

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS, INC.

1791 Tullie Circle, NE / Atlanta, GA 30329
404-636-8400

TC/TG/TRG MINUTES COVER SHEET

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

TC/TG/TRG No. 8.4

TC/TG/TRG TITLE: Air-to-Refrigerant Heat Transfer Equipment
DATE OF MEETING: June 28, 2016 LOCATION: St. Louis, MO

DISTRIBUTION

ALL MEMBERS OF TC/TG/TRG

TAC Chairman: Michael Bilderbeck
TAC Section Head: Dustin Meredith
Professional Development: James Bochat

LIAISONS:

RAC Research: Curtis Eichelberger
Standards: James Dale Aswegan
Handbook: Michael P Patton (2020 HB System & Equipment)
David Scott Fisher (2018 HB Refrigeration)
Special Pubs: Julia Keen
Chapter Technology Transfer: Joseph E Sanders
STANDARDS STAFF LIAISON: Claire Ramspeck
TECH SERVICES/RESEARCH STAFF LIAISON: Mike Vaughn

DRAFT MINUTES
ASHRAE TECHNICAL COMMITTEE 8.4
AIR-TO-REFRIGERANT HEAT TRANSFER EQUIPMENT
ST. LOUIS, MO
TUESDAY, JUNE 28, 2016

I CALL TO ORDER

Lorenzo Cremaschi, the Chair of TC 8.4, called the meeting to order at 3:31 p.m. The title, purpose and scope of the TC were read.

II SELF INTRODUCTIONS AND ATTENDANCE:

Everyone present introduced themselves, and signed a roster sheet. Lorenzo Cremaschi identified 7 out of 9 voting members.

Voting Members at this meeting in Orlando are as follows:	End of term (Jun 30 of...)	Present
1. Dr. Lorenzo Cremaschi (chair)	(2016)	Yes
2. Dr. Sankar Padhmanabhan (vice-chair)	(2019)	Yes
3. Dr. Chad Bower (research sub. chair)	(2018)	Yes
4. Mr. Shenghan Jin (secretary)	(2019)	Yes
5. Dr. Vikrant Aute (MTG LowGWP Liason)	(2016)	Yes
6. Dr. Kashif Nawaz (handbook sub. Chair)	(2019)	Yes
7. Dr. Liping Liu (membership)	(2018)	No
Voting Member non-quorum in this meeting		
8. Prof. Man-Hoe Kim	(2018)	Yes
9. Dr. Hyunyoung Kim	(2017)	No
Total Present		7 out of 9 VMs
Quorum		YES

For those who could not attend the meeting, the option of E-meeting is available. However it is only restricted to voting member, officers, and PMSC chair and PMSC members. Corresponding members were not included at this point due to bandwidth constraints.

Lorenzo Cremaschi extended his warm welcome to all members and guests attending this meeting. There were also 21 corresponding members and 9 guests in attendance. There were 5 members and guests who were also YEA members. Shenghan Jin, the secretary of TC 8.4, kept record of the meeting.

II ROSTER CHANGE

Starting 07/01/2016, Dr. Lorenzo Cremaschi (chair) will roll off. Dr. Sankar Padhmanabhan will be the new chair. Mr. Shenghan Jin will be the vice chair. Dr. Satyam Bendapudi will be the secretary. Dr. Kashif Nawaz will be the handbook subcommittee chair. As of today, we have 7 voting members, 2 non-quorum voting members, and over 100 active corresponding members on the TC.

III NOTE FROM SECTION HEAD:

The Section Head Dustin Meredith commented that the meeting is well attended. No new announcement was made from the board. Section Head encouraged members to keep their bio up to date, and asked TC if there is any questions and offered any assistance if needed.

IV REPORT FROM PROGRAM LIAISON

None at this time

V MINUTES OF PREVIOUS MEETING

Meeting minutes from the TC 8.4 meeting in Atlanta were voted for approval. Chad Bowers took motion, Sankar Padhmanabhan seconded. 7 voted in favor (7-0-0). The meeting minutes was approved by the voting members.

VII Chairman's notes on TC chair meeting:

Lorenzo read the minutes from the TC chair handout distributed during the breakfast chair meeting. The relevant minutes are attached below.

1. Discuss and confirm that TGs, TRGs, and MTGs in section will continue in 16-17 Society Year -TBD**2. 16-17 Rosters Access & Distribution** - Remember, the current 2015-2016 roster for your TC, TG or MTG is in effect until after the June meeting this year – through Thursday, 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.

It is suggested that TC chairs start to clean-up their rosters and keep them current by asking corresponding members to confirm their participation for next year's roster update

3. Two New Multidisciplinary Task Groups (MTGs) have been formed since Orlando meeting**MTG.IAST – Impact of ASHRAE Standards and Technology on Energy Savings/Performance**

Scope: MTG.IAST will generate research proposal(s) and work with the selected consultants/contractors to conduct research, collect and organize the data in a useful and conveniently summarized format for Initiative 1B of the Society Strategic Plan "ASHRAE will research the true impact of its standards and technology" as requested by the BOD.

The chair of this MTG is Dan Pettway.

