



Shaping Tomorrow's
Built Environment Today

MINUTES

RESEARCH ADMINISTRATION COMMITTEE

**CAESARS PALACE HOTEL
LAS VEGAS, NV**

JANUARY 27, 28 & FEBRUARY 1, 2017

Note: These draft minutes have not been approved and are not the official, approved record until approved by the Research Administration Committee (RAC).

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**PRINCIPAL MOTIONS
RESEARCH ADMINISTRATION COMMITTEE
JANUARY 27, 28 & FEBRUARY 1, 2017**

NO.	PAGE	MOTION
1	1	Draft minutes of the RAC October 10 th and November 3 rd 2016 fall meetings be approved as written
2	4	RAC recommends to Tech Council changes to the ROB
3	4	<u>1814-RTAR, Actual Energy Performance of Buildings Designed to Comply with ASHRAE Standard 90.1-2010</u> , sponsored by TC 2.8 (Building Environmental Impacts and Sustainability), is <u>conditionally accepted</u>
4	4	<u>1816-RTAR, Reporting the Energy Use and Heat Gain from Imaging Equipment</u> , sponsored by TC 9.6 (Healthcare Facilities), is <u>conditionally accepted</u>
5	4	<u>1817-RTAR, Long Term Temperature Change of Ground Heat Exchangers</u> , sponsored by TC 6.8 (Geothermal Energy Utilization), is <u>conditionally accepted</u> .
6	5	<u>1683-WS, Experimental Evaluation of Two-Phase Pressure Drop and Flow Pattern in U-Bends with Ammonia</u> ; sponsored by TC 1.3 (Heat Transfer & Fluid Flow), is <u>returned</u>
7	5	<u>1800-WS, Spray Evaporation on Enhanced Tube Bundles with Low GWP pure Refrigerants and Refrigerant/Miscible Oil Mixture</u> ; sponsored by TC 1.3 (Heat Transfer & Fluid Flow), is <u>returned</u> .
8	5	<u>1804-WS, A Guideline for Calculating the Avoided Source Energy Consumption (ASEC) Due to Waste Heat Recovery (WHR) and Heat Pump (HP) Technologies</u> ; sponsored by – MTG.ASEC (Avoided Sources Energy Consumption Due to Waste Heat recovery and Heat Pump Technologies), is <u>returned</u> .
9	5	<u>1819-WS, CO2 Demand Controlled Ventilation in Multiple Zone VAV Systems with Multiple Recirculation Paths</u> ; sponsored (Ventilation Requirements and Infiltration), is <u>conditionally accepted</u> .
10	5	RAC approved a motion that the following IRG proposals be invited to submit full IRG proposals; #006, #008, #013, #015., #030 and #031.
11	6	RAC approved a motion to award Parham Azimi as winner of Homer Addams award.
12	6	Dr. Brian Fronk of Oregon State University be the 2017-2018 recipient of the New Investigator Award.
13	7	<u>1573-TRP, Determination of Suitable Replacement for SF6 When Used As a Tracer Gas In Accordance With ANSI/ASHRAE Standard 110</u> , be awarded to Exposure Control Technologies, Inc., for a period of 16 months at a total cost to ASHRAE of \$99,860.
14	7	<u>1719-TRP, TRP, Design Guide for Cool Thermal Storage – Update/Revision</u> , be awarded to GARD Analytics for a period of 12 months at a total cost to ASHRAE of \$83,900.

