

THE RESEARCH & TECHNICAL ACTIVITIES REPORT

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FOR TC/TG/MTG/SSPC CHAIRS, VICE CHAIRS &
RESEARCH SUBCOMMITTEE CHAIRS
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2016 WINTER MEETINGS

The winter meetings of the Research Administration Committee (RAC), Technical Activities Committee (TAC), Technology Council, and the Board were recently completed with the results below. This report also includes information for RAC's and TAC's upcoming annual meeting.

NEW PROJECTS AWARDED

The following six projects were approved for award as follows:

- **1649-RP**, *IAQ and Energy Implications of High Efficiency Filters in Residential Buildings*; Responsible Committee: **TC 2.4** (Particulate Air Contaminants and Gas Contaminant Removal Equipment); Proposer: University of Toronto. Estimated Duration: 24 months; Cost to ASHRAE: \$180,215
- **1666-RP**, *Experimental Evaluation of the Thermal and Ventilation Performance of Stratified Air Distribution Systems Coupled with Passive Chilled Beams*; Responsible Committee: **TC 5.3** (Room Air Distribution); Proposer: Purdue University. Estimated Duration: 24 months; Cost to ASHRAE: \$156,236
- **1675-RP**, *Guidance for CFD Modeling of Data Centers*; Responsible Committee: **TC 4.10** (Indoor Environmental Modeling), Co-Sponsor: TC 9.9 (Mission Critical Facilities, Data Centers, Technology Spaces and Electronic Equipment); Proposer: Florida International University Estimated Duration: 24 months; Cost to ASHRAE: \$136,792
- **1742-RP**, *Update to Measurements of Office Equipment Heat Gain Data*; Responsible Committee: **TC 4.1** (Load Calculation Data and Procedures); Proposer: Oklahoma State University; Estimated Duration: 18 months; Total Cost: \$64,998
- **1755-RP**, *Impact of Gaseous Contamination and High Humidity on the Reliable Operation of Information Technology Equipment in Data Centers*; Responsible Committee: **TC 9.9** (Mission Critical Facilities, Data Centers, Technology Spaces and Electronic Equipment); Co-Sponsor: TC 2.3 (Gaseous Air Contaminants and Gas Contaminants Removal Equipment); Proposer: Syracuse University; Estimated Duration: 24 months; Cost to ASHRAE: \$247,792
- **1771-RP**, *Energy Modeling of Typical Commercial Buildings in Support of ASHRAE Building Energy Quotient Energy Rating Program*; Responsible Committee: **bEQ** (Building Energy Quotient Energy Rating Program); Co-Sponsors: TC 7.6 (Building Energy Performance) and TC 4.7 (Energy Calculations) Proposer: University of Miami; Estimated Duration: 24 months; Cost to ASHRAE: \$199,395

NEW PROJECTS LED BY OTHER NON-PROFITS THAT ARE CO-FUNDED BY ASHRAE

The following project, which is being led by another non-profit also focused on the built environment, was approved for ASHRAE co-funding:

- **CO-RP 4**, *Investigation of Ignition Temperature (Hot surface and Auto Ignition) for 2L Refrigerants*; Responsible Organization: **AHRTI** (Air-Conditioning, Heating, and Refrigeration Technology Institute); Total Cost: \$100,000, Cost to ASHRAE: \$25,000; ASHRAE Committees Supporting Effort: TC 3.1 (Refrigerants and Secondary Coolants) Summary of Effort: Investigate ignition temperatures for various 2L refrigerants at various ambient conditions (temperature and humidity) with % oil and air velocity effects included

PROJECTS THAT FAILED TO BE AWARDED - None

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PROJECTS STILL PENDING AWARD

- **1710-TRP**, *Effects of Dynamic Shading Devices on Daylighting and Energy Performance of Perimeter Zones*; Responsible Committee: **TC 4.5** (Fenestration); Co-Sponsors: None; Co-funding: None; Estimated Duration: 24 months; Estimated Cost to ASHRAE: \$140,000 - Status: TC still evaluating bids received.

POTENTIAL PROJECTS FOR BID IN SPRING 2016

The following eight tentative research projects (TRPs) are expected to be released for bid or re-bid this spring if ready by March 8th:

Approved Work Statements Available for Possible Bid in spring 2016:

