

**RESEARCH ADMINISTRATION COMMITTEE  
2025 Spring Meeting Minutes**

**Spring Teleconferences**

**April 21st & April 22nd, 2025**

DRAFT

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

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**RESEARCH ADMINISTRATION COMMITTEE**  
**APRIL 21ST & APRIL 22ND, 2025**

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**PRINCIPAL MOTIONS  
RESEARCH ADMINISTRATION COMMITTEE  
APRIL 21ST & APRIL 22ND, 2025**

NO.	PAGE	MOTION
1	6	RAC approve Winter 2025 minutes with revisions.
2	7	The following 20 students each be awarded an ASHRAE Graduate Student Grant-in-Aid grant for the 2025-2026 academic year.
3	8	<u>1963-RTAR – Methodology to measure in-situ chemical emissions of labs equipment and processes</u> ; sponsored by TC 9.10 (Laboratory Ventilation), be <u>accepted with comments</u> .
4	8	<u>1979-RTAR, Development of a Residential Thermal Comfort Model for Decarbonization in North America</u> ; sponsored by TC 2.01 (Physiology & Human Environment), be <u>accepted with comments</u> .
5	8	<u>1980-RTAR, Simplified Methods for Calculation of Heating Warm-Up Loads</u> - sponsored by TC 4.01, (Load Calculation Data and Procedures), be <u>rejected</u> .
6	8	<u>1981-RTAR, Establishing a minimum relative humidity level to achieve occupant health and productivity benefits</u> ; sponsored by TC 5.11 (Humidifying Equipment), be <u>accepted with comments</u> .
7	8	<u>1982-RTAR, Occupant-Centric Demand-Side Management for Residential Buildings</u> - TC 7.10, (Occupant Behavior in Building Design and Operation), be <u>accepted with comments</u> .
8	8	<u>1983-RTAR, Condensation Heat Transfer of Enhanced Tube Bundles with Low GWP Refrigerants Including the Effect of Non-Condensables</u> ; sponsored by TC 8.05 (Liquid -to-Refrigerant Heat Exchangers), be <u>returned</u> .
9	8	<u>1985-RTAR, Evaluating UVGI Efficacy on Enveloped and Non-Enveloped Viruses for in-duct applications</u> ; sponsored by TC 2.9 (Ultraviolet Air & Surface Treatment), be <u>accepted with comments</u> .
10	9	<u>1986-RTAR, 223P to IFC interoperability using SHACL rule sets</u> - sponsored by TC 1.5 (Emerging Computing Applications), be <u>accepted with comments</u> .
11	9	<u>1858-WS, Evaluation of HVAC ventilation effectiveness in reducing semi-volatile organic compounds (SVOCs) in indoor spaces</u> ; sponsored by TC 2.03 (Gaseous Air Contaminants and Gas Contaminant Removal Equipment), be <u>returned</u> .
12	9	<u>1941-WS, Experimental Program to Update the ASHRAE Duct Fitting Database (DFDB)</u> ; sponsored by TC 5.02 (Duct Design), be <u>conditionally accepted</u> .
13	9	<u>1959-WS, Update People Load Data for Cooling Load Calculations</u> ; sponsored by TC 4.01 (Load Calculation Data and Procedures), be <u>accepted</u> .
14	9	<u>1972-WS, Data Center Direct-to-Chip Liquid Cooling Resiliency – Failure Modes and IT Throttling Impacts; Liquid Cooling Energy Use Metrics and Modeling</u> ; sponsored by TC 9.09 (Mission Critical Facilities, Data Centers, Technology Spaces and Electric Equipment), be <u>accepted</u> .
15	9	<u>1984-WS, Energy usage for indoor plant environments</u> ; sponsored by TC 2.02 (Plant and Animal Environment), be <u>returned</u> .