CONTINUED
PRINCIPAL MOTIONS
RESEARCH ADMINISTRATION COMMITTEE
JANUARY 27, 28 & FEBRUARY 1, 2017

NO.	PAGE	MOTION
15	8	1721-TRP, <i>Oil Return and Retention in Unitary Split System Gas Lines with HFC and HFO Refrigerants</i> , be awarded to Purdue University for a period of 24 months at a total cost to ASHRAE of \$120,714.
16	8	1734-TRP, <i>Reproducing a Representative Urban Atmospheric Aerosol Distribution at High Concentration in the Laboratory for Air Filter Ageing to be used in ASHRAE GPC 35P for Determining the Energy Consumption Caused by Air Filters</i> , be awarded to Purdue University for a period of 24 months at a total cost to ASHRAE of \$120,714.
17	8	1743-TRP, <i>Effect of Inlet Duct and Damper Design on ASHRAE 37/116 Fan Performance and Static Pressure Measurements</i> , be awarded to Oklahoma State University for a period of 12 months at a total cost to ASHRAE of \$89,000.
18	8	1785-TRP, <i>Experimental Validation of Refrigerant Charge Models in Coils for Residential Split Systems</i> , be awarded to the Oklahoma State University for a period of 30 months at a total cost to ASHRAE of \$139,615.
19	8	1807-TRP, <i>Guidelines for Flammable Refrigerant Handling, Transporting, Storing and Equipment Servicing, Installation and Dismantling</i> , be awarded to the Navigant Consulting for a period of 6 months at a total cost to ASHRAE of \$80,000.

New Action Items
Research Administration Committee (RAC)
Winter Meeting 2017
JANUARY 27, 28 & FEBRUARY 1, 2017

Action #	Responsibility	Summary of Action	Page
1	Wargoeki, Sachs, Khankari, Wilkins	Discuss work statement procedures form. Some are having issues inserting images and graphs. Maybe go back to using the Word version for submissions.	5
2	Yashar	Review IRG evaluation, form, add eligibility questions, etc.	6
3	Giesler	Add to future agenda a discussion about procedural changes and modifications to the Homer Adams award criteria.	6
4	Giesler	Check with Michael Vaughn about possible changes to tying payments to milestones in contract. Can this be done?	7
5	Yang	Communicate to Mike Vaughn so that he can respond about 1818-URP decision.	9
6	Gatlin, Sachs, Shonder	Evaluate 1820-URP further and make recommendation to RAC.	9
7	Giesler, Vaughn	Get every research/general reserve fund budget to RAC members as FYI.	9
8	Yang, Khankari, Sachs, John, Wilkins	Milestone payment discussion needs clarification. Key is for PMS communication to Mike Vaughn to indicate payment should be held.	9
9	Wilkins	Database project needs to be settled. PI retired, database cannot be merged. Perhaps we should consider closing out?	9
10	Yang	1710 PMS chair cannot attend or participate in meetings so a new chair is needed. Currently PMS not responding to PI requests. Discuss with Mike Vaughn to come up with a resolution. Perhaps a 4.1 member.	9
11	Yang	Develop a plan to resolve ASHRAE research project 1414-RP, handbook content. PI not able to perform work due to family issues. Deadline actually passed. 3 of 7 payments received. Task 1 not completed. PMS disagreeing on how to proceed. Chair wishes to give one more year, two others on PMS wish to close project.	9

**Carry-Over Action Items
Research Administration Committee (RAC)
October 10th & November 3rd, Teleconference Meetings 2016**

Action #	Responsibility	Summary of Action	Status
1	Staff	Notify P.I. & University administrative staff that we cannot accept their proposed contract modifications and that we will officially terminate contract negotiations 2 weeks after notification date to them and open contract talk with next best responsive bidder to TRP-1650.	Complete
2	Staff	Notify URP-1775 proposer that we cannot support his project proposal under the URP process, but we do encourage him to pursue this work with TC 4.3 as a solicited project. .	Complete
3	Staff	Update title of TRP-1785 before bidding. This was one of the approval conditions from RAC.	Complete
4	Staff	Develop proposed procedure changes for RAC consideration so that MORTS has authority to go to next best responsive bid if negotiations stall with selected bidder.	Ongoing
5	Staff	Notify 16-17 Service to ASHRAE Research Award recipient and prepare plaque for presentation at Research Breakfast in Las Vegas.	Complete?
6	Staff	Carryover RTAR-1795 to Las Vegas meeting for RAC consideration if TC vote is provided by then.	Complete
7	Staff	Delete duplicate comments from CE in summary that should apply to RTAR 1803 only from other RTARs in summary before sending to TCs	Complete

