



Shaping Tomorrow's  
Built Environment Today

**MINUTES**

**RESEARCH ADMINISTRATION COMMITTEE MEETING  
WINTER MEETING**

**JANUARY 31 & FEBRUARY 4, 2026**

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

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**JANUARY 31 & FEBRUARY 4, 2026**

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**PRINCIPAL MOTIONS  
RESEARCH ADMINISTRATION COMMITTEE  
JANUARY 31 & FEBRUARY 4, 2026**

<b>NO.</b>	<b>PAGE</b>	<b>MOTION</b>
1	2	The draft minutes of the RAC 2025 Fall meeting be approved as drafted.
2	4	RAC revise the RAC Research Manual.
3	4	<b>1983-RTAR</b> , <i>Condensation Heat Transfer of Novel Low GWP Refrigerants on Enhanced Tube Bundles Including Effects of Non Condensables</i> ; TC 8.5, Liquid-to-Refrigerant Heat Exchangers, be accepted with comments.
4	5	<b>2007-RTAR</b> , <i>Effective Dispersal Volume Dynamic Reaching Height for Flammable Refrigerant Releases</i> ; TC 9.09, Heat Transfer and Fluid Flow, be returned.
5	5	<b>2011-RTAR</b> , <i>Research for the Development of an ASHRAE Building EQ (BEQ) API for Integration with DOE's BETTER and QBAT Web Service Tools</i> ; MTG-BEQ, Building EQ, be returned.
6	5	<b>1939-WS</b> , <i>A tool to evaluate weather inputs for robust building performance analysis and design</i> ; TC 4.2, Climate Information, be conditionally accepted.
7	5	<b>1976-WS</b> , <i>Ozone Removal Efficiency and Generation of Byproducts on VOC-Loaded Gas-Phase Air Cleaning Devices</i> ; TC 2.3, Gaseous Air Contaminants and Gas Contaminant Removal Equipment, be returned.
8	5	<b>2008-WS</b> , <i>Effect of Test Concentration and Chemical Composition on Air Cleaner Effectiveness Values in Chamber Testing</i> ; TC 2.3, Gaseous Air Contaminants and Gas Contaminant Removal Equipment, be returned.
9	6	the following IRG pre-proposals be invited to submit full IRG proposals; 0010 (Spandagos) & #0012 (Salimifard), #0015 (Simonson) & #0019 (Tabares).
10	6	Dr. Jun Li of the University of Minnesota be awarded the 2026-2027 New Investigator Award
11	6	RAC send URP-2002 to TC 1.1 for their formal review and recommendation.
12	7	The deadline to attend a conference for GIA winner Soheil Sahamifar be extended by 12 months.
13	8	RAC recommends that Operations Subcommittee of Tech Council revise the draft TechC Reference Manual as shown: <i>D4 Research Administration Committee (RAC) The Technology Council may approve research projects, within the Board-approved research budget, up to a total project cost not to exceed \$500,000. Projects over \$500,000 require BOD approval. The Technology Council delegates RAC to approve research projects within the Board-approved research budget, up to a total project cost not to exceed <del>\$350,000</del>. <b>\$450,000</b></i>
14	9	RAC award 0001-PRP, <i>Update of 2 ASHRAE Publications: Application of Manufacturers' Sound Data, @1998, and Practical Guide to Noise and Vibration rol, © 1991, © 2005</i> , be awarded to Stantec Consulting Inc., for a period of 12 months at a total cost to ASHRAE of \$110,034.
15	9	RAC award 1882-TRP, <i>Procedure for Estimating Occupied Space Sound Levels in the Application of UFAD Air Terminals and Air Outlets</i> , to the University of

		Nebraska - Lincoln, for a period of 16 months at a total cost to ASHRAE of \$120,669.
16	9	RAC award 1959-TRP, <i>Update People Load Data for Cooling Load Calculations</i> , to the University of Hong Kong, for a period of 15 months at a total cost to ASHRAE of \$55,000.
17	9	RAC award 1972-TRP, <i>Data Center Direct-to-Chip Liquid Cooling Resiliency – Failure Modes and IT Throttling Impacts, Liquid Cooling Energy Use Metrics and Modeling</i> , to the University of Pretoria, for a period of 36 months at a total cost to ASHRAE of \$240,400.