<b>16</b>	<b>10</b>	RAC approved a motion to award ASHRAE Tentative Research Project 1566-TRP, Equations to estimate evaporation rates from heated water pools in indoor recreational aquatic facilities, to Oklahoma State University for a period of 24 months, at a cost to ASHRAE of \$96,896.
<b>17</b>	<b>10</b>	RAC approved a motion to award ASHRAE Tentative Research Project, 1915-TRP, Refrigerated Facilities Doorway Infiltration Air Energy Reduction, to Creative Thermal Solutions for a period of 22 months, at a cost to ASHRAE of \$289,000.

**ACTION ITEMS  
RESEARCH ADMINISTRATION COMMITTEE  
APRIL 21<sup>ST</sup> & APRIL 22<sup>ND</sup>, 2025**

<b>NO.</b>	<b>PERSON</b>	<b>ACTION</b>	<b>STATUS</b>
1	ExCom	RAC's ExCom would finalize plan and schedule for PES/PMS training	
2	Staff	Reach out to new TC 1.5 for Beta testing of the online research tool	
3	Staff	Staff to propose updates to formal guidance and timeline for RP co-sponsorships	
4	Staff/RAC	Staff and RAC would work to develop RAP procedures making RAP a standing subcommittee of RAC to discuss in Phoenix	

<b>NO.</b>	<b>PERSON</b>	<b>ACTION</b>	<b>STATUS</b>
1	Charneux	markup changes to the Service to ASHRAE Research Award in the RAC Reference Manual for RAC to formally consider at the Wednesday meeting	<b>Complete</b>
2	Wen	categorize the list of possible RAP nominees and alternates for the Wednesday RAC meeting	<b>Complete</b>
3	Huber	Huber would reach out to TC and PES to discuss and determine a course of action on 1566.	<b>Complete</b>
4	RAC/Staff	RAC to reach out to proposed members to confirm their participation (Action Item #4).	<b>Complete</b>

**LIST OF ATTACHMENTS**

**ATTACHMENT A:** TAC MBO Update.

## MINUTES

### RESEARCH ADMINISTRATION COMMITTEE APRIL 21ST & APRIL 22<sup>ND</sup>, 2025

#### MEMBERS PRESENT:

Natascha Milesi Ferretti, *Chair*  
Jin Wen, *Vice Chair*  
Roland Charneux, *Chair RPS*  
James Bogart, *Chair RAS*  
Srinivas Katipamula, *RL Section 1.0*  
Chris Gray, *RL Section 2.0*  
Zheng O'Neill, *RL Section 3.0*  
Dennis Landsberg, *RL Section 4.0*  
Douglas Scott, *RL Section 5.0*  
Matthew Mullen, *RL Section 6.0*  
Allen Kirkwood, *RL Section 7.0*  
Carl Huber, *RL Section 8.0*  
Conor Murray, *RL Section 9.0*  
WenBin Ng, *RL Section 10.0*  
Susana Hanson, *BOD Ex-Officio*

#### ASHRAE STAFF:

Steve Hammerling, *MORTS*  
Donna Daniel, *AMOR*  
Amber Thomas, *AA*

#### MEMBERS ABSENT:

Wade Conlan, *Coordinating Officer*  
Anastasia Mylona, *Consultant*  
Xudong Wang, *Consultant*

#### A. CALL TO ORDER & INTRODUCTIONS

Meeting was called to order by Chair Natascha Milesi-Ferretti at just after 9:00 AM EDT.

#### B. ASHRAE VALUE STATEMENT

In ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and shall avoid all real or perceived conflicts of interest. Our culture is one of inclusiveness, acknowledging the inherent value and dignity of each individual. We celebrate diverse and inclusive communities, understanding that doing so fuels better, more creative and more thoughtful ideas, solutions and strategies for the Society and the communities our Society serves. We respect and welcome all.

**Code of Ethics** - <https://www.ashrae.org/about/governance/code-of-ethics>

**Core Values** - <https://www.ashrae.org/about/ashrae-s-core-values>

**Diversity Statement** - <https://www.ashrae.org/about/diversity-equity-and-inclusion-dei>

- C. ADDITIONS AND/OR CHANGES TO THE AGENDA
- a) Insert new Item F - Research Advisory Panel (RAP)
  - b) Insert new item E.c.3 - RAC onboarding.