**Carry-Over Action Items
Research Administration Committee (RAC)
Annual Meeting 2016**

Action #	Responsibility	Summary of Action	Status
5	Staff	Ask TCs to submit keywords from technical papers for the research database	Complete
6	Giesler	Circulate <i>Disposition of ASHRAE Research Results</i> form to all TCs to increase awareness that form needs to be completed and what information is needed to complete form.	Ongoing
8	Giesler, Eichelberger, Yashar	Review and modify the RAC ROB sections, MOP, and Reference Manual for consistency and accuracy.	Ongoing
9	Sachs, Khankari, Yang, Wilkins	Develop/Update PMS training Module documents for TCs	Ongoing

**RECURRING ACTION ITEMS
(EACH MEETING)**

<u>Responsibility</u>	<u>Summary of Action</u>
Chair	Report to Technology Council on RAC's MBO Status.
Research Liaisons	Remind all TC chairs and research subcommittee chairs in section that a draft of all Work Statement and RTARs, and all later versions should be sent to their Research Liaison for review before information is passed on to the Manager of Research.
RPS (Primary) RAS (Secondary)	Review RTARs
RAS (Primary) RPS (Secondary)	Review Work Statements
RAS (Primary) RPS (Secondary)	Review TRPs and URPs
RPS (Primary) upon (Secondary)	Review and revise the Society's Research Implementation Plan based accepted RTARs.
Subcommittee Chairs	Report Status of assigned MBOs.
Staff	Distribute copies of Technology Council's Action Items and Motions affecting RAC.
BOD ExO	Report to the RAC Chair BOD's Actions and Motions affecting RAC.
Staff	Forward URPs to RAS Chair to help identify a champion for the URP on RAC based on members background and experience. The RAC URP Champion will either help select a cognizant TC to review the URP or return the URP with a recommendation that it not be reviewed further as a possible ASHRAE research project.

**RECURRING ACTION ITEMS
(FALL MEETING)**

<u>Responsibility</u>	<u>Summary of Action</u>
RLs	Review "Service to ASHRAE Research Award" nominations submitted by TC chairs and select the best nomination for RAC consideration.

RECURRING ACTION ITEMS
(WINTER MEETING)

<u>Responsibility</u>	<u>Summary of Action</u>
RAS	Plan TC Research Subcommittee chair Training Workshop for Winter Meeting
RPS	Review Grant-In-Aid Applications
RPS	Review New Investigator Award Nominations
RPS	Review Homer Addams Award Nominations
Chair	Present Service to ASHRAE Research Award to this year's recipient
RAC	Decide if spring meeting is needed and set date for spring meeting.
MORTS	Prepare semi-annual report to RAC by December 15.

RECURRING ACTION ITEMS
(ANNUAL MEETING)

<u>Responsibility</u>	<u>Summary of Action</u>
RPS	Plan training workshop for new RAC members at the Annual meeting
Research Liaisons	Request nominations from TCs for Service to ASHRAE Research Award
Chair	Invite new members of RAC to the workshop for new RAC members scheduled for the Annual meeting.
MORTS	Prepare semi-annual report to RAC by May 15.

LIST OF ATTACHMENTS

ATTACHMENT 1:	MORTS Report
ATTACHMENT 2:	1573-TRP Analysis Sheet
ATTACHMENT 3:	1719-TRP Analysis Sheet
ATTACHMENT 4:	1721-TRP Analysis Sheet
ATTACHMENT 5:	1734-TRP Analysis Sheet
ATTACHMENT 6:	1743-TRP Analysis Sheet
ATTACHMENT 7:	1785-TRP Analysis Sheet
ATTACHMENT 8:	1807-TRP Analysis Sheet