**LIST OF ATTACHMENTS**

**Attachment A:** RAC MOP & Reference Manual revisions

**Attachment B:** PEAC Leadership report

**Attachment C:** 2025-26 MBOs final report

**Attachment D:** RAC Research Manual revisions

**Attachment E:** New Deliverable for Research Promotion

## ACTION ITEMS – 2026 Winter Meeting

No.	Responsibility	Action Item	Status
1	Staff	Staff was asked to update RAC guidance documents (MOP, Reference Manual, Research Manual) on ASHRAE website, Basecamp, etc.	
2	RAC	Revise RAC Reference Manual to include ASHRAE Artificial Intelligence policy to help ensure compliance in reviewing research and award proposals	
3	RAC	Add section in IRG procedures to indicate only 1 <sup>st</sup> two pages of pre-proposals would be reviewed.	
4	Staff	Increase promotional efforts on Homer Addams award, inform the PI, define when a project is completed and 2-year window starts.	
5	Wen Bin Ng	Coordinate preliminary RAC review of URP-2009.	
6	Wen Bin Ng	Coordinate preliminary RAC review of URP-2010.	
7	Staff	Send Xudong Wang the ASHRAE procedures for sponsoring research from organizations outside of ASHRAE	
8	Scott (Charneux, Ng)	Participate on a subcommittee to review current URP procedures and see if things can be streamlined	
9	Staff	Compile a history of URPs submitted and approved to help inform this URP subcommittee	
10	Staff	Explore the issue of indirect cost percentages of ASHRAE research bids, discuss with other ASHRAE staff and report back to RAC at future meeting	
11	Ziviani	Send staff a sample of what other organizations request for their proposals for Current & Pending notification	
12	Staff	Contact five TRP-1895 bidders to see if their bids were good through the spring	
13	Gray	Work with the 1895 PES and TC to make sure the bids are scored that the TC would recommend a winning bidder for RAC's spring meeting	
14	Staff	Post Research Portal training to Basecamp in Spring	
15	Gray (Scott, Mullen)	Review the Research Portal development	
16	RAC	Review and comment on Research Promotion draft deliverable slide for future meeting	
17	Staff	Review and ensure RAC RLs had access to the Research Subcommittee Chair Basecamp	

**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 Ex-O	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  
(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
MORTS	Prepare semi-annual report to RAC by May 15.

## **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



Shaping Tomorrow's Global  
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**MINUTES**  
**RESEARCH ADMINISTRATION COMMITTEE**  
**JANUARY 31 & FEBRUARY 4, 2026**

**MEMBERS' PRESENT:**

Jin Wen, Chair  
Roland Charneux, *Vice Chair*  
Dennis Landsberg, *Chair RAS*  
Chris Gray, Chair RPS  
Zheng O'Neill, *RL Section 3.0*  
Davide Ziviani, *RL Section 4.0*  
Douglas Scott, *RL Section 5.0*  
Matthew Mullen, *RL Section 6.0*  
Chad Kirkwood, *RL Section 7.0*  
Carl Huber, *RL Section 8.0*  
Conor Murray, *RL Section 9.0*  
Wen Bin Ng, *RL Section 10.0*  
Xudong Wang, *Consultant*  
Patrick Marks, *BOD Ex-Officio*  
Devin Abellon, *Coordinating Officer*

**GUESTS:**

Jayson Bursill  
Chanxu Huang  
N. Kapilan  
Howard Neville  
Lisa Ng  
Paul Raftery  
Nella Rajan

**ASHRAE STAFF:**

Donna Daniel  
Steve Hammerling

**MEMBERS ABSENT:**

Srinivas Katipamula, *RL Section 1.0*  
Brian Fricke, *RL Section 2.0*

**A. CALL TO ORDER & INTRODUCTIONS**

Chair Wen called the meeting of the committee to order Saturday, January 31<sup>st</sup>, 2026 at 8:00 AM PST. RAC quorum was confirmed. There were two RAC members not able to attend the conference due to DOE attendance restrictions.

**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](#)

[Core Values](#)

[Diversity Statement](#)

**C. ADDITIONS AND/OR CHANGES TO THE AGENDA**

No changes were made to the agenda sent ahead of the meeting.

**D. APPROVAL OF FALL 25 MINUTES – FALL 2025 MEETING**

It was moved (Murray) and seconded (Ng) that,

(1) The draft minutes of the RAC 2025 Fall meeting be approved as drafted.

**BACKGROUND:** Draft minutes distributed on Basecamp on January 5<sup>th</sup>, 2026.

**MOTION 1 PASSED RAC: 11-0-1-2, (14) CNV**

**E. CHAIR'S REPORT**

a) Disposition of Motions from Last Meeting or Letter Ballots

- None of the motions approved at fall RAC meeting required higher body approval
- RAC Letter Ballot 2026-1 motions
  - i. MOTION 1: That RAC recommend that Technology Council approve revisions to RAC Manual of Procedures (MOP) [RAC Passed. OPS/TechC to consider in Las Vegas.]
  - ii. MOTION 2: that RAC approve changes to the RAC Reference Manual [RAC Passed
  - iii. MOTION 3: that RAC approve changes to the Research Manual [Negative vote, so RAC would discuss and consider in Las Vegas]

b) RAC approved the following six Research Projects for Bid solicitation at their RAC 2025 fall Meeting:

- **0001-PRP**, *Update of 2 ASHRAE Publications: Application of Manufacturers' Sound Data, @1998, and Practical Guide to Noise and Vibration Control, © 1991, © 2005;* Responsible Committee: TC 2.6 Sound & Vibration Co-Sponsors: None Co-funding: None; Estimated Duration: 12 months; Estimated Cost to ASHRAE: \$110,000
- **1811-TRP**, *Determining Occupancy Patterns in Clusters of Buildings with Data Drawn from Web Based social media and Mobile Positions;* Responsible Committee: TC 1.5, Emerging Computing Applications; Co-Sponsors: TC 7.10, Occupant Behavior in Building Design and Operation; Co-funding: None; Estimated Duration: 24 months; Estimated Cost to ASHRAE: \$220,000
- **1882-TRP**, *Procedure for Estimating Occupied Space Sound Levels in the Application of UFAD Air Terminals and Air Outlets";* Responsible Committee: TC 2.6 Sound & Vibration; Co-Sponsors: TC 5.3 Room Air Distribution; Co-funding: None; Estimated Duration: 18 months; Estimated Cost to ASHRAE: \$125,000
- **1886-TRP**, *Kinetic and Mechanistic Study of the Breakdown and Interactions of HFO Refrigerants,* Responsible Committee: TC 3.2 Refrigerant System Chemistry and Contaminant Control; Co-Sponsors: None; Co-funding: None; Estimated Duration: 12 months; Estimated Cost to ASHRAE: \$120,000
- **1959-TRP**, *Update People Load Data for Cooling Load calculations;* Responsible Committee: TC 4.1 Load Calculations Data and Procedures); Co-Sponsors: None; Co-funding: None; Estimated Duration: 15 months; Estimated Cost to ASHRAE: \$150,000
- **1972-TRP**, *Data Center Direct-to-Chip Liquid Cooling Resiliency – Failure Modes and IT Throttling Impacts; Liquid Cooling Energy Use Metrics and Modeling;* Responsible

Committee: TC 9.09, Mission Critical Facilities, Data Centers, Technology Spaces and Electronic Equipment; Co-Sponsors: TC 4.10 Indoor Environmental Modeling & TC 7.6 Building Energy Performance); Co-funding: None; Estimated Duration: 36 months; Estimated Cost to ASHRAE: \$350,000

RAC will consider any TC recommendations in Part B Meeting on Wednesday.

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

- TechC Action Item #2 from 2025 Annual Meeting assigned to RAC & Staff to ‘review RAC’s process about whether they need to reach out to TCs’.

RAC discussed this action item recognizing that the current Multidisciplinary Task Group (MTG) structure already includes formal TC representatives. These representatives provide regular reports back to their respective TCs, so there is already a built-in mechanism for awareness and support. Therefore, RAC does not recommend any changes to the current procedures to require TC co-sponsorship of MTG sponsored research. RAC would report on this Action Item to Tech Council.

**F. BOD EX-OFFICIO & COORD. OFFICER – MARKS & ABELLON**

Marks presented the PEAC Leadership report (**Attachment B**). Highlights of interest to RAC include:

- ASHRAE 2025-2028 Strategic Plan [www.ashrae.org/strategicplan](http://www.ashrae.org/strategicplan)
- Membership increase of \$5 USD (\$290) for 2026-27 SY
- New Center of Excellence on Indoor Environmental Quality (CE-IEQ) formed
- CEBD research is underway with more projects in development
- Ad Hoc exploring changes to Future of ASHRAE Annual Conferences
- Simplified Membership Model – [www.ashrae.org/2026Bylaws](http://www.ashrae.org/2026Bylaws)

**G. ACTION ITEM TRACKING AND PRELIMINARY REVIEW OF FALL ACTIONS & 25-26 MBOs**

**ACTION ITEMS – 2025 Fall Meeting**

No.	Responsibility	Action Item	Status
1	MORTS	Review procedures for non-winning bidders participating in PMS meetings and email RAC before Part 2 meeting on Wednesday.	Complete
2	Staff, RL2	Reach out to PES/TC on 1895-TRP to determine if a bidder can be recommended at Winter Meeting or if project must be re-bid	Complete
3	Staff	Prepare letter ballot approval after a review and comment period on proposed changes to the RAC guidance documents.	Complete

MBOs will be discussed as they arise on the RAC agenda. A status report on RAC MBOs for 2025-2026 will be reported to OPS and is shown in **Attachment C**.