TG.OBB – Occupant Behavior in Buildings

Scope: MTG.OBB will coordinate TC/TG/TRG technical activities to help implement the recommendations from this MTG. This includes coordinating efforts in education, modeling, research, standards, marketing, advocacy, and fund raising within ASHRAE. Research project initiation as the sponsoring committee is included in the scope of this MTG.

Occupant behavior in buildings refers to occupants' comfort preference, presence and movement, and interactions with building systems that have impact on performance (thermal, visual, acoustic, and IAQ) of buildings. The interactions include adjusting the thermostat settings, opening or closing windows, dimming or turning on/off lights, pulling up or down window blinds, switching on or off plug-loads, and consuming domestic hot water. The chair of this MTG is Tianzhen Hong.

For more information on these two new MTGs and the eight 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

4. Other potential new MTGs being considered by TAC – MTG.ACR (Air Change Rate)

TAC is also considering at this meeting a proposal to form a new MTG.ACR (Air Change Rate). It is proposed that the new MTG will 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. The proposal includes voting representatives and alternates from the following TCs: 2.2, 4.3, 5.3, 5.8, 9.2, 9.6, 9.10, and 9.11 plus other groups such as SSPC 62.1 and SSPC 170

5. New TC Website template – Initial Feedback or Suggested Improvements, if any?

Since the Orlando 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 (93 out of 95) 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.

6. Oversight of TC websites with regard to *Technical Bulletins (White Papers)* and alignment with Society positions, policy, or opinions

TCs are allowed to develop Technical Bulletins - A Technical Bulletin does not result from a technical meeting and is a brief 1-2 page statement on a special interest HVAC&R topic that has been developed by either a technical or grassroots committee of ASHRAE. After the TC approves the Technical Bulletin, TAC is responsible for coordinating a peer review by a minimum of three persons with expertise in the field of the bulletin before it can be posted. In addition, ASHRAE's policy for websites states the In addition, ASHRAE's policy for websites states the following: "4 (3) f. Statements and presentations may not appear on web sites that state, purport, or imply that they present ASHRAE positions, policy, or opinions."

7. Additional TC E-mail Position Aliases Now Available.

New position e-mail alias addresses have now been created for each of the remaining mandatory positions of the Technical Committee management team (Secretary, Standards Sub. Chair, Program Sub. Chair, Handbook Sub. Chair, and Webmaster). The 15-16 E-mail Alias list

is posted on the ASHRAE website www.ashrae.org/TCs under the heading *Procedures, Forms & Information for TCs/TGs/MTGs and TRGs*. The new 16-17 E-mail Alias list will be posted in the same location shortly after the St. Louis meeting.

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

TAC has restructured the TC MOP so that it is easier to navigate and find information. The new TC MOP can be found on the ASHRAE website www.ashrae.org/TCs under the heading *Procedures, Forms & Information for TCs/TGs/MTGs and TRGs*.

9. Distribution of TC minutes changed in TC MOP

The TC MOP and *TC/TG/MTG/TRG Minutes Cover Sheet* form have both been updated and you are no longer required to send the TAC chair a copy of your minutes after each meeting. The new minutes cover sheet can be found on the ASHRAE website www.ashrae.org/TCs under the headings *Procedures, Forms & Information for TCs/TGs/MTGs and TRGs – Routine Forms for TC/TG/MTGs/TRGs*.

10. 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)

11. Updated TAC Presentation Template Available for TC members to use with local Chapter

TAC recently updated the standard presentation and presentation notes that TC members can use, without a lot of effort, to explain what TCs do to their local ASHRAE Chapter. You should also know that use of this presentation at a chapter meeting in SY 16-17 will earn a chapter 50 (100 points maximum) PAOE points. Additional PAOE points are also possible in SY 16-17 for a presentation(s) on the work of one specific TC.

The new presentation and presentation notes files are posted now at the following link www.ashrae.org/tcs under the heading *General TC Information* at the top of the page in case you prefer to direct others to these files posted online.

12. Basecamp Information from ECC

Thanks to the efforts of the Society's Electronic Communication Committee (ECC) many TCs are now taking advantage of an online collaborative tool called *Basecamp* in order to carry-out their committee work in a more efficient fashion. If your TC is interested in possibly establishing your own Basecamp, please go to the following link to learn more about Basecamp: <https://www.ashrae.org/basecampguidance>. To establish a Basecamp, please contact Joslyn Ratcliff, at eccstaff@ashrae.net

13. CEC Ongoing Issues with Program Presentation Submissions

Presentations for St. Louis were due in early June. At the close of Confex (6/21), 11 sessions had not been uploaded.

Starting in Las Vegas, presenters with presentations not uploaded by the published due date, will incur a “strike” in our 3-strike policy. Once three strikes have accrued, the speaker will not be allowed to speak for a period of time that could be up to one calendar year or more.