D. APPROVAL OF WINTER 2025 MINUTES

It was moved (Gray) and seconded (Charneux) that,

- (1) RAC approve the Winter 2025 minutes with revisions.

**BACKGROUND:** typos on WenBin Ng's name and a typo in section H.b (should refer to RAP roster) would be fixed.

**Motion #1 PASSED RAC:** 12-0-0-1 (13) CNV

E. CHAIR'S REPORT – Milesi-Ferretti

a) Disposition of Motions from Last Meeting or Letter Ballots

- 1. Eight projects bid in the Fall 2024 (0003-PRP, 1566-TRP, 1910-TRP, 1913-TRP, 1915-TRP, 1947-TRP and 1964-TRP) four were awarded with project funding motions approved by RAC in Orlando, Florida.
- 2. Motion to approve Research Advisory Panel (RAP) – motion approved by Tech Council

b) New & On-going Action Items Assigned by Tech. Council

- 1. Completed RAC Budget Forecast form for TechC  
Transportation reimbursement for RAP members was communicated

c) New Information Items:

- 1. Plans for ASHRAE Annual Meeting in Phoenix  
Please let RAC chair know if you cannot attend RAC meeting in Phoenix.
- 2. PMS or PES Training Webinars – Need to set date for Webinars in spring and fall  
Recordings are available, need to set date and get the word out. Could focus on at Research Chair Breakfast in Phoenix. RAC's ExCom would discuss and follow up after early June Meeting. Plan may be e-mail new PES members with a call in/office hours if people have questions (**Action Item 1**).

RAC's ExCom would discuss and follow up at their meeting in early June. PMS/PES training could be focus of Research Chair Breakfast in Phoenix.

3. RAC Onboarding

It was suggested that incoming members meet with current Section Head, subcommittee they will be assigned to (RAS or RPS), then RAC, all before they're asked to review anything. New members could be invited to participate in Spring & Annual meetings. The goal is to connect with current RL ahead of time. RAC would have to make RL assignments earlier to help with transition.

New RAC members are typically notified of their appointment shortly after the Winter Meeting.

d) MBO Status Report

MBOs would be discussed in depth later in meeting.

F. RESEARCH ADVISORY PANEL (RAP)

The chair and members for the RAP were formally appointed. They plan to have a kickoff meeting ahead of the Annual Meeting and will meet in Phoenix as well. Current RAC members

Wen, Gray and Charneux are members of RAP.

- G. BOD EX-OFFICIO & COORD. OFFICER – Hanson & Conlan  
Hanson did not have a formal presentation. It was reported that standing committee chairs now get a vote at Tech Council and there's a motion being considered to make Ex-O's non voting members of Tech Council. This would put the BOD ExO in more of a liaison role.

Conlan was not able to attend.

- H. ACTION ITEM TRACKING AND PRELIMINARY REVIEW OF W25 ACTIONS  
Action items would be tracked and included in meeting minutes.

- I. TRPs to Bid or Rebid in Spring 2025

a) Research Project Expenditures Forecast Spreadsheet for projects pending for bid. There were no changes to the spreadsheet from the previous meeting. WS's approved for bid at the spring meeting would be added.

- J. Grant-in-Aid Award Applications – RPS Chair Charneux Lead

A total of 73 applications were considered for the 2025-2026 ASHRAE Graduate Student Grant in-Aid program. Each grant recipient receives up to \$10,000 with the option to earn an additional \$1,500 honorarium if they present a paper on their GIA research at an ASHRAE Society meeting.

It was moved and seconded that,

- (2) that the following 20 students be awarded an ASHRAE Graduate Student Grant-in-Aid grant for the 2025-2026 academic year.