- **1614-TRP (re-bid)**, *Developing a Test Method to Determine the Effectiveness of UVC Systems on Commercial Cooking Effluent*; Responsible Committee: **5.10** (Kitchen Ventilation); Co-Sponsors: None; Co-funding: None; Estimated Duration: 24 months; Estimated Cost to ASHRAE: \$264,000; Status: **Re-Bid if ready**. Work with Research Liaison (RL) to revise work statement and expand recommended bidders list.
- **1650-TRP-C**, *Training Requirements for Sustainable, High Performance Building Operation*; Responsible Committee: **TC 7.3** (Operation and Maintenance Management); Co-Sponsors: TC 7.6 (Building Energy Performance), TC 7.8 (Owning and Operating Costs); Co-funding: None; Estimated Duration: 18 months; Estimated Cost to ASHRAE: \$68,000; Status: **Conditionally Accepted**. Work with RL to clear RAC's conditions so project can bid.
- **1711-TRP**, *Advanced Sequences of Operation for HVAC Systems- Phase II central Plants and Hydronic Systems*; Responsible Committee: **TC 1.4** (Control Theory and Application); Co-Sponsors: None; Co-funding: None; Estimated Duration: 24 months; Estimated Cost to ASHRAE: \$190,000; Status: **Ready to Bid**.
- **1729-TRP-C**, *Experimental Verification of Cooling Load Calculations for Spaces with Non-Uniform Temperature Radiant Surfaces*; Responsible Committee: **TC 4.1** (Load Calculation and Data Procedures); Co-Sponsors: TC 5.3 (Room Air Distribution); Co-funding: None; Estimated Duration: 24 months; Estimated Cost to ASHRAE: \$225,000; Status: **Conditionally Accepted**. Work with RL to clear RAC's conditions so project can bid.
- **1740-TRP (re-bid)**, *Hydrogen Fluoride Capacity of Desiccants*; Responsible Committee: **TC 3.3** (Refrigerant Contaminant Control); Co-Sponsors: TC 3.2 (Refrigerant System Chemistry); Co-funding: None; Estimated Duration: 9 months; Estimated Cost to ASHRAE: \$120,000; Status: **Re-Bid if ready** - Work with RL to revise work statement and expand recommended bidders list.
- **1741-TRP-C**, *Understanding Fan Coil Components and how they Related to Energy Consumption and Energy Modeling*; Responsible Committee: **TC 5.3** (Room Air Distribution); Co-Sponsors: TC 7.7 (Testing and Balancing); Co-funding: None; Estimated Duration: 24 months; Estimated Cost to ASHRAE: \$190,000; Status: **Conditionally Accepted**. Work with RL to finalize Technical Contact person for RFP questions from potential bidders.
- **1743-TRP**, *Effect of Inlet Duct and damper Design on ASHRAE 37/116 Fan Performance and Static Pressure Measurements*; Responsible Committee: **TC 8.11** (Unitary and room Air Conditioners and Heat Pumps); Co-Sponsors: None; Co-funding: AHRTI - \$15,000; Estimated Duration: 12 months; Estimated Cost to ASHRAE: \$125,000; Status: **Ready to Bid**
- **1774-TRP-C**, *Effect of System Chemical towards the Breakdown of Lubricants and Lower GWP Refrigerants*; Responsible Committee: **TC 3.2** (Ventilation Requirements and Infiltration); Co-Sponsors: TC 3.3 (Control Theory and Application), and TC 3.4 (Lubrication); Co-funding: None; Estimated Duration: 12 months; Estimated Cost to ASHRAE: \$100,000; Status: **Conditionally Accepted**. Work with RL to clear RAC's conditions so project can bid.

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WORK STATEMENTS REVIEWED AND APPROVED OR RETURNED WITH COMMENTS

A total of four work statements were submitted by the TCs for review at the RAC winter meeting. One was accepted, one was conditionally accepted, two were returned with comments and none were rejected. See below for the status of each project after this review.

Approved Work Statements:

- **1741-TRP-C**, *Understanding Fan Coil Components and How They Relate to Energy Consumption and Energy Modeling*; Responsible Committee: **TC 5.3** (Room Air Distribution); Co-Sponsors: TC 7.7 (Testing and Balancing); Co-funding: None; Estimated Duration: 24 months; Estimated Cost to ASHRAE: \$190,000; Status: **Conditionally Accepted**. Work with Research Liaison (RL) to clear RAC's conditions so project can bid.
- **1743-TRP**, *Effect of Inlet Duct and Damper Design on ASHRAE 37/116 Fan Performance and Static Pressure Measurements*; Responsible Committee: TC 8.11 (Unitary and Room Air Conditioners and Heat Pumps); Co-Sponsors: None; Co-funding: AHRTI - \$15,000; Estimated Duration: 12 months; Estimated Cost to ASHRAE: \$125,000; Status: **Accepted**. Work with ASHRAE staff to prepare for bid.