**H. Proposed & Possible ROB, MOP, Reference Manual, Research Manual or Website Changes & Other Items for Discussion WEN Lead**

a) RAC Letter Ballot 2026-1 results

RAC approved Motions 1 and 2 in letter ballot 2026-1 to revise the RAC MOP and RAC

Reference Manual which are included in **Attachment A**. Changes were made to update the GIA conference attendance requirements and update references to the technical paper deliverable.

Motion 3 to revise the Research Manual would be reviewed and reconsidered at the Winter Meeting as there was a negative vote related to the RTAR return option and inconsistencies. Changes were made to address these comments and RAC can consider approval now.

It was moved (Gray) and seconded (Kirkwood),

(2) that RAC revise the RAC Research Manual.

**BACKGROUND:** Proposed revisions are shown with track changes in **Attachment D**. Changes were made to update budget limits for research approvals, added information for PTAR/WSP, URP, and co-funding processes, reflect changes to technical paper deliverable, and various editorial changes as shown.

### **MOTION 2 PASSED RAC: 11-0-1-2, (14) CNV**

Staff was asked to update RAC guidance documents (MOP, Reference Manual, Research Manual) on ASHRAE website, Basecamp, etc. (**Action Item #1**).

b) Other Proposed changes

RAC is working with Research Promotion to develop a slide or single page template as an eventual deliverable for ASHRAE research projects that they can use to communicate research results and help tell stories that can help solicit research funding.

RAC will implement a process in RAC guidance documents to include RAS/RPS discussion summary for RTAR and WS decision letters.

It was suggested that the ASHRAE Artificial Intelligence policy ([here](#)) be referenced in the RAC Reference Manual to ensure compliance in reviewing research and award proposals (**Action Item #2**).

I. **Research Advisory Panel (RAP)**

RAP continues their work to develop the ASHRAE Strategic Research Plan (SRP). The RAP chair will present at the TC and Research Subcommittee Chairs breakfast meetings and has a workshop scheduled as part of the Conference technical program to seek input. RAP is meeting Tuesday morning as well. RAC members are encouraged to attend and to fill out survey [www.surveymonkey.com/r/MKKQDVR](http://www.surveymonkey.com/r/MKKQDVR). RAP is chaired by Chris Wilkins and current RAC members Wen, Charneux and Gray are all members.

A draft of the SRP is anticipated for the Winter Meeting in Chicago.

J. **RTAR Review (3 new & revised RTARs) – RPS Chair Gray Lead**

RPS chair Gray would develop a summary of comments for inclusion in letters to TCs to communicate results of RAC review.

(3) It was moved (RPS) that,

**1983-RTAR, Condensation Heat Transfer of Novel Low GWP Refrigerants on Enhanced Tube Bundles Including Effects of Non Condensables**; TC 8.5, Liquid-to-Refrigerant Heat Exchangers, be accepted with comments.

**MOTION 3 PASSED RAC: 11-0-1-2, (14) CNV**

(4) It was moved (RPS) that,

**2007-RTAR**, *Effective Dispersal Volume Dynamic Reaching Height for Flammable Refrigerant Releases*; TC 9.09, Heat Transfer and Fluid Flow, be returned.

**MOTION 4 PASSED RPS: 5-0-0 CV**

It was noted that 1990-RTAR was renumbered 2011-RTAR.

(5) It was moved (RPS) that,

**2011-RTAR**, *Research for the Development of an ASHRAE Building EQ (BEQ) API for Integration with DOE's BETTER and QBAT Web Service Tools*; MTG-BEQ, Building EQ, be returned.

**MOTION 5 PASSED RPS: 5-0-0 CV**

**K. Work Statement Review (3 WSs) – RAS Chair Landsberg Lead**

RAS chair Landsberg would develop a summary of comments for inclusion in letters to TCs to communicate results of RAC review.

(6) It was moved (RAS) that,

**1939-WS**, *A tool to evaluate weather inputs for robust building performance analysis and design* - TC 4.2, Climate Information, be conditionally accepted.

**MOTION 6 PASSED RAC: 11-0-1-2, (14) CNV**

(7) It was moved (RAS) that,

**1976-WS**, *Ozone Removal Efficiency and Generation of Byproducts on VOC-Loaded Gas-Phase Air Cleaning Devices* - TC 2.3, Gaseous Air Contaminants and Gas Contaminant Removal Equipment, be returned.

**MOTION 7 PASSED RAS: 5-0-0 CNV**

(8) It was moved (RAS) that,

**2008-WS**, *Effect of Test Concentration and Chemical Composition on Air Cleaner Effectiveness Values in Chamber Testing*, TC 2.3, Gaseous Air Contaminants and Gas Contaminant Removal Equipment, be returned.