DRAFT



Shaping Tomorrow's
Built Environment Today

MINUTES

RESEARCH ADMINISTRATION COMMITTEE REPORT TO TECHNOLOGY COUNCIL JANUARY 27, 28 & FEBRUARY 1, 2017

MEMBERS PRESENT:

Arthur Giesler, *Chair*
Kishor Khankari, *Vice-chair*
John Shonder, *Chair RAS*
David Yashar, *Chair RPS*
Shinsuke Kato, *RL Section 1.0*
Pawel Wargocki, *RL Section 2.0*
Stephen Kujak, *RL Section 3.0*
Xudong Yang, *RL Section 4.0*
David John, *RL Section 5.0*
Harvey Sachs, *RL Section 6.0*
Christopher Wilkins, *RL Section 7.0*
Curtis Eichelberger, *RL Section 8.0*
Jeff Gatlin, *RL Section 9.0*
Ezzat Khalifa, *RL Section 10.0*
Xudong Wang, *Consultant AHRTI*
Hywel Davies, *Consultant CIBSE*
Daniel Int-Hout, *BOD Ex-Officio*
Patricia Graef, *Coordinating Officer*

GUESTS:

Helene Vaillancourt
Paul Francisco

ASHRAE STAFF:

Michael Vaughn, *MORTS*
Steve Hammerling, *AMORTS*

MEMBER ABSENT:

A. CALL TO ORDER

Chair Giesler called the meeting of the committee to order at 3:00 PM.

B. ASHRAE CODE OF ETHICS

<https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>

C. ADDITIONS AND/OR CHANGES TO THE AGENDA

No changes suggested at this time.

D. APPROVAL OF MINUTES

It was moved and seconded that,

- (1) The draft minutes of the RAC fall 2016 meetings be approved as written.

MOTION #1 PASSED: 13-0-0, CNV

E. CHAIR'S REPORT

The following items were presented by the chair and discussed:

- a) Disposition of Motions from Last Meeting – Both project funding motions (1741 & 1806) were approved by TechC.
- b) New & On-going Action Items Assigned by Tech. Council
 - 1. None yet
- c) New Information Items
 - 1. Letter ballot results since fall meetings:
 - **1807-TRP** (*Guidelines for Flammable Refrigerant Handling, Transporting, Storing and Equipment Servicing and Installation*)
 Motion: It is recommended that tentative research project 1807-TRP, Guidelines for Flammable Refrigerant Handling, Transporting, Storing and Equipment Servicing and Installation, be approved for bid.
 RAS Vote: 5-0-1-0 (6) CNV – Letter Ballot 10/5/16 to 10/13/16 – All RAS members responded to ballot by 10/7
 RAC Vote: 12-0-1-1 (14) CNV – Letter Ballot 10/12/16 to 10/19/16 – All but one RAC member (Kujak) responded to ballot by 10/19
 MOTION PASSED
 - **1808-TRP** (*Servicing and Installing Equipment using Flammable Refrigerants: Assessment of Field-made Mechanical Joint*)
 Motion: It is recommended to RAC that work statement WS-1808, *Servicing and Installing Equipment using Flammable Refrigerants: Assessment of Field-made Mechanical Joints*, be conditionally approved for bid.
 Wilkins Moved – Sachs Seconded – Khalifa not in attendance
 RAS Vote: 4-0-1-1 (6) CNV – Web meeting 11/23/16 – Khalifa absent
 RAC Vote: 12-0-0-2 (14) CV – Letter Ballot 11/24/16 to 12/5/16 – All but two RAC members (John & Wilkins) responded to ballot by 12/5/16
 MOTION PASSED

F. BOD EX-OFFICIO & COORDINATING OFFICER REPORTS

Mr. Int-Hout gave presentation. Highlights related to research – new attendance record in Las Vegas, Seeking standing committee volunteer nominations by February 17th – www.ashrae.org/nominate, Challenge to get regions involved in directing research. Seeking input on how RAC can address Science and Technology for the Built Environment publications now free access for members. Patricia Graef was not in attendance.