Work Statements Returned with Comments or Rejected:

- **1690-WS**, *Performance of Ventilation and Fixed Firefighting Integrated Systems and Their Impact on Road Tunnel Resilience*; Responsible Committee: **TC 5.9** (Enclosed Vehicular Facilities); Co-Sponsors: None; Possible Outside Funding: FHWA - \$300k+; Estimated Duration: 14 months; Estimated Cost to ASHRAE: \$155,000; Status: **Returned with comments**. Federal Highway Administration (FHWA) may now take and fund project entirely as part of a larger effort with technical guidance and oversight provided by ASHRAE and NFPA.
- **1773-WS**, *Ignition Potential from Electrical Devices in Commercial and Residential Applications using 2L Refrigerants*, Responsible Committee: **TC 3.1** (Refrigerants and Secondary Coolants); Co-Sponsors: None; Co-funding: None; Estimated Duration: 18 months; Estimated Cost to ASHRAE: \$150,000; Status: **Returned with comments**. Work with RL to complete work statement coversheet and make possible revisions before resubmitting it to RAC for review.

A revised work statement for any of the returned projects listed above can be submitted to the MORTS on or before May 15, 2016 in order to be considered at RAC's Annual meeting in St. Louis this June. If a work statement can't be revised that quickly, the next scheduled deadline for RAC consideration is August 15, 2016.

WORK STATEMENTS PREVIOUSLY RETURNED TO TCs

TC/TGs should work with their Research Liaison to respond to written comments on the work statement provided by RAC via letter and revise the work statement appropriately. You can find a copy of the last draft submitted to RAC along with RAC's comments by clicking on the links in the Society's Research Implementation Plan posted on the "Research" page of the ASHRAE website. Please note that topics will be dropped from this plan if the work statement is not approved for bid after four years on the plan. The work statement forms that are now in use by RAC for Society year 2015-2016 can also be found on the "Research" page at www.ashrae.org/research

REVIEW OF RESEARCH TOPIC ACCEPTANCE REQUESTS (RTARs)

RAC reviewed a total of nine RTARs at its winter meeting and none were accepted as-is, but five were accepted with comments for inclusion in the Society's Research Implementation Plan and for further development into work statements. The committee also rejected four RTARs. The following is a listing of all RTARs reviewed:

Approved RTARs:

- **1644-RTAR**, *Smoke Control in Long Atria*
Responsible Committee: TC 5.6 (Fire and Smoke Control); Co-Sponsors: None; Status: Accepted with comments. Proceed with the development of the project's work statement with guidance and feedback from your RL. Prior to submitting the work statement to RAC, work with your RL to develop a response letter to RAC explaining how RAC's comments on the RTAR were addressed in the work statement, and if not, why?
- **1789-RTAR**, *Optical and Thermal Performance of Hollow Glass Block Units*
Responsible Committee: TC 4.5 (Fenestration); Co-Sponsors: None; Status: Accepted with comments. Proceed with the development of the project's work statement with guidance and feedback from your RL. Prior to submitting the work statement to RAC, work with your RL to develop a response letter to RAC explaining how RAC's comments on the RTAR were addressed in the work statement, and if not, why?
- **1791-RTAR**, *Humidity Effects on Burning Velocity*
Responsible Committee: TC 3.1 (Refrigerants and Secondary Coolants); Co-Sponsors: None; Status: Accepted with comments. Proceed with the development of the project's work statement with guidance and feedback from your RL. Prior to submitting the work statement to RAC, work with your RL to develop a response letter to RAC explaining how RAC's comments on the RTAR were addressed in the work statement, and if not, why?
- **1792-RTAR**, *ASHRAE 34 Toxicity Data Documentation and Mixture Calculation*
Responsible Committee: TC 3.1 (Refrigerants and Secondary Coolants); Co-Sponsors: None; Status: Accepted with comments. Proceed with the development of the project's work statement with guidance and feedback from your RL. Prior to submitting the work statement to RAC, work with your RL to develop a response letter to RAC explaining how RAC's comments on the RTAR were addressed in the work statement, and if not, why?
- **1793-RTAR**, *Development of Method of Test for Motor Component Thermal Conductivity*;
Responsible Committee: TC 8.2 (Centrifugal Machines); Co-Sponsors: TC 8.1 (Positive Displacement Compressors) and TC 1.11 (Motors and Controls); Status: Accepted with comments. Proceed with the development of the project's work statement with guidance and feedback from your RL. Prior to submitting the work statement to RAC, work with your RL to develop a response letter to RAC explaining how RAC's comments on the RTAR were addressed in the work statement, and if not, why?

RTARs Returned or Rejected with Comments:

- **1779-RTAR**, *Research on the Effectiveness of Shelf-Tip Jets in Energy Consumption of Open Refrigerated Vertical Display Cases*;
Responsible Committee: TC 10.7 (Commercial Food Beverage Refrigeration Equipment); Co-Sponsors: None; Status: Rejected.
- **1787-RTAR**, *Ambient Outdoor Climatic Conditions at Various Heights Near Tall High-rise Buildings*;
Responsible Committee: TC 9.12 (Tall Buildings); Co-Sponsors: None; Status: Rejected
- **1788-RTAR**, *Contaminant Variation and Outdoor Ambient Quality at Various Heights near Tall/ High-rise Buildings*;

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Responsible Committee: **TC 9.12** (Tall Buildings); Co-Sponsors: None; Status: **Rejected**

- **1790-RTAR**, *Distribution of Water Between Vapor and Liquid Phases of Low GWP Refrigerants*; Responsible Committee: **TC 3.3** (Refrigerant Contaminant Control); Co-Sponsors: TC 3.1 (Refrigerants and Secondary Coolants), TC 3.2 (Refrigerant System Chemistry), and TC 3.4 (Lubricants); Status: **Rejected**.