B. AT THIS MEETING

1. On-Site Training Options

Ask your subcommittee chairs (program, research, handbook, etc.) to attend relevant training

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

Sunday June 26th, 9:45-10:45 AM in Room #221, 2nd Level, in the America’s Convention Center. The training will start with a brief presentation on how to run Effective Meetings and then highlight some of the online resources that are available through the TAC training portal for additional training and information on a variety of topics. The training session will also have a Q&A session so that you can also get answers to your specific questions.

ii. RAC’s Research Subcommittee Chair’s Breakfast

Monday, June 27th, 6:30 AM – 8:00 AM in Majestic D/E room, Conf. Plaza 2nd Level (CP2), Marriott St. Louis Grand 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 changes to the *Research Manual*.

iii. TC Program Subcommittee Chair Training in St. Louis

Tuesday, 6/28, 11:15 AM – Noon, Room #220, 2nd Level, in the America’s Convention Center. *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. TC Handbook Subcommittee Chair Training in St. Louis

Sunday, 6/26, 8 AM – 9 AM, Aubert Room, Mezzanine Level, Marriott St. Louis Grand
This special 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.

2. RAC Seminar 47 – Update on the ASHRAE Innovative Research Grant (IRG) Program and Future Plans for It

RAC is sponsoring a seminar on Monday, 6/27, from 11 AM to 12 PM in Room #227, 2nd Level, in the America's Convention Center. Two presentations will cover the results from the first two IRGs, which are now complete, and the third presentation will cover what RAC plans to do with the program going forward.

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

Mailboxes are located just outside ASHRAE Headquarters Office (Kingsbury / Westmoreland rooms – Conf. Bldg. Street Level – Marriott St. Louis Grand Hotel).

Also, Internet access and computers for e-mail are available in the Cyber Café located in the registration area 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 the Marriott and Convention Center. 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.

Marriott Wi-Fi Access: **Marriott Conference** is the network, **ashrae16** is password (case sensitive).

Convention Center Wi-Fi Access: **ASHRAE** is the network, **ashrae16** is password (case sensitive).

4. RPM (Remote Participation Meetings) being held in St. Louis

The 10th 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 St. Louis and the following fifteen TCs have agreed to participate in this test: TC 1.5, TC 1.10, TC 1.12, TC 2.2, TC 4.2, TC 5.8, TC 6.8, TC 6.9, TC 7.3, TC 7.9, TC 8.4, TC 8.8, TC 9.2, TC 10.2, TC 10.3 – This represents a 25% increase over the number of TC's hosting RPM meetings in Orlando.

RPM meetings will be hosted in St. Louis when you include project committee meeting. For comparison, a total of 31 RPM meetings were hosted in Orlando.

The chairs of those TCs participating should provide to their Section Head feedback on their RPM meeting experience before TAC meets on Wednesday morning, 6/29

5. Retiring TC/TG/TRG/MTG Chair Certificates

TC chairs that are completing their terms as chair at this Society meeting will be presented with a certificate of appreciation. Please coordinate with your Section Head as to when and where at the meeting you would like to be presented with the certificate (Section meeting or TC meeting).

C. UPCOMING DEADLINES

1. TC Activity Forms for the St. Louis Meeting are due to Your Section Head before Wednesday, 6/28/16

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.

2. Thank You Letters to Employers

ASHRAE President – David Underwood – has offered to send letters to the employers of TC volunteers this year thanking them for supporting their employee's service on an ASHRAE TC during Society year 2015-2016. If requested by the volunteer, the letter will be sent to his/her employer by the end of July or early August and the volunteer will receive a copy. Please let your committee members know that they will be receiving an email about employer thank you letters in early July with details on how to request a thank you letter.

3. Seminar and Forum proposals for Las Vegas are due by Monday, August 8th, 2016.

Please visit the following site to submit your proposal:

<http://ashraem.confex.com/ashraem/w17/cfp.cgi>

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

4. 2016-2017 Hightower Award & Service to ASHRAE Research Award Nominations by Thursday, September 1st

Nominations for the 2016-2017 *George B. Hightower Technical Achievement Award* are due to you Section Head by September 1, 2016. The award recognizes outstanding technical leadership and contributions on a TC/TG/TRG during the past four years, excluding research and standards activities. Please go to the Technical Committee page of the ASHRAE website at the following link under the "Procedures, Forms..." heading: <http://www.ashrae.org/tcs>
Nominations for the 2016-2017 *Service to ASHRAE Research Award* for TC volunteer efforts in research are due to RAC research liaison by September 1, 2016. Please go to Research page of the ASHRAE website at the following link under the "Research Grants and Awards" heading: <http://www.ashrae.org/research>

D. REMINDERS

1. 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 St. Louis meeting and it is expected to be posted soon to this site and announced to all TC chairs once posted.

2. 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/>

3. 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.

4. 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

5. Is Your Committee Website up to Date?

If not, please ask your webmaster to at least post the latest minutes and the St. Louis 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 schedule to maintain the new websites.

E. RECENT ANNOUNCEMENT

1. RAC Prioritizing Research Topics Related to the Residential Sector

Continuing in 2016-2017, RAC will be 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 Chicago 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 St. Louis meeting.

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.

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

The Professional Development Committee (PDC) is actively seeking ideas for new ASHRAE Learning Institute (ALI) courses. We need 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 include courses with a focus on new technologies that need to be shared, fundamentals for engineers new to the discipline, standard applications that need explanation, and courses based on new design guides. Does your TC have a potential course idea? Contact Karen Murray (ASHRAE staff) kmurray@ashre.org or Jim Bochat (2016-17 PDC chair) jim.bochat@cxconcepts.com with your course ideas.