G. ACTION ITEM TRACKING AND REVIEW OF FALL '16 ACTIONS & 16-17 MBO'S

**Action Items
 Research Administration Committee (RAC)
 October 10th & November 10th, Teleconference Meetings 2016**

Action #	Responsibility	Summary of Action	Status
1	Staff	Notify P.I. & University administrative staff that we cannot accept their proposed contract modifications and that we will officially terminate contract negotiations 2 weeks after notification date to them and open contract talk with next best responsive bidder to TRP-1650.	Complete
2	Staff	Notify URP-1775 proposer that we cannot support his project proposal under the URP process, but we do encourage him to pursue this work with TC 4.3 as a solicited project. .	Complete

3	Staff	Update title of TRP-1785 before bidding. This was one of the approval conditions from RAC.	Complete
4	Staff	Develop proposed procedure changes for RAC consideration so that MORTS has authority to go to next best responsive bid if negotiations stall with selected bidder.	MV, AG to speak with PG, Scoggins. Appropriate in RAC MOP or Ref Manual?
5	Staff	Notify 16-17 Service to ASHRAE Research Award recipient and prepare plaque for presentation at Research Breakfast in Las Vegas.	Complete
6	Staff	Carryover RTAR-1795 to Las Vegas meeting for RAC consideration if TC vote is provided by then.	Ongoing
7	Staff	Delete duplicate comments from CE in summary that should apply to RTAR 1803 only from other RTARs in summary before sending to TCs	Complete

**Carry-Over Action Items
Research Administration Committee (RAC)
Annual Meeting 2016**

Action #	Responsibility	Summary of Action	Status
5	Staff	Ask TCs to ask PI's to submit keywords from technical papers for the research database	Complete
6	AG RL's	Circulate <i>Disposition of ASHRAE Research Results</i> form to all TCs to increase awareness that form needs to be completed and what information is needed to complete form.	Ongoing
8	Giesler, Eichelberger, Yashar	Review and modify the RAC ROB sections, MOP, and Reference Manual for consistency and accuracy.	Ongoing
9	John, Khankari, Yang, Wilkins	Develop/Update PMS training Module documents for TCs	Complete

H. PROPOSED & POSSIBLE ROB, MOP, REFERENCEMANUAL, RESEARCH MANUAL OR WEBSITE CHANGES & OTHER ITEMS FOR DISCUSSION

- A. Proposed & Possible ROB, MOP, Reference Manual, Research Manual or Website Changes & Other Items for Discussion –Giesler Lead
- a) Proposed ROB addition granting RAC authority to terminate an active research project early.- MORTS

It is moved and seconded that,

- (2) RAC recommends to Tech Council changes to the ROB as shown below.

2.421.04 OPERATION 2.421.004.1 General Requirements

A. ASHRAE through its Research Administration Committee shall

1. Support and maintain a vigorous research program;
2. Sponsor research at universities and other established laboratories, including research and studies by consulting engineers and other qualified organizations;
3. Use budgeted funds for project costs, administration of the research program and the publication of research.
4. Terminate any active research project if it is determined by the project's sponsoring committee and RAC that it is in the best interest of ASHRAE.

MOTION #2 PASSED: 13-0-0, CNV

I. RTAR REVIEW

RTAR Review (3 new & revised RTARs)

It is moved and seconded that,

- (3) 1814-RTAR, Actual Energy Performance of Buildings Designed to Comply with ASHRAE Standard 90.1-2010), sponsored by TC 2.8 (Building Environmental Impacts and Sustainability), is conditionally accepted.

MOTION #3 PASSED: 13-0-0, CNV

It is moved and seconded that,

- (4) 1816-RTAR, Reporting the Energy Use and Heat Gain from Imaging Equipment, sponsored by TC 9.6 (Healthcare Facilities), is conditionally accepted.