If a TC wants to pursue a rejected topic further, we recommend the TC first review the RAC comments and then discuss scope and topic further with your RL before submitting a new RTAR.

The RTAR form that is now in use by RAC for Society year 2015-2016 can be found on the “Research” page of the ASHRAE website at www.ashrae.org/research.

The next submission date for RTARs and Ws is May 15, 2016. The standing RAC submission dates for new and revised RTARs and Ws are as follows each year:

May 15 – RAC Annual meeting consideration in June

August 15 – RAC Fall meeting consideration in Sept. or Oct.

December 15 – RAC Winter meeting consideration in January

Therefore, if you get **MAD** each year, you won’t be as frustrated with RAC.

SOCIETY RESEARCH IMPLEMENTATION PLAN

The Society Research Implementation Plan is now being updated following the winter meeting of RAC. New RTARs will be added and tentative research project RFPs will be added or dropped depending upon their bid status. This change to the way the implementation plan is updated necessitated that time limits be placed on how long a topic can remain on the plan without being approved for bid. The winter updates to the plan should be in place by **March 1, 2016** or sooner. Please review the latest draft of the Implementation Plan posted on the ASHRAE “Research” page to see if any topics your TC is sponsoring are in danger of being dropped from the plan.

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DEADLINES

The following deadlines apply for the next several months. Please recognize that they are not arbitrarily set, but are set to meet subsequent events. So if you miss them, your input may be delayed for six months or in some cases, for a year. All research submissions should be sent to the Manager of Research and Technical Services (MORTS), Mike Vaughn, (morts@ashrae.net).

- February 8, 2016** Submission deadline for program proposals (seminars and forums) for the 2016 Annual meeting in St. Louis, MO. Conference Website: www.ashrae.org/stlouis/
- February 15, 2016** Revised St. Louis Conference and Technical Papers Due
- March 14, 2016** Las Vegas Conference Paper Abstracts Due
- March 23, 2016** Seminar, Forum, Workshop Accept/Reject Notifications for 2016 Annual meeting in St. Louis, MO sent by Conferences & Expositions Committee (CEC)
- March 27, 2016** TC/TG/TRG meeting minutes from the Orlando meeting are posted on TC website and distributed to membership by this date or sooner. Please make a special effort to meet this deadline. We have received complaints that many TC minutes are typically released just prior to the next Society meeting. Members outside of your committee are interested in your committee's work.
- April 8, 2016** Completed TC/TG/TRG Meeting room request forms for 2016 Annual meeting are due to Judy Marshall (jmarshall@ashrae.org) at ASHRAE HQ. Subcommittee meeting rooms must be requested each meeting or they will be dropped automatically. Also, consider hosting some subcommittee meetings prior to the meeting via conference call and/or web meeting if quorum is a concern to assure continued progress on critical items. Lastly, **ASHRAE does NOT provide projectors, but ASHRAE will provide a screen, table, and power for a Members' projector, if requested on the Meeting room request form**
- April 18, 2016** Technical Paper initial drafts due for Las Vegas meeting.
- May 15, 2016** New or revised Work Statements and RTARs with TC vote are due to MORTS for RAC consideration at the 2016 RAC Annual meeting.
- May 15, 2016** Bids are due for all TRPs released for bid in spring 2016.
- May 26, 2016** TC/TG/TRG meeting agenda for the St. Louis meeting are posted on TC website and distributed to membership. Please make a special effort to meet this deadline. We have received complaints that many TC agendas are released just prior to the TC's meeting.
- June 6, 2016** Website opens for Seminar and Forum Proposals for Las Vegas meeting.
- June 6, 2016** All PowerPoint presentations for the St. Louis meeting must be uploaded to ASHRAE website by this date for review.
- June 28th, 2016
Midnight** Contractor recommendations are due to MORTS for all TRPs bid in spring 2016. Place the Proposal Evaluation Summary sheet in MORTS lockbox outside ASHRAE Headquarters Room in St. Louis.
- July 6, 2016** Final Las Vegas meeting Conference papers submitted for review.
- August 8, 2016** Las Vegas meeting Seminar, Forum and Workshop proposals due.
- September 7, 2016** Las Vegas meeting Seminar, Forum and Workshop Accept/Reject notifications.