F. CURRENT & UPCOMING ASHRAE CONFERENCE PROGRAMS 1. St. Louis Annual Conference - June 25 – June 29, 2016

Conference Program Chair: Tom Kuehn Email: kuehn001@umn.edu
Program Focus at St. Louis Annual Conference

- i. Track 1: Advances in Refrigeration Systems and Alternative Refrigerants
- ii. Track 2: Research Summit
- iii. Track 3: Fundamentals and Application
- iv. Track 4: HVAC Systems and Equipment
- v. Track 5: Smart Building Systems/Remote Monitoring and Diagnostics
- vi. Track 6: Indoor Environment: Health, Comfort, Productivity
- vii. Track 7: Professional Skills Beyond Engineering
- viii. Track 8: Renewable Energy Systems and Net Zero Buildings

2. Las Vegas Annual Conference – January 28 – February 1, 2017

Seminar and Forum proposals for Las Vegas are due by **Monday, August 8th, 2016.**

Conference Website: <http://ashraem.confex.com/ashraem/w17/cfp.cgi>

Conference Program Chair: Leon Shapiro Email: leoneshapiro@gmail.com

Program Focus at St. Louis Annual Conference

- i. Track 1: Fundamentals and Applications
- ii. Track 2: HVAC&R Systems and Equipment
- iii. Track 3: Water-Energy Nexus
- iv. Track 4: Commercial and Industrial IAQ

- v. Track 5: Mission Critical Design and Operation
- vi. Track 6: Effects of Climate Change on HVAC&R
- vii. Track 7: Energy Efficient Industrial Buildings
- viii. Track 8: Building Operation and Performance

3. Long Beach Annual Conference - June 24 – June 28, 2017

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

Conference Website: <http://ashraem.confex.com/ashraem/s17/cfp.cgi>

Conference Program Chair: Ann Peratt Email: ann.peratt@gmail.com

Program Focus at Long Beach Annual Conference

- i. Track 1: Fundamentals and Applications
- ii. Track 2: HVAC&R Systems and Equipment
- iii. Track 3: Refrigeration
- iv. Track 4: Building Life Safety Systems
- v. Track 5: Controls: Smart Building Systems and the Security Concerns as Technology Emerges
- vi. Track 6: Commissioning: Optimizing New and Existing Buildings and their Operation
- vii. Track 7: Net Zero Energy Buildings: The International Race to 2030
- viii. Track 8: Residential Buildings: Standards and Guidelines and Codes
- ix. Track 9: Research Summit

G. OTHER UPCOMING WORKSHOPS, CONFERENCES AND EVENTS

1. 2016

- i. **Indoor Air 2016** (14th International Conference of Indoor Air Quality and Climate) – July 3 to 8, 2016 – Ghent, BELGIUM – Contact: <http://www.indoorair2016.org/>
- ii. **2016 Purdue Conferences** – July 11 to 14, 2016 – Purdue University West Lafayette, IN, USA – Contact: <http://engineering.purdue.edu/HerrickConf>
- iii. **ASHRAE and IBPSA-USA SimBuild 2016: Building Performance Modeling Conference** – August 10-12, 2016 – Salt Lake City, Utah USA – Contact: <http://ashraem.confex.com/ashraem/ibpsa16/cfp.cgi>
- iv. **2016 JSRAE Annual Conference** – Sep. 6 – 9, 2016 - Kobe University (Rokkodai Campus, Kobe, JAPAN) – Contact: <https://nenji.jsrae.or.jp/nenji2016/en/index.html>

v. **IAQ 2016 - Defining Indoor Air Quality: Policy, Standards and Best Practices** – September 12-14, 2016 – Alexandria, Virginia USA – Contact: <http://ashraem.confex.com/ashraem/iaq16/cfp.cgi>

vi. **IEA EBC Annex 61 Deep Energy Retrofit Forum** - Sep 15 -16, 2016 - Washington, DC USA – Contact: <http://iea-annex61.org/>

vii. **AHR Expo Mexico** - Sep 20 -22, 2016 - Monterrey, MEXICO – Contact: <http://www.ahrepomexico.com/>

viii. **2nd International Conference Efficient Building Design: Materials and HVAC Equipment Technologies** - September 22 to 23, 2016 - Beirut, LEBANON – Contact: <https://www.ashrae.org/membership--conferences/conferences/2016-2nd-international-conference-efficient-building-design>

ix. **IAQVEC 2016** (9th International Conference on Indoor Air Quality Ventilation & Energy Conservation in Buildings) – Oct. 23 -26, 2016 – Seoul, SOUTH KOREA - Contact: <http://iaqvec2016.org/> or info@iaqvec2016.org

x. **Buildings XIII** – Thermal Performance of the Exterior Envelope of Whole Buildings Conference – Dec. 4 - 8, 2016 - Clearwater Beach, FL USA – Contact: <http://web.ornl.gov/sci/buildings/2016/index.shtm>