MOTION #4 PASSED: 12-0-1¹, CNV

It is moved and seconded that,

- (5) 1817-RTAR, Long Term Temperature Change of Ground Heat Exchangers, sponsored by TC 6.8 (Geothermal Energy Utilization), is conditionally accepted.

MOTION #5 PASSED: 12-0-0, CNV

¹ Ezzat Khalifa abstained because he was not familiar with the topic.

J. WORK STATEMENT REVIEW

Four work statements were submitted by the TCs for review.

It is moved and seconded that,

- (6) 1683-WS, *Experimental Evaluation of Two-Phase Pressure Drop and Flow Pattern in U-Bends with Ammonia*; sponsored by TC 1.3 (Heat Transfer & Fluid Flow), is returned.

MOTION #6 PASSED RAS: 5-0-0, CNV

It is moved and seconded that,

- (7) 1800-WS, *Spray Evaporation on Enhanced Tube Bundles with Low GWP pure Refrigerants and Refrigerant/Miscible Oil Mixture*; sponsored by TC 1.3 (Heat Transfer & Fluid Flow), is returned.

MOTION #7 PASSED RAS: 5-0-0, CNV

It is moved and seconded that,

- (8) 1804-WS, *A Guideline for Calculating the Avoided Source Energy Consumption (ASEC) Due to Waste Heat Recovery (WHR) and Heat Pump (HP) Technologies*; sponsored by – MTG.ASEC (Avoided Sources Energy Consumption Due to Waste Heat recovery and Heat Pump Technologies), is returned.

MOTION #8 PASSED RAS: 5-0-0, CNV

It is moved and seconded that,

- (9) 1819-WS, *CO2 Demand Controlled Ventilation in Multiple Zone VAV Systems with Multiple Recirculation Paths*; sponsored (Ventilation Requirements and Infiltration), is conditionally accepted.

MOTION #9 PASSED: 13-0-0, CNV

Action #1 < Wargocki, Sachs, Khankari, Wilkins>: Discuss work statement procedures form. Some are having issues inserting images and graphs. Maybe go back to using the Word version for submissions.

K. INNOVATIVE RESEARCH GRANT

It is moved and seconded that,

- (10) RAC approved a motion that the following IRG proposals be invited to submit full IRG proposals; #006, #008, #013, #015., #030 and #031.

MOTION #10 PASSED: 13-0-0, CNV

Action #2 <Yashar>: to review evaluation, form, add eligibility question for innovation, etc.

L. HOMER ADAMS AWARD

It is moved and seconded that,

(11) RAC approved a motion to award Parham Azimi as winner of Homer Addams award.

MOTION #11 PASSED: 13-0-0, CNV

Action #3 <Giesler>: Add to future agenda a discussion about procedural changes and modifications to the Homer Adams award criteria.

M. NEW INVESTIGATOR AWARD

Sixteen nominations were received for the 2017-2018 New Investigator Award.

It was moved and seconded that,

(12) Dr. Brian Fronk of Oregon State University be the 2017-2018 recipient of the New Investigator Award.

MOTION #12 PASSED: 11-0-0, CNV

N. CARRY-OVER TRPS, FUNDED EXTENSIONS, & GRANT REQUESTS

Carry-over TRPs, Funded Extensions, & Grant Requests

- b. 1743-TRP - Eichelberger Lead - (Conflict – TechC/Culp) – TC 8.11 – 3 bids – STL carryover if ready.
Status: Contractor recommended

O. RESEARCH SUBCOMMITTEE CHAIR'S BREAKFAST

- a) Proposed Announcements
 1. Service to ASHRAE Research Award recipient this year – Joseph Huber
Submission date for Service to ASHRAE Research Award Sep. 1st
 2. Importance of obtaining full TC votes on approvals of submitted RTARs and WSs for both sponsoring and co-sponsoring TCs
 3. WS based on conditionally approved RTAR must acknowledge how conditions were cleared.
 4. Note co-funding organizations can be added to RTAR later (so possible cofounders can be listed in RTARs)
 5. PMS training module ready (will eventually be available online)
 - i. Should point out to PES/PMS ASHRAE has GoToMeeting services.
Contact Donna Daniel.
 6. Seeking feedback on RTAR and WS forms
 7. Highlight awarding of RP-1806
 8. Additional Announcements (TBD)
- b) RL Reminders for TCs
Arthur Giesler emphasized the need for RLs to get information on items in sheet to move things along.