OTHER NEWS

1. **2015-2016 Hightower Award Recipient – Steve Duda, TC 4.3 & TC 9.1**
Mr. Steve Duda’s contributions to ASHRAE TC 4.3 and TC 9.1 in the past four years include program presentations and 19 successful honors and awards nominations. He has also written 8 articles for the *ASHRAE Journal* and contributed to 6 Handbook chapters. Lastly, he has served in the past in all three officer positions (Chair, Vice Chair, and Secretary) for TC 9.1. Mr. Duda’s contributions to ASHRAE technical committees, and especially to TC 4.3 and TC 9.1 during the last four years, have been exemplary and make him a well deserving recipient of the George B. Hightower Technical Achievement Award.
2. **2015-2016 Service to ASHRAE Research Award Recipient – NONE**
No nominations were received this year from any TCs for the Service to ASHRAE Research Award. The submission deadline for TC nominations for this award is September 1st each year. If you believe you have a deserving candidate on your TC, please go to the ASHRAE Research page (www.ashrae.org/research) and review details on this award under the heading *Research Grants and Awards*.
3. **2015-2016 Homer Addams Award Recipient – NONE**
No nominations were received this year from ASHRAE research project principal investigators (PIs) in the past two years for a graduate student that worked on the project and helped author a technical paper on the project results. The award includes a \$5,000 honorarium payment and the submission deadline for nominations each year is December 15th. For more information on this award, please go to the following link [here](#).
4. **Four New Multidisciplinary Task Groups (MTGs) have formed since Atlanta meeting**
If your TC would like to have a voting representative on a particular MTG below, please contact the ASHRAE Manager of Research and Technical Services, Mike Vaughn, at MORTS@ashrae.net.

- **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. This MTG will provide information on the global impact of ASHRAE’s technology and standards efforts allowing ASHRAE’s groups to make adjustments in our efforts as required. The time period of this MTG is expected to be two years to no more than four years.

The chair of this MTG is **Dan Pettway** – MTGIAST@ashrae.net

- **MTG.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** – MTGOBB@ashrae.net

- **MTG.ASEC – Avoided Source Energy Consumption Due to Waste Heat Recovery and Heat Pump Technologies**
Scope: MTG.ASEC will coordinate development of credible quantification methodologies of the avoided electric power generation and/or primary energy consumptions resulting from the

application of heat pump and waste energy recovery technologies. Responsibilities of the MTG include the development of research and/or tool needs, and development of technical programs. Ability to quantify avoided source energy reduction or recovery potentially impacts any building efficiency analysis. This MTG has the potential to significantly impact a number of other TCs including 1.5, 2.5, 2.8, 4.7, 5.5, 6.2, 6.8, 6.9, 7.4, 7.6, 8.7, 8.11 and potentially more. Efforts have been made to interface with all of these TCs to discuss the potential development in this MTG.

The chair of this MTG is **Cary Smith** – MTGASEC@ashrae.net

- **MTG.ISPAQE** – Indoor Swimming Pool Air Quality and Evaporation
Scope: MTG.ISPAQE will coordinate the research project which will assess/identify the factors affecting air quality problems at indoor swimming pools including: air handling/air distribution system design and operation; water quality/water chemistry; pool water treatment operation and maintenance; pool types (flat water, agitated water, hot water); bather load; and evaporation rates of indoor pools to recommend changes to the ASHRAE Standard 62.1 (Ventilation for Acceptable Indoor Air Quality) indoor pool & deck ventilation rate and update the evaporation formula in the ASHRAE HVAC Applications Handbook volume.

This MTG will have a direct impact on the activities of the SSPC 62.1 and technical committees: TC 8.10 (Mechanical Dehumidification Equipment and Heat Pipes), TC 4.3 (Ventilation Requirements and Infiltration) and TC 9.8 (Large Building Air-Conditioning Applications), as well as, the Center for Disease Control (CDC) sponsored Model Aquatic Health Code (MAHC) code for design and operation of indoor pools.

The chair of this MTG is **Keith Coursin** – MTGISPAQE@ashrae.net

TAC also disbanded **MTG.CCDG** (Cold Climate Design Guide) now that the design guide that the MTG was created to develop has been published by ASHRAE.

5. RAC Seeks Suggestions for New ASHRAE Apps and Tools based upon ASHRAE Research Results

RAC has been charged by Technology Council to look for ways to make the results from ASHRAE's approximately 900 sponsored research projects over that last 57 years easier to access, integrate, and use by design practitioners, students, and others. If you have an idea for how we can take the results from one or more completed projects from one or more TCs and package these results into a new App or on-line tool, we would like to hear from you. Please forward any suggestions that you have on this issue to Mike Vaughn, MORTS@ashrae.net.