2. 2017

i. **Sustainable Management of Refrigeration Technologies in Mobile Marine and Fisheries Sectors** - January 11-13, 2017 - Bangkok, THAILAND – Contact: <https://www.ashrae.org/membership--conferences/conferences/ashrae-conferences/marine-2017>

ii. **2017 ASHRAE Winter Conference & AHR Expo** – Jan. 28 to Feb.1, 2017 – Las Vegas, NV – Contact: <http://ashraem.confex.com/ashraem/w17/cfp.cgi>

iii. **2nd International Conference on Energy and Indoor Environment for Hot Climates** - February 26 - 27, 2017 - Doha, QATAR – Contact: <https://www.ashrae.org/membership--conferences/conferences/ashrae-conferences/energy-and-indoor-environment-for-hot-climates>

iv. **Beyond NZEB: Retrofit of Existing Buildings** – May 10 - 11, 2017 – Matera, ITALY – Contact: <http://www.aicarr.org/Pages/EN/Upcoming%20Events/2016/50AiCARR.aspx>

v. **12th IEA International Heat Pump Conference** – May 15 to May 18, 2017 – Rotterdam, NETHERLANDS – Contact: <http://hpc2017.org/>

vi. **ISHPC2017** – Aug. 7 – Aug. 10, 2017 – Tokyo, JAPAN – Contact: <http://biz.knt.co.jp/tour/2017/ISHPC2017/congress.html>

Conferences and Expositions Committee Information Items for Technical Committees Annual Meeting, St. Louis 2016

1. **2017 ASHRAE Winter Conference in Las Vegas, NV:** <http://www.ashrae.org/LasVegas>

a. Conference Papers are due on July 8, 2016

b. Seminar, Forum, and Workshop proposals are due August 8, 2016

c. Confex opens for presentation uploads December 2, 2016

d. All presentations due online January 2, 2017.

☐ **Track 1: Systems and Equipment**

Track Chair: Chuck Curlin Email: ccurlin@shultzeg.com

☐ **Track 2: Fundamentals and Applications**

Track Chair: Michael Collarin Email: Michael.Collarin@parsons.com

☐ **Track 3: Water-Energy Nexus**

Track Chair: Gary C. Debes Email: gcdebes@verizon.net

Track 4: Commercial and Industrial IAQ

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

☐ **Track 5: Mission Critical Design and Operation**

Track Chair: Carrie Anne Crawford Email: carriecrawford@eeace.com

☐ **Track 6: Effects of Climate Change on HVAC&R**

Track Chair: Rocky Alazazi Email: mralazazi@yahoo.com

☐ **Track 7: Energy Efficient Industrial Buildings**

Track Chair: Corey Metzger Email: corey.metzger@resourcece.com

☐ **Track 8: Building Operation and Performance**

Track Chair: Cynthia Moreno Email: cindym@tmmechanical.com

2. 2017 ASHRAE Annual Conference in Long Beach, CA: www.ashrae.org/LongBeach

a. Conference Papers Abstracts due August 29, 2016

b. Conference Papers due December 9, 2016

c. Seminar, Forum and Workshop proposals are due February 6, 2017

d. Confex opens for presentation uploads May 1, 2017.

e. All presentations due online June 2, 2017.

☐ **Track 1: Fundamentals and Applications:**

Track Chair: Frank Schambach Email: frankschambach@mindspring.com

☐ **Track 2: HVAC&R Systems and Equipment:**

Track Chair: Jennifer E. Leach Email: pennst8jen@yahoo.com

☐ **Track 3: Refrigeration:**

Track Chair: Vikrant Aute Email: vikrant@umd.edu

☑ **Track 4: Building Life Safety Systems:**

Track Chair: Robert Alan Neely Email: alan_neely@pghcorning.com

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

Track Chair: Melanie Derby Email: derbym@ksu.edu 2

☐ **Track 6: Commissioning – Optimizing New and Existing Buildings and their Operation:**

Track Chair: Dennis Alejandro Email: denzjac@yahoo.com

□ **Track 7: Zero Net Energy Buildings – The International Race to 2030:**

Track Chair: Jason DeGraw Email: jason.degraw@nrel.gov

▣ **Track 8: Residential Buildings – Standards Guidelines and Codes:**

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

▣ **Track 9: Research Summit**

Track Chair: Ann Peratt Email: ann.peratt@gmail.com

3. Program statistics for St. Louis; for a total of 107 available slots:

Conferences Papers

- 130 conference paper abstracts submitted, 124 approved
- 84 conference papers received
- 71 conference papers presented
- 22 Conference Paper Sessions

Technical Papers

- 60 conference papers received
- 28 conference papers presented
- 9 Technical Paper Sessions

Seminars

- 116 submitted
- 64 presented

Workshops

- 10 submitted
- 8 presented

Forums

- 12 submitted
- 4 presented

4. Invited Speakers:

CEC has developed a policy to allow for invited speakers to have their speaker fee waved. The proposed invited speakers shall be submitted with the respective program submission, and will be reviewed concurrent to the submission review process. The CEC Chair, Vice Chair, and Conference Program Chair will review submissions and will accept up to five invited speakers, per Annual and Winter meeting, considering the strength of the proposal. The speaker must meet the following criteria to be considered: a.) Subject matter expert, b.) Not an ASHRAE member, c.) Will provide information that is useful to the ASHRAE membership.