**MOTION 8 PASSED RAS: 5-0-0 CNV**

**L. Innovative Research Grant Pre-Proposals - RPS Chair Gray Lead**

A call for pre-proposals was issued this fall for the ASHRAE Innovative Research Grant Program,

and 20 pre-proposals were submitted.

It was moved (RPS) that,

(9) the following IRG pre-proposals be invited to submit full IRG proposals; 0010 (Spandagos) & #0012 (Salimifard), #0015 (Simonson) & #0019 (Tabares).

**MOTION 9 PASSED RAC: 11-0-1-2, (14) CNV**

There were some proposals over the 2 page limit, so it was suggested to add information in the procedures to indicate only the first two pages of IRG pre-proposals would be reviewed (**Action Item #3**).

**M. Homer Addams Award (0) – RPS Chair Gray Lead**

There were no nominations for the Homer Addams award this year. Staff reached out to principal investigators of recently completed projects.

Staff was asked to increase promotional efforts on Homer Addams award, inform the PI, define when a project is completed and 2-year window starts. (**Action Item #4**)

**N. New Investigator Award– RPS Chair Gray Lead**

Twelve nominations were received for the 2026-2027 New Investigator Award.

It was moved (RPS) that,

(10) Dr. Jun Li of the University of Minnesota be awarded the 2026-2027 New Investigator Award.

**MOTION 10 PASSED RAC: 9-0-3-2, (14) CNV**

**O. Unsolicited Research Proposals (URPs)**

a) 2002-URP, *Engineering Equations for Moist Air Transport Properties Research* – Kunick

This URP was sent to RL1 (Katipamula) who coordinated a subcommittee to review the URP and recommended that RAC send to TC 1.1 for their evaluation.

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

(11) RAC send URP-2002 to TC 1.1 for their formal review and recommendation.

**BACKGROUND:** RAC would consider funding the URP if TC 1.1 approves the URP.

**MOTION 11 PASSED RAC: 11-0-1-2 (14) CNV**

b) 2009-URP, *Impact of an UVC-based air purifier on airborne surrogates of eukaryotic viruses significant for pig and farmers' health* – Duchaine

This URP was sent to RL2 (**Fricke**) to coordinate RAC review and determine if it should be sent to TC for evaluation. Wen Bin Ng was asked to coordinate this review with Fricke not attending the Winter Meeting. (**Action Item #5**).

c) 2010 -URP, *High-Sensitivity IEQ Monitoring via Air Conditioner Condensate Analysis* – Fix. This URP was sent to RL2 (**Fricke**) to coordinate RAC review and determine if it should be

sent to TC for evaluation. Wen Bin Ng was asked to coordinate this review with Fricke not attending the Winter Meeting. (**Action Item #6**).

**P. Research Subcommittee Chair's Breakfast – Chair Wen Lead**

a) Proposed Announcements:

RAC discussed and established the agenda for Monday's breakfast:

- RAC Objectives and Membership
- ASHRAE Strategic Plan and Research Advisory Panel Survey
- Research Promotion
- Budget Update and Proposal Activity
- Research Manual Update
- ASHRAE Research Portal Update
- Awards
- Summary
- Breakouts for RL Reminders for TCs

Slides would be finalized and posted to [Basecamp](#) before the meeting.

**Q. Consultants' Reports**

a) AHRI – Xudong Wang

Wang issued a report on AHRI/AHRTI research:

- AHRTI will start soon a new project on risk assessment of residential mono-bloc ATWHP using A3 refrigerants. The project is funded by CARB and designed to generate technical results that could support ASHRAE standard 15.2.
- Have an ongoing project AHRTI 9018 to support ASHRAE standard 15 for commercial refrigeration application.
- Started another round low GWP refrigerants evaluation focusing on GWP less than 300
- Continue the work on low GWP refrigerants heat transfer study
- Collaborate with ORNL on A3 refrigerants research

Staff agreed to send Wang the ASHRAE procedures for sponsoring research from organizations outside of ASHRAE (**Action Item #7**).

**R. UNFINISHED OR OUT-OF-SEQUENCE BUSINESS**

a) GIA 12-month extension request for Soheil Sahamifar

It was moved (Kirkwood) and seconded (Ziviani) that,

(12) that the deadline to attend a conference for GIA winner Soheil Sahamifar be extended by 12 months.

**BACKGROUND:** Travel restrictions made it impossible for the winner to attend an ASHRAE Conferences in USA in time. Changes to the GIA conferences listed in the RAC Reference Manual would allow Sahamifar to attend an upcoming ASHRAE Topical Conference.