6. TAC approved the following title and scope change for TC 2.6: (Sound and Vibration Control):

Title: **Technical Committee, Sound and Vibration ~~Control~~**

Scope: TC 2.6 is concerned with the fundamental scientific and engineering principles of ~~acoustics~~ sound and vibration, particularly as ~~they are~~ applied to the design and performance of the built environment. ~~problems of sound and vibration associated with air conditioning, heating, ventilating and refrigeration systems.~~

7. New TC E-mail Position Aliases Created for 15-16 Society Year

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*.

8. CEC & TAC are looking for your feedback on ASHRAE's Technical Program Submission Process

CEC and TAC are soliciting your feedback on ASHRAE's Technical Program submission process, particularly of your program submissions are frequently rejected and you are frustrated with the current process. Please send information on some of your past submissions and any process improvement suggestions that you might have to TAC member Kelley Cramm at TACcoord2@ashrae.net before June 1, 2016.

9. 15-16 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. By now, each TC, TG and MTG chair should have received a PDF & MS-Excel file of their 2015-2016 roster from their Section Head for distribution to the committee. In addition, each member can view all of the rosters of their committees on the ASHRAE Website by logging into the member's only section at <http://ASHRAE.org/MyActiveCommittees>. Click on the "blue" roster text at the left hand side of a committee to reveal the roster with linked contact information.

The new committee rosters for Society year 2016-2017 will be created based upon the update information that each TC, TG or MTG chair provided to their section head at the winter meeting in Orlando.

10. 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

11. 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@ashrae.org or Cameron Labunski (PDC chair) at PDCchair@ashrae.net with new course ideas.

12. TAC Presentation template Available for TC members to use with local Chapter

The new presentation template 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 now on the Technical Committee page of the ASHRAE website for download - <http://www.ashrae.org/tcs>

13. RPM Beta Test #9 TC/PC/Other meetings held in Orlando

The 9th RPM beta test of (Remote Participation Meetings – Formerly known as E&P meetings), which allows some TC/PC and other committee members to participate in the meeting from a remote location electronically, occurred in Orlando and the following thirty-one groups agreed to participate in this test: TC 1.5, TC 1.12, TC 2.2, TC 4.2 (RP-1699 PMS), TC 4.2, TC 5.8, TC 6.8, TC 7.3 Subc., TC 7.3, TC 7.9, TC 8.4, TC 8.8, TC 9.2, TC 10.2, TC 10.3 (RP-1569 PMS), SGPC 13, GPC 36, SPC 20, SPC 26, SSPC 100 WG, SSPC 100, SSPC 161P, SSPC 169, SPC 180, SPC 201P (twice), SPC 209, SPC 215P, IAQ PD, IEQ-GA, SRS – This represents a 63% increase over the number of RPM TC/PC/Other meetings hosted in Atlanta.

Most committees listed above are repeat users of RPM, which is an indication that they are finding some value in this new meeting service. The new committees for the Orlando meeting were as follows: TC 1.12, TC 4.2, TC 7.3, SGPC 13, SPC 26, SPC 161P, SPC 180, SPC 209, IAQ PD, and SRS

Due to the winter storm to the North during the Orlando meeting, we added for the first time new RPMs to the list of meetings while on-site at the request of committees that were struggling to meet quorum in Orlando.

Having RPM capability in Orlando allowed many committees to conduct their business without delay. TC 1.12 for example was able to connect three voting members to their Orlando meeting and voted to approve the following motion before the position document expired that week:

"TC 1.12 recommends to Technology Council that ASHRAE reaffirm the current ASHRAE Position Document on *Limiting Indoor Mold and Dampness in Buildings*"

Those TCs interested in possibly having RPM capability for their next TC meeting in St. Louis should contact Mike Vaughn (MORTS@ashrae.net)

14. Upcoming TC Award Nomination Submission Deadlines

2016-2017 Hightower Award Nomination Process and Deadline

Nominations for the 2016-2017 George B. Hightower Technical Achievement Award are due to your 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 and Forms..." heading: <http://www.ashrae.org/tcs>

2016-2017 Service to ASHRAE Research Award Nomination Process and Deadline

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 the Research page of the ASHRAE website at the following link under the "Research Grants and Awards" heading: <http://www.ashrae.org/research>

15. CEC Seeking Track Suggestions for 2017 Annual Meeting in Long Beach & Other Program Information

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, the CEC seeks ideas for tracks for the Long Beach 2017 meeting next year and annual and winter conferences beyond as well as topics for specialty conferences from TC members. Please submit your suggestions to ASHRAE CEC Staff member Tony Giometti (Giometti@ashrae.org)

TC Volunteers needed to help improve the ASHRAE technical program for meetings

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

Upcoming Program Tracks:

St. Louis Meeting - June 25 - 29, 2016

Program Focus at St. Louis Annual Conference

- **Track 1: Advances in Refrigeration Systems and Alternative Refrigerants**
This track seeks papers and programs that explore the wide range of refrigeration systems under development with special emphasis on the use of alternative refrigerants in vapor compression machines to address environmental concerns.