5. Potential Sources Bias Disclosure:

Starting at the 2016 Annual Meeting in St. Louis, speakers will be asked to fill out a potential sources bias disclosure document that will note an affiliations/involvement with any organizations with financial or commercial interest in the subject matter to be discussed, in accordance with the ASHRAE code of ethics.

6. TC Opportunities:

- a. TC members who want to submit a program should consult the Track Chair for assistance in preparing a good abstract, learning objectives, and Q&A to help assure complete submission.
- b. TC's and Sections are welcome to suggest new presentation formats (like how the Workshop was born). Best way to present material to benefit attendee is a goal 3.
- c TC's and Sections are encouraged to work with a track chair to put together a series of sessions that can be used as a mini-track.
- d. Putting together an entire track of programs in cooperation with other TC's is also encouraged; keeping in mind that track subjects are typically determined 14-15 months prior to a conference.
- e. CEC welcomes suggestions for tracks! We value your input. TAC/CEC agreed that the Comment Section on the activity form is the location for the TC to provide this information.

7. Speaker Ratings: About 12 speakers from Orlando had speaker ratings below 3.5 out of 5.0. These speakers were sent letters indicating that if they receive two additional low ratings they will be required to provide proof that they have received speaker training before they will be permitted to speak again.

8. Presentations: CEC has had an ongoing issue with presentations not being uploaded for commercialism review before the conference. This is problematic because it requires a "fire drill" for CEC on Saturday and Sunday to process commercial reviews for these presentations before they can be uploaded to the system. For clarification, presentation requirements include:

- a. Presentations must be uploaded for commercialism before the deadline (**January 2, 2017 for Las Vegas**).

- b. Uploads need to be substantially complete; including the AIA Disclaimer and Learning Objectives. Blank slides and place holders do not constitute a substantially complete presentation.

- c. St. Louis Presentation Uploads. i. Approximately 30 sessions were not uploaded by the final due date. ii. 11 Presenters were not uploaded as of June 24th for St. Louis. 9 of these programs were sponsored by TCs

CEC needs to hold speakers accountable for making deadlines. Starting with the 2017 Winter Meeting in Las Vegas, CEC will be enforcing a 3 strike policy for speakers who do not upload their presentation by the published deadline. If a speaker receives 3 strikes they will not be able to present for the following .

9. CEC Announces a Call for Reviewers: ASHRAE has a number of conferences coming up that include papers, and CEC seeks your help in reviewing them. Specifically, there is an immediate need for reviewers for the following conferences: 2017 Winter Conference and various specialty conferences Please contact Tiffany Cox, ASHRAE Assistant Manager, Conference Programs, at tcox@ashrae.org for more information or to volunteer to be a reviewer.

10 Program Types.

These sessions present papers on current applications or procedures, as well as papers resulting from research on fundamental concepts and basic theory. Papers presented in these session have successfully completed a rigorous peer review. Forms for written comment are available at each session, and sent to respective authors for reply and publication in ASHRAE transactions, if received by a certain date.

Conference Paper Session:

These sessions present papers on current applications or procedures, as well as papers reporting on research in process. These papers differ from technical papers in that they are shorter are length and undergo a much less stringent peer review.

Seminar:

These sessions features presentations on subjects of current interest. There are not papers attached to seminars.

Workshop:

These sessions enable technical committees and other ASHRAE committees to provide a series of short presentations on a topic requiring specific expertise. These short presentations are provided with an increased emphasis on audience participation and training in a specific set of skills. There are not papers attached to workshops.

Forum:

The sessions are “off-the-record” discussed held to promote a free exchange of ideas.

Reporting of forums in limited to allow individuals to speak confidentially without concern of criticism. There are not papers attached to forums.

Program types starting at 2017 Annual Meeting in Long

Beach Panel Discussion:

Panel discussions can feature a broad range of subjects and explore different perspectives on industry related topics. This session format includes a panel of 3-4 speakers each addressing a facet of the session topic, followed by an interactive discussion lead by the session chair.

Panel Discussions may be 60 minutes or 90 minutes in length and will be posted online in the Virtual Conference.

Debate

Debates highlight hot-button issues commonly faced by our membership. Industry experts, either on teams or as individuals, argue opposing sides of an issue, concluding with position summaries and audience feedback. Debate sessions may be 60 minutes or 90 minutes in length and will be posted online in the Virtual Conference.

- **REMARKS FROM SOCIETY LIAISONS TO TC/TG/TRG CHAIRS RESEARCH LIAISON REPORT**

None at this time

LIAISON REPORTS FROM OTHER COMMITTEES

None at this time.