**MOTION 12 PASSED RAC: 11-0-1-2 (14) CNV**

b) URP Procedure Review

Scott (Charneux, Ng) agreed to participate on a subcommittee to review current URP procedures and see if things can be streamlined (**Action Item #8**). Staff would compile a

history of URPs submitted and approved to help inform this committee (**Action Item #9**).

c) Approval limits for Research Projects

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

(13) RAC recommends that Operations Subcommittee of Tech Council revise the draft TechC Reference Manual as shown:

*D4 Research Administration Committee (RAC)*

1. *The Technology Council may approve research projects, within the Board-approved research budget, up to a total project cost not to exceed \$500,000. Projects over \$500,000 require BOD approval. The Technology Council delegates RAC to approve research projects within the Board-approved research budget, up to a total project cost not to exceed ~~\$350,000~~. \$450,000.*

**BACKGROUND:** Inflation is increasing the cost of performing ASHRAE research. Larger limits also encourage projects with larger scopes and encourage more ambitious research projects.

**MOTION 13 PASSED RAC: 11-0-0-1-2 CNV**

d) Indirect Cost % Limit on ASHRAE research bids

Currently, we do ask bidders to show the percentage of their bid that is an indirect cost, but there is no limit to this percentage in the ASHRAE rules. RAC members noted that universities routinely require a standard indirect cost percentage (as high as 60%) mandated by their institutions. This can lead to non-competitive bids or no bids from universities. It can also lead to no-cost extensions from contracted work with universities. If ASHRAE were to list a maximum percentage allowed for indirect costs, universities most often relent from their percentage to a lower percentage instituted by ASHRAE (if deemed reasonable by the university). This could result in more bids on ASHRAE research projects.

Staff will explore the issue and discuss with other ASHRAE staff and report back to RAC at future meeting (**Action Item #10**).

e) IRG, URP, NIA – Current & Pending

It was suggested that ASHRAE request IRG, URP and NIA applicants that they declare if there are other current ongoing or pending proposals on the same topics. ASHRAE wants to avoid double funding of these projects. Ziviani would provide staff with a sample of what other organizations request for their proposals (**Action Item #11**).

f) Research Mentorship Program

RAC continues MBO2 to develop a mentorship program for RTAR/WS authors. RAC is compiling a list of potential members and recruiting members at Research Breakfast. RAC also considering 'office hours' to address questions

**RAC adjourned their Part A meeting at 12:01 PM PST on Saturday, January 31<sup>st</sup>.**

**RECONVENE**

**RAC reconvened their Part B meeting at 7:00 AM PST on Wednesday, February 4<sup>th</sup>.**

**S. Tentative Research Projects (6 TRPs) – RAS Chair Landsberg Lead**

- a) **0001-PRP**, *Update of 2 ASHRAE Publications: Application of Manufacturers' Sound Data, @1998, and Practical Guide to Noise and Vibration Control, © 1991, © 2005*"); sponsored by TC 2.6, Sound & Vibration.

It was moved (RAS) that,

(14) RAC award 0001-PRP, *Update of 2 ASHRAE Publications: Application of Manufacturers' Sound Data, @1998, and Practical Guide to Noise and Vibration Control, © 1991, © 2005*, be awarded to Stantec Consulting Inc., for a period of 12 months at a total cost to ASHRAE of \$110,034.

**MOTION 14 PASSED RAC: 10-0-1-3 (14) CNV**

- b) **1811-TRP**, *Determining Occupancy Patterns in Clusters of Buildings with Data Drawn from Web Based Social Media and Mobile Positions*; sponsored by TC 1.5, Emerging Computing Applications.

There were four bids received for this project, but they were not evaluated by the TC at this meeting. They planned to recommend a bidder to RAC for their spring meeting.

- c) **1882-TRP**, *Procedure for Estimating Occupied Space Sound Levels in the Application of UFAD Air Terminals and Air Outlets*; sponsored by TC 2.6, Sound & Vibration

It was moved (RAS) that,

(15) RAC award 1882-TRP, *Procedure for Estimating Occupied Space Sound Levels in the Application of UFAD Air Terminals and Air Outlets*, to the University of Nebraska - Lincoln, for a period of 16 months at a total cost to ASHRAE of \$120,669.

**MOTION 15 PASSED RAC: 10-0-1-3 (14) CNV**

- d) **1886-TRP**, *Kinetic and Mechanistic Study of the Breakdown and Interactions of HFO Refrigerants*; sponsored by TC 3.2, Refrigerant System Chemistry and Contaminant Control.

There were no bids received for this project. TC would be asked to review and rebid if appropriate.

- e) **1959-TRP**, *Update People Load Data for Cooling Load Calculations*; sponsored by TC 4.1, Load Calculations Data and Procedures.

It was moved (RAS) that,

(16) RAC award 1959-TRP, *Update People Load Data for Cooling Load Calculations*, to the University of Hong Kong, for a period of 15 months at a total cost to ASHRAE of \$55,000.