Track Chair: Frank Schambach

Email: frankschambach@mindspring.com

- **Track 2: Research Summit**
The fourth annual Research Summit seeks papers that report results on any aspect of ASHRAE-related research including heating, cooling, ventilation, other energy uses in the engineered environment and associated environmental aspects.

Track Chair: Jeffrey Spitler

Email: spitler@okstate.edu

- **Track 3: Fundamentals and Applications**
Fundamental information and applications of fundamentals related to all aspects of HVAC&R are welcome. This can range from psychrometric properties and processes to combustion, controls, HVAC system and envelope fundamentals and beyond.

Track Chair: David E. Claridge

Email: dclaridge@tamu.edu

- **Track 4: HVAC Systems and Equipment**
This track will include presentations on best practices to implement traditional, non-traditional, and hybrid approaches to achieve successful HVAC&R systems design. Objectives include high performance systems and equipment, LEED certified designs and sustainable buildings.

Track Chair: Alan Neely

Email: alan_neely@pghcorning.com

- **Track 5: Smart Building Systems/Remote Monitoring and Diagnostics**
Smart buildings address HVAC&R equipment operation (chiller sequencing, soft start), integration into complete systems and can potentially interface with multiple building complexes and micro grid operation. This track includes papers on advanced communication protocols, system integration, BMS tools, data management and analysis.

Track Chair: Samir Traboulsi

Email: traboulsi.samir@gmail.com

- **Track 6: Indoor Environment: Health, Comfort, Productivity**
Buildings and other enclosed spaces are increasingly required to provide safe, healthy environments in an energy efficient manner. Papers in this track will review the balance between environmental health and energy efficiency in buildings and help define future education, policy and research directions.

Track Chair: Dennis Alejandro

Email: denzjac@yahoo.com

- **Track 7: Professional Skills Beyond Engineering**
This track seeks to ensure professional skills are being developed and maintained beyond engineering essentials. Emphasis will be placed on meeting the professional development and business needs of today and converting them into the building blocks of tomorrow's success.

Track Chair: Rachel Romero

Email: rachel.romero@nrel.gov

- **Track 8: Renewable Energy Systems and Net Zero Buildings**
Wind, hydroelectric and solar are just a few of the alternative and/or renewable energy sources that are being used in HVAC design as we strive for Net-zero and high efficiency buildings. This track will address recent advances in alternative energy systems and equipment and new design strategies for achieving Net-zero buildings.

Track Chair: Kevin Gallen

Email: kevin@gallenengineering.com

Conference Program Chair: Tom Kuehn

Email: kuehn001@umn.edu

Las Vegas Meeting - January 28 - February 1, 2016

Program Focus at Las Vegas Winter Conference

- **Track 1: Fundamentals and Applications**
Engineering fundamentals are the foundation to understanding modeling, design, construction and operation of HVAC&R applications. This track provides opportunities for papers and presentations on theories, models, designs and shared experiences for both theoretical and applied concepts.

Track Chair: Chuck Curlin

Email: ccurlin@shultzeg.com

- **Track 2: HVAC&R Systems and Equipment**
Selection of equipment and design of systems is critical for effective HVAC&R operation, and for achieving building operators' goals. The papers and programs in this track will assist designers and building operators in the use of traditional, non-traditional and hybrid equipment and systems; with an emphasis on high performance, sustainable and LEED-certified buildings.

Track Chair: Michael Collarin

Email: Michael.Collarin@parsons.com

- **Track 3: Water-Energy Nexus**
The interdependencies between our water and energy systems are clear and are becoming more prominent as development requires the use of more resources while over-use and climate change make some resources scarcer. On the macro level, water is used in all phases of energy production and electricity generation (including renewables); and energy is required to extract, convey and deliver water, and to treat wastewaters prior to their return to the environment. On the micro level, the water-energy nexus is a major consideration for the HVAC&R community in determining equipment and system selection and design as well as building operation. This track will present papers and programs highlighting recent research on this issue as well as technologies and designs intended to reduce the gap between energy and water efficiency.

Track Chair: Gary C. Debes

Email: gcdebes@verizon.net

- **Track 4: Commercial and Industrial IAQ**
Indoor Air Quality is a vital consideration in the built environment. As people spend increasingly more time in industrial and commercial facilities, IAQ is closely linked to occupant comfort, satisfaction, productivity and health. This track will offer papers and programs to inform building owners and operators on the value of improving IAQ.

Track Chair: Kevin Marple

Email: kmarple@benzco.com

- **Track 5: Mission Critical Design and Operation**
As societies become more dependent on mission critical facilities, the design and operation of these facilities has undergone rapid change. This track will present papers and programs which will highlight advances in technologies, controls, design and operation of mission critical facilities to meet their increasing loads while also minimizing their impact on energy/water usage.