- **SUBCOMMITTEE REPORTS**

PROGRAM SUBCOMMITTEE– ED VINEYARD

General Comments and upcoming conferences:

- The potential seminar in Las Vegas is discussed. The title is proposed to be “understanding and mitigating corrosion in heat exchangers”. The topic of seminar belongs to system and equipment track. The deadline for submission August 8th. Chad Bowers will chair this session. David Ellerbrock Seifollah Nasrazadani and Matt Baker have expressed interest to present. There may also be one presentation from Oakridge National Lab as well. Sankar took motion to approve, Vikrant seconded. All approved (7-0-0).
- For long beach meeting technical conference session. Abstract is due on August 29th, full paper is due on December 9th. The topic is on optimization of heat exchangers in chillers. David Zietlous (topic: air-side heat transfer enhancement for dry conditions) and Man-hoe Kim (topic: air side heat transfer measurement) may present.
- Sankar proposed another seminar session for long beach with the subject of “basic heat exchanger design guidelines”. Will provide detailed scope and identify potential speakers.
- For Chicago meeting a mini conference is proposed. It belongs to Track: performance of heat exchanger in field operation including application under frost condition. The scope is broad at this point but will be described in further detail. 11 TC has shown interest (either participate or provide a speaker). The mini conference is planned to be on Sunday and Monday. Ed Vineyard will take the lead and Lorenzo will contribute to see if there is any relevant work that TC 8.4 can contribute.

RESEARCH SUBCOMMITTEE – CHAD BOWERS

Update from Research Subcommittee Chair Breakfast

Link to new online data base of ASHRAE research <http://research.ashrae.org>

- Milestones for PMS and other changes – will be training for PMS chairs
- Research database online electronically (only 250 currently, out of ~1000)
- A2L research initiative (\$5.2M) up to \$1.2M from ASHRAE, from reserve fund. Not clear if the Low GWP MTG is going to take the lead on this or not
- 9 RTAR’s considered by RAC – 1 accepted, 4 conditionally accepted with comments, 4 rejected
- 10 Work Statements considered by RAC – 6 conditionally accepted, 4 returned
- New PDF WS form
- Curt Eichelberger from JCI is new RL (Curtis.eichelberger@jci.com), Chris Wilkins moving to Section 7

3. Completed Research

Project 1535 A Heat Transfer and Friction Factor Correlation for Low Air-Side Reynold’s number Applications of Compact Heat Exchangers

Project 1564 Measurement of Oil Retention in Microchannel Heat Exchangers

4. Active Research Projects

Update on Research Project 1645 Development of New Corrosion Test for Aluminum Heat Exchangers Contractor: Prof. Seifollah Nasrazadani, University of North Texas

Project Monitoring Subcommittee: David Ellerbrock, Hyunyoung Kim, Russell Tharp, Claudi

Update on Research Project 1705 Investigation of Airside Fouling on Outdoor Heat Exchangers Contractor: Prof David Yuill University of Nebraska

Project Monitoring Subcommittee: Hugh Henderson, Bill Fox, and Liping Liu,

5. Potential Research Projects and Older Ideas

- WS 1785 Refrigerant Charge Modelling in Coils for Unitary Split Systems –RTAR by Ray Rite and Chad Bowers from TC8.11. TC8.4 co-sponsoring. Submitted to RAC. Accepted with comments.
- Omar Abdelaziz, Ankit Sethi and Vikrant Aute finished the RTAR entitled “Heat Transfer and Pressure Drop of Low GWP Refrigerants in Small Diameter Tubes”. This should be one of our higher priority RTAR’s send by March, plan to submit by May 15 deadline. Plan is to focus on R410A and R404A replacements. Looking for co-sponsorship from 1.3
- Reverse flow in microchannel heat exchangers suggested by Bill Fox – no new activity, keep on list
- Sankar Padhmanabhan reworked an WS for NH3 in U-bends for TC 1.3. TC 8.4 is interested in co-sponsorship. RTAR 1683 accepted (need to check on co-sponsorship). Sankar working on the work statement. Chad will help.
- Additional oil retention studies to add on to the data and modeling efforts from Project 1564. Chad Bowers will work on framing a new RTAR that will use RP 1564 as a springboard for the next step in similar work. Scott Wujek will help and ask TC3.4 for co-sponsorship.
- Bio-inspired heat exchanger design. Shaobo Jia wrote a previous RTAR. Omar Abdelaziz agreed to review. Interest is based on ARPA-E work ongoing, lots of room/interest(?). Just keep an eye on this to see if the TC should pursue in the future. Work with 3D printing as reference.
- Numerical simulation for wet/frosted fin. – should be pursued with new fin designs. Use CFD combined with heat exchanger model. Yang Zhou. Should we say development of unified semi-empirical frost model for heat exchanger level modelling for new fin geometries? Put objective to this at the next meeting (St. Louis). No movement in St Louis.
- Charge/capacity understanding – literature survey with basic modelling (Vikrant will help with voidfraction study using new fluids). Do we want TC1.3 co-sponsorship. Use single tube tests to validate correlation or heat exchangers? Do we want to tie this to the small diameter tube heat transfer and pressure drop RTAR
- Heat exchanger leakage/detection heat exchanger level (A2L) – A2L project may already be covering, pursue through Low GWP MTG
- Air side heat transfer for small diameter tubes – Bill Fox to work with Vikrant on RTAR. DOE work from Maryland. 2mm-5mm. Vikrant will present in optimization session and come out at other conference. May need project to get heat exchangers and update coefficient based on experimental data, ideally smaller than 3-4mm.