1. Michael Akinseloyin, Kansas State University
2. Hussein Elehwany, Carleton University
3. Viswanathan Ganesh, Pennsylvania State University
4. Mingyue Guo, Texas A&M University, **#1 LMC**
5. Juwan Ha, North Carolina State University
6. Andreas Josef Hoess, Purdue University
7. Rachel Hurley, Worchester Polytechnic, **#2 LMC**
8. Dhahyun Kang, University of Maryland
9. Arash Jalil Khabbazi, Purdue University
10. Dohyeon Kim, Purdue University
11. Amirreza Mahmoudi, University of Saskatchewan
12. Isabel Melendez, Embry-Riddle Aero
13. Jalil Mobarakeh, Oregon State University
14. Aditya Ramnarayan, University of Maryland
15. Soheil Sahamifar, Toronto Metropolitan
16. Ganesh Saptharshi, University of Illinois
17. Troye Sas-Wright, Ohio State University
18. Rawisha Serasinghe, Ohio State University
19. Anna Maria Sigouris, Concordia University
20. Marie-Pier Trepanier, Universite Laval

Mingyue Guo of Texas A&M University and Rachel Hurley of Worchester Polytechnic hold the added distinction of being named the 2025-2026 Life Member Club grant recipients as the top one and two rated applicants, respectively. These two grants are supported by a financial contribution from the club.

**MOTION #2 PASSED RAC: 13-0-0-1 (14) CNV**

K. Review of RTARs – (8 new & revised RTARs) RPS Chair Charneux Lead

It was moved and seconded that,

- (3) **1963-RTAR**, *Methodology to measure in-situ chemical emissions of labs equipment and processes*; sponsored by TC 9.10 (Laboratory Ventilation), be accepted with comments.

**MOTION #3 PASSED RAC:** 12-0-1-1 (14) CNV

It was moved and seconded that,

- (4) **1979-RTAR**, *Development of a Residential Thermal Comfort Model for Decarbonization in North America*; sponsored by TC 2.01 (Physiology & Human Environment), be accepted with comments.

**MOTION #4 PASSED RAC:** 12-0-0-1 (14) CNV

It was moved and seconded that,

- (5) **1980-RTAR**, *Simplified Methods for Calculation of Heating Warm-Up Loads* - sponsored by TC 4.01, (Load Calculation Data and Procedures), be rejected.

**MOTION #5 PASSED RPS:** 5-0-0-1 (6) CNV

It was moved and seconded that,

- (6) **1981-RTAR**, *Establishing a minimum relative humidity level to achieve occupant health and productivity benefits*; sponsored by TC 5.11 (Humidifying Equipment), be accepted with comments.

**MOTION #6 PASSED RAC:** 13-0-0-1 (14) CNV

It was moved and seconded that,

- (7) **1982-RTAR**, *Occupant-Centric Demand-Side Management for Residential Buildings* - TC 7.10, (Occupant Behavior in Building Design and Operation), be accepted with comments.

**MOTION #7 PASSED RAC:** 13-0-0-1 (14) CNV

It was moved and seconded that,

- (8) **1983-RTAR**, *Condensation Heat Transfer of Enhanced Tube Bundles with Low GWP Refrigerants Including the Effect of Non-Condensables*; sponsored by TC 8.05 (Liquid - to-Refrigerant Heat Exchangers), be returned.

**MOTION #8 PASSED RPS:** 5-0-0-1 (6) CNV

It was moved and seconded that,

- (9) **1985-RTAR**, *Evaluating UVGI Efficacy on Enveloped and Non-Enveloped Viruses for in-duct applications*; sponsored by TC 2.9 (Ultraviolet Air & Surface Treatment), be accepted with comments.

**MOTION #9 PASSED RAC:** 13-0-0-1 (14) CNV

It was moved and seconded that,



- (10) **1986-RTAR**, 223P to IFC interoperability using SHACL rule sets - sponsored by TC 1.5 (Emerging Computing Applications), be accepted with comments.

**MOTION #10 PASSED RAC:** 13-0-0-1 (14) CNV

## RECESSED

## RECONVENED APRIL 22<sup>ND</sup>, 2025

- L. Work Statement Review (5 new & revised WSs) – RAS Chair Bogart Lead

It was moved and seconded that,

- (11) **1858-WS**, *Evaluation of HVAC ventilation effectiveness in reducing semi-volatile organic compounds (SVOCs) in indoor spaces*; sponsored by TC 2.03 (Gaseous Air Contaminants and Gas Contaminant Removal Equipment) be returned.

