--conferences/conferences/papers-and-programs#reviewers>

TAC Presentation Template for TC members to use with local Chapter

TAC developed a presentation template that allows TC members, without a lot of effort, to give a presentation to their local chapter on TAC and the TCs in general and to also customize a few slides with information specific to their own TC or TCs. The template is posted on the Technical Committee page of the ASHRAE website for download under the heading "General TC Information."

5. The Professional Development Committee (PDC) is seeking ideas for new ASHRAE Learning Institute (ALI) courses.

The need is for practical courses of broad interest to be presented as face-to-face seminars or short courses, instructor-led online courses and self-paced courses. Examples would include courses with a focus on new technologies that need to be shared, fundamentals that may have been forgotten, standard applications that need explanation, and courses based on new design guides.

The objective of the ASHRAE Learning Institute (ALI) is to provide quality, authoritative and practical technical information of broad interest.

Contact Karen Murray (ASHRAE staff) at kmurray@ashre.org with new course ideas.