**MOTION 16 PASSED RAC: 10-0-1-3 (14) CNV**

- f) **1972-TRP**, *Data Center Direct-to-Chip Liquid Cooling Resiliency – Failure Modes and IT*

Throttling Impacts, Liquid Cooling Energy Use Metrics and Modeling, sponsored by TC 9.9, Mission Critical Facilities, Data Centers, Technology Spaces and Electronic Equipment.

It was moved (RAS) that,

**(17) RAC award 1972-TRP, Data Center Direct-to-Chip Liquid Cooling Resiliency – Failure Modes and IT Throttling Impacts, Liquid Cooling Energy Use Metrics and Modeling**, to the University of Pretoria, for a period of 36 months at a total cost to ASHRAE of \$240,400.

#### **MOTION 17 PASSED RAC: 10-0-1-3 (14) CNV**

#### **Carried Over TRPs**

- g) **1895-TRP, Effect of penetration through particle pre-filters on the performance of gas filters**, sponsored by TC 2.3, Gaseous Air Contaminants and Gas Contaminant removal Equipment.

There were five bids received for this project last summer, but the TC has not selected a bidder. Staff would reach out to bidders to see if their bids were good through the spring (**Action Item #12**). Gray would work with the TC to make sure the bids were scored by PES and that TC would recommend a winning bidder for RAC's spring meeting (**Action Item #13**).

#### **T. TRPs to Potentially Bid Spring 2026 (TBD TRPs) - RAS Chair Landsberg Lead**

- a) Projects that could be bid in the spring are listed in the MORTS report (R-10) on the [RAC Basecamp](#)

#### **U. Research Liaison Section Reports – Vice Chair Charneux Lead**

- a) RL Reminders for Las Vegas (Each RL will send written update to staff after meeting). Highlights from reports are listed here:
- RLs were reminded to send or upload written updates to staff
  - Wen Bin Ng would reach out to Section 2 research chairs to assist as research liaison until Fricke is able to participate.
  - RAS and RPS chairs will summarize required comments in decision letters to RTARs/WSs.

#### **V. UNFINISHED BUSINESS – Charneux**

- a) Research Portal  
It was suggested that a link to the Research Portal be sent to all TCs. Staff will post training to Basecamp in Spring (**Action Item #14**).

TCs commented that the Research Portal was more an administrative tool or submission tool as opposed to a collaborative or developmental tool. Gray would lead a subcommittee with Scott, Mullen to review the Research Portal development (**Action Item #15**).

- b) New Deliverable for Research Promotion  
Research Promotion presented a draft template (**Attachment E**) as a proposed research project deliverable to help them market research project results. RAC members are asked to review and comment for future meeting (**Action Item #16**).
- c) Research Subcommittee Chair Basecamp  
Staff will review and ensure RAC RLs had access to the [Research Subcommittee Chair Basecamp](#) (**Action Item #17**).

#### **W. NEW BUSINESS – Charneux**

- a) PTAR-0008/RTAR-1809

Zheng requested update on project titled “*Updating Reference Guide for Dynamic Models of HVAC Equipment – Phase I*”. This was initially brought to TAC as RTAR-1809 and recommended to be pursued as a PTAR. PTAR 0008 was not suggested for approval by Publications Committee in their review. It was suggested that a new WS be drafted by the TC if they wish to pursue.

**X. REVIEW OF NEW ACTION ITEMS – Charneux**

Charneux ran through action items from this meeting. A full list is included in page v of these minutes.

**ADJOURN**

The meeting of the Research Administration Committee was adjourned at approximately 9:50 AM PST on Wednesday, February 4, 2026.



# MANUAL OF PROCEDURES

for

# RESEARCH ADMINISTRATION COMMITTEE

REVISED: XX-XX-XX21-01-12

## REVISION HISTORY

Revised XX-XX-XX Changed deliverables in Model Research Agreement (remove Technical Paper deliverable)  
Other editorial changes.

Revised 14-7-1 APPENDIX B – Model Research Co-Funding Memorandum-of-Understanding (MOU)

# MANUAL OF PROCEDURES FOR RESEARCH ADMINISTRATION COMMITTEE

## FOREWORD

The Research Administrative Committee (RAC) is a General Standing Committee of the Society and operates under the direction of the Board of Directors and Technology Council. The Rules of the Board (ROB) for the Research Administration Committee (RAC) is the constitution of the committee. Proposed changes to the ROB and its appendices must be done in accordance with ROB 3.400, Section 10.3 and approved by the Board of Directors.