**MOTION #11 PASSED RAS:** 5-0-0-1 (6) CNV

It was moved and seconded that,

- (12) **1941-WS**, *Experimental Program to Update the ASHRAE Duct Fitting Database (DFDB)*; sponsored by TC 5.02 (Duct Design), be conditionally accepted.

**MOTION #12 PASSED RAC:** 11-0-0-1 (12) CNV

It was moved and seconded that,

- (13) **1959-WS**, *Update People Load Data for Cooling Load Calculations*; sponsored by TC 4.01 (Load Calculation Data and Procedures), be accepted.

**MOTION #13 PASSED RAC:** 11-0-0-1 (12) CNV

It was moved and seconded that,

- (14) **1972-WS**, *Data Center Direct-to-Chip Liquid Cooling Resiliency – Failure Modes and IT Throttling Impacts; Liquid Cooling Energy Use Metrics and Modeling*; sponsored by TC 9.09 (Mission Critical Facilities, Data Centers, Technology Spaces and Electric Equipment), be accepted.

**MOTION #14 PASSED RAC:** 11-0-0-1 (12) CNV

It was moved and seconded that,

- (15) **1984-WS**, *Energy usage for indoor plant environments*; sponsored by TC 2.02 (Plant and Animal Environment), be returned.

**MOTION #15 PASSED RAS:** 5-0-0-1 (6) CNV

- M. PTAR (1 new PTAR)

**0008-PTAR**, *Updating Reference Guide for Dynamic Models of HVAC Equipment – Phase I* – sponsored by TC7.05 (Smart Building Systems).

Status: To be reviewed by Publications– No action required by RAC at this time

- N. Carry-over TRPs Requests:  
TCs letter balloted recommended bidders for the following projects and are ready for RAC consideration.

It was moved and seconded that,

- (16) RAC approved a motion to award Tentative Research Project 1566-TRP, *Equations to estimate evaporation rates from heated water pools in indoor recreational aquatic facilities*, to Oklahoma State University for a period of 24 months, at a cost to ASHRAE of \$96,896.

**MOTION #16 PASSED RAC: 11-0-0-1 (12) CNV**

It was moved and seconded that,

- (17) RAC approved a motion to award Tentative Research Project 1915-TRP, *Refrigerated Facilities Doorway Infiltration Air Energy Reduction*, to Creative Thermal Solutions for a period of 22 months, at a cost to ASHRAE of \$289,000.

**MOTION #17 PASSED RAC: 11-0-0-1 (12) CNV**

- O. Consultants' Reports  
a) AHRI – Xudong Wang  
Wang not in attendance  
b) CIBSE – Anatasia Mylona  
Mylona not in attendance

- P. UNFINISHED OR OUT-OF-SEQUENCE BUSINESS  
RAC returned to Chair's report agenda from Part A:

E.d. MBO Status Report

MBOs were reviewed and updated (**Attachment A**) to report to Operations Subcommittee of Tech Council

Updates to highlight here include the following:

MBO #1– Collaborate with ASHRAE web developer to develop effective online research project development and tracking system  
Staff reaching out to new TC (TC 1.5) for Beta testing of the tool (**Action Item 2**).

MBOs #2, 3, 4, and 6 were reported as complete

MBO #5 - *Expand TC involvement in identifying, communicating with, and obtaining project co-funding support at the work statement review stage*  
Staff working to update formal guidance and a timeline for RP co-sponsorships (**Action Item 3**).

A new MBO #9 was added - *Update RAC MOP, Reference Manual to specify rules for formation/operation of RAP to develop research strategic plan*  
Staff and RAC would work to develop procedures to discuss in Phoenix (**Action Item 4**).

- Q. NEW BUSINESS  
a) None

**ADJOURN**

RAC adjourned at approximately 11:45 AM EDT.