Kishor Khankari reviewed his PMS training presentation and bulleted list of responsibilities that will be included as webinar on website for PMS members. RAC members offered some comments for modifications.

Action #4 <Giesler>: Check with Michael Vaughn about possible changes to tying payments to milestones in contract. Can this be done?

P. TRPs to Potentially Bid Spring 2017 (8 TRPs)

- a) TRP Ranking Ballot.W17
- b) 1711-TRP, TC 5.10 (Kitchen Ventilation) – Rebid if ready
- c) 1720-TRP, TC 2.3 (Gaseous Air Contaminants and Gas Contaminant Removal Equip.)
- d) 1740-TRP, TC 3.3 (Refrigerant Contaminant Control) – Rebid if ready
- e) 1745-TRP, TC 4.2 (Climatic Information)
- f) 1756-TRP, TC 2.4 (Particulate Air Contaminants and Particulate Removal Equip.)
- g) 1759-TRP, TC 4.4 (Building Materials and Building Envelope Performance)
- h) 1762-TRP, TC 1.10 (Cogeneration Systems)
- i) 1764-TRP, TC 5.2 (Duct Design)
- j) Additional TRPs approved at 2017 Winter Meeting
- k) TRP Ranking Summary.W17
- l) TRP Budget Impact Summary

Q. CONSULTANTS REPORTS

- a) AHRI – Xudong Wang, updated RAC on status of 3 AHRTI projects related to A2L refrigerants, as well as the 3 ASHRAE led projects on A2L. The AHRTI projects are ongoing with one nearing completion. ASHRAE RP-1806 has been awarded, a bidder will be selected for RP-1807 in Las Vegas, and RP-1808 is out for bid closing February 20th.
- b) CIBSE – Hywel Davies, not in attendance at time of CIBSE report.
- c) IAQA – Alice Delia, not in attendance at time of IAQA report.

R. MORTS Report

Semi-Annual Report

Highlights from the report were discussed and the full report is included as (**Attachment #1**).

S. UNFINISHED OR OUT-OF-SEQUENCE BUSINESS

None

RECESSED – 3 pm Saturday, January

T. TENTATIVE RESEARCH PROJECTS

Tentative Research Projects (9 TRPs)

It is moved and seconded that,

- (13) 1573-TRP, *Determination of Suitable Replacement for SF6 When Used As a Tracer Gas In Accordance With ANSI/ASHRAE Standard 110*, be awarded to Exposure Control Technologies, Inc., for a period of 16 months at a total cost to ASHRAE of \$99,860. (**Attachment #2**)

MOTION #13 PASSED: 13-0-0 CNV, CNV

It is moved and seconded that,

- (14) 1719-TRP, TRP, *Design Guide for Cool Thermal Storage – Update/Revision*, be awarded to GARD Analytics for a period of 12 months at a total cost to ASHRAE of \$83,900. (**Attachment #3**)

MOTION #14 PASSED: 13-0-0 CNV

It is moved and seconded that,

- (15) 1721-TRP, *Oil Return and Retention in Unitary Split System Gas Lines with HFC and HFO Refrigerants*, be awarded to Purdue University for a period of 24 months at a total cost to ASHRAE of \$120,714. (**Attachment #4**)

MOTION #15 PASSED: 13-0-0 CNV

It is moved and seconded that,

- (16) 1734-TRP, *Reproducing a Representative Urban Atmospheric Aerosol Distribution at High Concentration in the Laboratory for Air Filter Ageing to be used in ASHRAE GPC 35P for Determining the Energy Consumption Caused by Air Filters*, be awarded Purdue University for a period of 24 months at a total cost to ASHRAE of \$140,000. (**Attachment #5**)