Track Chair: Carrie Anne Crawford

Email: carriecrawford@eace.com

- **Track 6: Effects of Climate Change on HVAC&R**
Climate change will have an increasing effect on the design and operation of the built environment. How does the HVAC&R community design for buildings today that are intended to be highly functional and efficient well into a future where today's standards, codes and practices may not be sufficient to meet tomorrow's climatic conditions? This track seeks papers and programs that will inform the selection of strategies, designs and approaches that will increase building resilience and facilitate climate adaptation.

Track Chair: Rocky Alazazi

Email: mralazazi@yahoo.com

- **Track 7: Energy Efficient Industrial Buildings**
Industrial facilities often have different HVAC&R requirements than do commercial and institutional facilities. Oftentimes these are a result of the processes that occur within industrial facilities as well as the life safety issues these processes create. This track will present papers and programs that will inform how energy efficiency can be achieved without compromising life safety considerations.

Track Chair: Corey Metzger

Email: corey.metzger@resourcece.com

- **Track 8: Building Operation and Performance**
Modeling has become an essential factor in the design of all aspects of many buildings. Often the operational results of the building do not match the modeled outcome that the owner/operator expected. This can lead to much "finger pointing" or worse. This track will present papers and programs to update modelers, designers, contractors and owners/operators on how to better match building performance with modeled expectations.

Track Chair: Cynthia Moreno

Email: cindym@tmmechanical.com

Conference Program Chair: Leon Shapiro

Email: [Leon.Shapiro](mailto:Leon.Shapiro@tmmechanical.com)

16. Upcoming Webcasts, Workshops and Conferences:

2016

- **International Air-Conditioning, Heating, Refrigerating Exposition (2016 AHR Expo)**
January 25 to 27, 2016 - Orlando, FL USA – Contact: <http://www.ahrexpo.com/>
- **6th International Conference on Energy Research and Development**
March 14 to 16, 2016 – State of KUWAIT – Contact: <http://www.ashrae.org/kuwait2016>
- **XII International HVAC&R and Plumbing Symposium**
March 31 to April 2, 2016 – Istanbul, TURKEY
Contact: <http://www.ttmd.org.tr/sempozyum2016/eng/?p=program>
- **ASHRAE 2016 Webcast – Making Net Zero Net Positive: Solving the Efficiency & Cost Paradox**
April 21, 2016 – 1 pm to 4 pm EDT
Contact: <https://www.ashrae.org/membership--conferences/webcasts>
- **CLIMA 2016**
May 22 to 25, 2016 -Aalborg, DENMARK
Contact: <http://www.clima2016.org/welcome.aspx>
- **2016 ASHRAE Annual Meeting**
June 25 to 29, 2016 – St. Louis, MO USA
Contact: <http://ashraem.confex.com/ashraem/s16/cfp.cgi>
- **Indoor Air 2016** (14th International Conference of Indoor Air Quality and Climate)
July 3 to 8, 2016 – Ghent, BELGIUM
Contact: <http://www.indoorair2016.org/>
- **2016 Purdue Conferences - Compressor/Refrigeration & Air Conditioning/High Performance Buildings Conferences**
July 11 to 14, 2016 – West Lafayette, IN USA
Contact: <https://engineering.purdue.edu/Herrick/Events/Conferences>
- **ASHRAE and IBPSA-USA SimBuild 2016: Building Performance Modeling Conference –**
August 10 to 12, 2016 – Salt Lake City, Utah USA
Contact: <http://ashraem.confex.com/ashraem/ibpsa16/cfp.cgi>
- **IAQ 2016 - Defining Indoor Air Quality: Policy, Standards and Best Practices**
September 12 to 14, 2016 – Alexandria, Virginia USA
Contact: <http://ashraem.confex.com/ashraem/iaq16/cfp.cgi>
- **AHR Expo Mexico**
September 20 to 22, 2016 – Monterrey, MEXICO
Contact: www.ahrexpomexico.com
- **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>
- **IAQVEC 2016** (9th International Conference on Indoor Air Quality Ventilation & Energy Conservation in Buildings)
Oct. 23 to 26, 2016 - Seoul, SOUTH KOREA
Contact: <http://iaqvec2016.org/>

The Research and Technical Activities Report – Winter Meetings – 2016

2017

- **2017 ASHRAE Winter Meeting**
Jan. 28 to Feb. 1, 2017 – Las Vegas, NV USA
Contact: <http://ashraem.confex.com/ashraem/w17/cfp.cgi>
- **12th IEA International Heat Pump Conference**
May 15 to 18, 2017 – Rotterdam, NETHERLANDS
Contact: <http://hpc2017.org/>

Please let me know if I can be of any other assistance.

Sincerely,
Mike Vaughn