## **RECURRING ACTION ITEMS (EACH MEETING)**

<b><u>Responsibility</u></b>	<b><u>Summary of Action</u></b>
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) (Secondary)	Review and revise the Society's Research Implementation Plan based upon 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.

## **RECURRING ACTION ITEMS (ANNUAL MEETING)**

<b><u>Responsibility</u></b>	<b><u>Summary of Action</u></b>
Chair	Invite new RAC members to meeting and any training sessions at meeting.
Incoming Chair	Finalize MBOs and roster assignments. Set date for fall meeting.
RAS	Review Invited Innovative Research Grant (IRG) Full Proposals

## **RECURRING ACTION ITEMS (FALL MEETING)**

<b><u>Responsibility</u></b>	<b><u>Summary of Action</u></b>
RAS	Plan Training Segment for Research Breakfast at Winter Meeting

RLs	Review “Service to ASHRAE Research Award” nominations submitted TC chairs and select best nomination for RAC consideration.
MORTS	Prepare semi-annual report to RAC by December 15.

**RECURRING ACTION ITEMS**  
**(WINTER MEETING)**

<b><u>Responsibility</u></b>	<b><u>Summary of Action</u></b>
RPS	Review New Investigator Award Nominations
RPS	Review Homer Addams Award Nominations
RPS	Review Innovative Research Grant (IRG) – Pre-Proposals

**RECURRING ACTION ITEMS**  
**(SPRING MEETING)**

<b><u>Responsibility</u></b>	<b><u>Summary of Action</u></b>
RPS	Review Grant-In-Aid Applications
MORTS	Invite new incoming RAC members to the Annual meeting.
MORTS	Prepare semi-annual report to RAC by May 15.
RPS	Plan Training Segment for Research Breakfast at Annual Meeting

**ATTACHMENT 1**  
**Research Administration Committee MBOs 2024-2025**  
**Natascha Milesi-Ferretti, RAC Chair**

MBO #	Description	Metric	Initiative #	Goal #	Completion % /Date	Financial Assist Req'd?	MBO Comments
		(how do we determine success?)					
1	Collaborate with ASHRAE web developer to develop effective online research project development and tracking system.	Success will be when the web-based system has been completed and fully implemented.	3	3b	75% as of 2/11/2025	yes	This system will streamline research project development and provide real time tracking of RTAR, WS, TRP, and RP status to appropriate groups. The online portal will replace file sharing via e-mail attachments between TC members, RAC, PES and PMS committees, and ASHRAE RAC staff and eliminate confusion from multiple file versions in circulation. Have solicited limited TC and RAC members for beta testing and debugging. Staff getting demo from vendor Oct 4 on RTAR, WS, TRP stages. Will recruit RAC members and then TCs to run testing. <b>UPDATE: A new TC is being recruited for Beta testing</b>
2	Improve dissemination of research results through effective creation of research-based publications.	Implement PTAR process in coordination with Publications Committee	3, 4	1b, 2b, 3b	<b>Complete 10/1/2024</b>	no	Implementation processes have been developed but may require additional changes to improve coordination between RAC and Publications Committee. Recent changes in the management of standards user manual updates will reduce the need for their funding through RAC. Conditionally accepted first work statement for publication (WSP) at annual meeting. First ever TRP for publication to go out for bid. RAC selected a bid PTAR-0003, the first project developed under new PTAR procedures.
3	Review and update documents on Basecamp and Research website.	Consistent set of procedural and reference documents available on Basecamp and all ASHRAE websites.	3	3b	<b>Complete 10/1/2024</b>	no	RAC procedural and reference documents routinely undergo minor revisions to clarify or improve their effectiveness. It is important that all locations that contain these documents contain the same information. Update 6/25/2024 - ASHRAE staff (Donna) has expanded and updated support documents on the Research page of ashrae.org. A few additional updated training videos will be developed and added soon. <u>8/1/2024- Added PMS Training video.</u> No updates to reference documents since last meeting. Reference Manual changes related to Service to ASHRAE Research award were approved in ORL.
4	Expand TC involvement in identifying, communicating with, and obtaining interested bidders	Revisions to Research Manual and communications at research breakfast to notify research subcommittee chairs	3	3b	<b>Complete 10/1/2024</b>	no	Since the pandemic, multiple TRPs have gone out for bid, some for multiple times, with no bids being received. It is important that the technical experts have greater communications with potential bidders to ensure good responses to research proposals. The WS cover sheet should be modified to ensure all groups uniformly adopt and implement this policy. Staff used social media outlets to publicize research projects being bid in fall 2023, resulting in the largest number of bids ever being received (one TRP alone received 16 bids). TCs were encouraged to communicate with potential bidders in advance of listing them, but it was felt that no changes to WS requirements were needed. No changes to Research Manual required. RAC duplicated efforts used last time for October bids and again received excellent response. Efforts were quite successful.