MOTION #16 PASSED: 13-0-0 CNV

It is moved and seconded that,

- (17) 1743-TRP, *Effect of Inlet Duct and Damper Design on ASHRAE 37/116 Fan Performance and Static Pressure Measurements*, be awarded to Oklahoma State University for a period of 12 months at a total cost to ASHRAE of \$89,000. (**Attachment #6**)

MOTION #17 PASSED: 13-0-0 CNV

It is moved and seconded that,

- (18) 1785-TRP, *Experimental Validation of Refrigerant Charge Models in Coils for Residential Split Systems*, be awarded to the Oklahoma State University for a period of 30 months at a total cost to ASHRAE of \$139,615. (**Attachment #7**)

MOTION #18 PASSED: 13-0-0 CNV

It is moved and seconded that,

- (19) 1807-TRP, *Guidelines for Flammable Refrigerant Handling, Transporting, Storing and Equipment Servicing, Installation and Dismantling*, be awarded to the Navigant Consulting for a period of 6 months at a total cost to ASHRAE of \$80,000. (**Attachment #8**)

MOTION #19 PASSED: 13-0-0 CNV

NOTE: No action was taken on 1614-TRP, no bids were received.
1661-TRP, TC still evaluating bids received.

U. UNSOLICITED RESEARCH PROPOSALS

Unsolicited Research Proposals

- 1818-URP, Determination of Transient Heat Gain Rates from Hot Vehicles Parked in Enclosed Facilities, for Buildings HV AC Load and Energy Calculations.

Status: Opinion seemed to be there was no need for this. Xudong Yang recommends not

pursuing.

Action #5 <Yang>: Communicate to Mike Vaughn so that he can respond in reference to 1818-URP.

- 1820-URP, Vertical Variations in Ambient Climatic and Air Quality Conditions Near Tall Buildings.
 - Buildings.
- Status:** Jeff Gatlin felt worthy of pursuing as URP.

Action #6 <Gatlin, Sachs, Shonder>: to evaluate 1820-URP further and make recommendation to RAC.

Action #7 <Giesler, Vaughn>: get every research/general reserve fund budget to RAC members as FYI.

Action #8 <Yang, Khankari, Sachs, John, Wilkins>: discussed PMS training slides and revise as appropriate milestone payment discussion needs clarification. Key is for PMS communication to Mike Vaughn to indicate payment should be held.

Action #9 <Wilkins>: Database project needs to be settled. PI retired, database cannot be merged. Perhaps we should consider closing out?

Action #10 <Yang>: Discuss 1710 PMS chair cannot attend or participate so a new chair is needed. Currently PMS not responding to PI requests. Discuss with Mike Vaughn to come up with a resolution. Perhaps a 4.1 member.

Action #11 <Yang>: Develop a plan to resolve ASHRAE research project 1414-RP, handbook content. PI not able to perform work due to family issues. Deadline actually passed. 3 of 7 payments received. Task 1 not completed. PMS disagreeing on how to proceed. Chair wishes to give one more year, two others on PMS wish to close project.

V. RESEARCH LIAISON SECTION REPORTS

RLs were asked to send reports to staff

W. UNFINISHED BUSINESS

Paul Francisco addressed RAC on behalf of Residential Committee on a project for low to mid rise multifamily design guide. Developing as special project but, may seek research funds. There is a very aggressive timeline to get as far along as possible during Olesen's term. Aim for work statement by spring to bid shortly after.

Pawel Wargocki and Harvey Sachs offered to help review to help prepare for RAC review.

X. NEW BUSINESS

None

Y. REVIEW NEW ACTION ITEMS

ADJOURNED

The meeting of the Research Administration Committee adjourned at 11:00 AM, Wednesday, February 1, 2017.