6. New Ideas

Modelling microchannel headers – pressure drop in headers (ongoing at ACRC) and charge Stefan Elbel and Lorenzo to work on. Do we want to work on evaporators or condensers, intermediate? Maybe focus more on charge modelling easier to justify than pressure drop.

STANDARDS SUBCOMMITTEE – RAYMOND RITE REPORTED FOR GARY PRICE TO THE MAIN TC

The standards sub-committee is responsible for three standards: SPC 25 Forced and natural convention air coolers, SPC 20 method of testing for air cooled condensers, SPC 33 method of testing forced circulation air cooling and air heating coils.

- SPC 25: Forced and natural convention air coolers – Gordon Struder. Met on Monday night and previous meeting in May. Progress with two additional voting members. Will work to have a draft ready before winter meeting. Got feedback to include fluid with glide.
- SPC 20: Method of testing for Air Cooled Condensers – Ray Rite. Met on Sunday 6/26 and had a quorum (2 members attended remotely via RPM). Voting members are: Ray Rite(Chair), Ron Wood(Secretary), Gordon Struder, Zan Liu, Konrad Chmielewski, Richie Mohan. There were two guests. Richie Mohan (AHRI) will be dropping off but Ted Wayne(AHRI) will be joining. This will keep us at six members with balance. Four interim meetings have been scheduled between Aug and Jan. Plan is to have a draft ready for final discussion by the SPC at the January 2017 meeting.
- SPC 33: Methods of Testing Forced-Circulation Air-Cooling and Air-Heating Coils was published in April 2016 and is available for purchase on ASHRAE's website. As part of this revision, the calculation forms were made publically available on the ASHRAE website. The voting members on SPC 33 were Ram Narayanamurthy, Jose A. Perez-Galindo, Byron B. Hagan, Gary W. Price, William Burgess Fox, and Shaobo Jia.

HANDBOOK SUBCOMMITTEE – BILL FOX

Bill Fox gave updates. Tutorials are online. All members in this TC should have access to handbooks available online. The web address is: authoring/ashrae.org. It is recommended to also review the section of micro channels before submitting.

MEMBERSHIP – LIPING LIU

Lorenzo Cremaschi gave a brief update. As of today we have 9 voting members and over 100 active corresponding members on the TC. The subcommittee will maintain a list of CMs up to date.

Starting 07/01/2016, the officers will be as follows:

Officers TC 8.4 as of 07/01/2016	
1.	Dr. Sankar Padhmanabhan Chair
2.	Mr. Shenghan Jin Vice-chair, honors and awards
3.	Dr. Chad Bower Research sub. Chair
4.	Dr. Satyam Bendapudi Secretary
5.	Dr. Kashif Nawaz Handbook
6.	Mr. Ed Vineyard Programs
7.	Dr. William Fox Standards
8.	Dr. Christian Bach Webmaster
9.	Dr. Liping Liu Membership
10.	Dr. Vikrant Aute MTG Low GWP Liaison

Starting 07/01/2016, the VMs will be as follows:

Voting Members at this meeting in Orlando are as follows:	End of term (Jun 30 of...)
1. Dr. Sankar Padhmanabhan	(2019)
2. Dr. Chad Bower	(2018)
3. Mr. Shenghan Jin	(2019)
4. Dr. Kashif Nawaz	(2019)
5. Dr. Liping Liu	(2018)
6. Dr. Omar A Abdelaziz	(2020)
7. Dr Ebrahim S Al-Hajri	(2020)
8. Mr Ankit Sethi	(2020)
Voting Member non-quorum in this meeting	
9. Prof. Man-Hoe Kim	(2018)
10. Dr. Hyunyoung Kim	(2017)

WEBSITE – CHRISTIAN BACH

None.

HONOR AND AWARDS NOMINATION- SHENGHAN JIN

Nomination for Gary Price has been submitted. May need additional supporting material.

IX MTG LIAISON REPORT

Vikrant Aute gave updates:

- MTG had interim telecon on May 12th, 2016. There was a vote on scope change, from "...suggestions for research..." to "...for research". Thus, the MTG can undertake research activities
- The MTG also approved an RTAR from TC 1.3 and 8.5, on "Spray Evaporation of Lower GWP Refrigerants".
- From today's meeting, Vikrant (MTG Liaison) has the following action items - a. Request co-sponsorship on RTAR that TC 8.4 has drafted, related to evaporation of lower GWP refrigerants in small diameter tubes. b. Get more clarification on how research can be proposed and coordinated between MTG and TC, with the scope change of MTG.
- The AHRI-AREP Phase II is coming to a conclusion and most of the reports are available on the AHRI Website.
- The IIR LCCP Guideline and informatory note is now available on the IIR website. The next meeting of this working party will be on Aug 23rd, 2016 at the Gustav Lorentzen Conference in Edinburgh.
- The MTG will meet on Wed June 29, 2016, from 10am to 12pm, in Landmark-5, St. Louis.
- Vikrant Aute will continue to represent TC 8.4 on the MTG Low GWP (as discussed during the Membership part of the Agenda).

X OLD BUSINESS

None.

XI NEW BUSINESS

None.

XII ADJOURNMENT

Motion to adjourn meeting at 5:17 pm.