5	Expand TC involvement in identifying, communicating with, and obtaining project co-funding support at the work statement review stage	Identify suitable levels of involvement for TCs to solicit and secure potential co-funding sources for ASHRAE research projects prior to TRPs being put out for bid. Revisions included in Research Manual.	3	1b, 2b, 3a, 3b	95% as of 2/11/2025	no	The current process for co-funding usually has MORTS contact the potential co-funder prior to finalizing the research contract. Since many of the technical experts collaborate in other ways with these potential co-funders, it may be more effective to have them more actively involved in soliciting co-funding support prior to TRPs going out for bid. TCs will solicit support letters without firm financial commitments from potential co-funding sources that will be included with their first draft WS. Changes to the RAC Research Manual have been drafted giving guidance on how such support letters should be obtained and documented. Changes need final reviews before incorporation. <b>UPDATE: TCs have done great job of identifying potential co-sponsorship. Staff working to update formal guidance and timeline for project co-sponsorship.</b>
6	Provide updated guidelines for research project work statement budget estimating.	Updated budget estimating guidelines placed on the ASHRAE research website.	3	3b	<b>Complete 2/11/2025</b>	no	Current guidelines for budget estimating were last updated over 5 years ago. The recent spike in inflation as well as university tuition and wage rates require these guidelines be updated and made more applicable to various types of research activities. Update 6/25/2024 - Decided to keep current single budget number requirement for WS, but to develop and annually update cost data for various budget categories so TCs can provide better estimates for project costs. Cost information will likely be provided on the research website and discussed at annual research breakfast meetings. No changes to Research Manual are required. <b>UPDATE: 10/1/2024 Annual update to slides for reasonable budget estimates to be prepared for 1/1/2025. Slides of costing resources were presented at Research Subcommittee Training Breakfast</b>
7	Identify the best mechanism to provide a data repository for RPs	Create the framework design or identify existing infrastructure.	4	1b,2b, 3b	new	no	There is a need for standardized requirements or guidelines for documenting/formatting. Potentially establish new contract language to get data in a more generally usable format. RAC to explore how data from research projects can be submitted in a universal or accessible format and document in Research Manual RAC discussed questions surround data issue and formed a subcommittee to review current requirements, language from other organizations that address these issues, and draft language that would help keep data from ASHRAE research projects available and useable. <b>UPDATE: Some examples from other organizations are being developed. RAC to discuss at future meeting.</b>
8	Establish new requirements for lay description of research projects and, best research findings from Research chairs.	Streamline reporting requirements for RPs	4,3		new	no	Action Item for RAC to request feedback at Research Breakfast on how ASHRAE can get information about completed research out to members and public in layman's terms. RAC members would review and draft changes to Research Agreement as appropriate to implement this requirement. <b>UPDATE: RAC met with RP to discuss the best format for descriptions. RAC to consider implementing new deliverables into Research Agreement as appropriate.</b>
9	<b>Update RAC MOP, Reference Manual to specify rules for formation/operation of RAP to develop research strategic plan</b>	<b>Updates to governing documents available on the website</b>	3	3b	new	maybe	<b>Request was for standing RAP subcommittee of RAC. RAC to discuss and propose rules as appropriate. RAP transportation has typically been reimbursable so there would be a fiscal impact.</b>