This Manual of Procedures (MOP) is a supplement to the RAC ~~BAR-ROB~~ that describes the methods and procedures by which RAC accomplishes the duties and responsibilities assigned to it. The MOP is an internal document of the committee for its own guidance. The MOP, and revision thereto, following approval by the committee, shall be submitted to Technology Council or designated council subcommittee for approval. (ROB 520-106-001)

Proposed RAC MOP and ROB changes shall normally only be presented to Technology Council for approval once a year for consideration at their fall meeting. Proposed changes that RAC believes require more immediate attention shall first be presented to the chair of Technology Council for permission to submit to Technology Council.

## **TABLE OF CONTENTS**

### **APPENDICES**

- A Model Research Agreement ([ASHRAE Led Research](#))
- B Model Research Co-Funding Memorandum-of-Understanding (MOU) ([Non-ASHRAE Led Research](#))

## **SECTION B - CHAIR AND VICE CHAIR**

- B2.6 After approval of the RAC and with assistance from the MORTS, the Chair shall inform Technology Council and/or [Board of Directors \(BOD\)](#) of its recommendations for research projects and technical studies, recipients of the [Grant-in-Aid \(GIA\)](#), New Investigator award, and the Homer Addams award. Where approval by Technology Council or the BOD is required, RAC shall submit its recommendations in consensus agenda format.

## **SECTION C - EXECUTIVE COMMITTEE**

C3.3 The Chair is responsible for ensuring that a written ~~notice~~ or electronic notice of a meeting is sent to all members, ex-officio members, members of the RAC and invited individuals.

### **SECTION E - RESEARCH LIAISONS**

E1.1 A Research Liaison shall be a member of the RAC who has been designated by the Chair to liaise on research matters with Technical Committees, Task Groups, and Multidisciplinary Task Groups, and Technical Resource Groups (TCs, TGs, MTGs and TRGs), which are assigned to a Section.

### **SECTION F – RESEARCH ADVISORY PANEL**

F3.3 The Chair is responsible for ensuring that a written or electronic notice of a meeting including an agenda with support materials, be sent not less than fifteen (15) days before the date of the meeting to all members, Chair of the Research Administration Committee, and the MORTS.

### **APPENDICES:**

#### **APPENDIX A MODEL RESEARCH AGREEMENT**

#### **RESEARCH AGREEMENT**

This Research Agreement (the “Agreement”) with an effective date of XXX is between American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (the “Society”) with a principal place of business at 1791 Tullie Circle, NE, Atlanta, GA 30329 180 Technology Parkway NW, Peachtree Corners, GA 30092 and (the “Institution”) XXX, with a principal place of business at XXXX.

Whereas, the Society has indicated a desire to undertake a research project relating to “XXX; and,

WHEREAS, the Institution represents that they have the necessary knowledge, expertise and capability to perform the Services;

NOW, THEREFORE, the parties hereto, in consideration of the mutual promises and undertakings herein contained do thereby mutually promise and agree as follows:

#### **ARTICLE I - STATEMENT OF WORK**

The Institution shall perform the Services described in the proposal entitled, “~~XXXX~~,” dated ~~XXXX~~. The proposal is hereby made a part of this Agreement by reference and designated Appendix A.

#### **ARTICLE II - TYPE OF AGREEMENT**

This Agreement shall be a fixed sum contract in the amount of \$XXX which shall include, but not necessarily be limited to: actual direct labor, materials, travel, subcontracts, employee benefits, general and administrative expenses and overhead, as specified in the proposal.

ARTICLE III - PERIOD OF PERFORMANCE

The period of performance shall be from XXX to XXX unless terminated at an earlier date pursuant to the general provision of GENERAL CONDITION IX, TERMINATION, or extended to a later date in accordance with GENERAL CONDITION V, CHANGES IN SCOPE OF SERVICES.

ARTICLE IV - PAYMENTS

During the period of performance, the Society agrees to pay the sum of \$XX to the Institution in [(A)] equal installments of \$[B]. The first installment shall be paid on or within thirty days after the execution of the Agreement. Subsequent payments shall be made within thirty days of the Society's acceptance of Progress and Financial Reports described in GENERAL CONDITION IV, DELIVERABLES, during the term of the Agreement. In addition, a payment of \$XX shall be made contingent upon submission of the Final Report described in GENERAL CONDITION IV, and the final payment of \$XX shall be made contingent upon completion of all Services, the acceptance of the Final Report and the receipt of the Research ~~or Technical~~ Paper described in GENERAL CONDITION IV.

Payment of each installment, except the first and final two, shall be contingent upon receipt and acceptance, in the Society's sole discretion, of the Progress Reports described in GENERAL CONDITION IV.

ARTICLE V - COMPLETE AGREEMENT

This Agreement plus the attached GENERAL CONDITIONS I through XVII constitute the complete agreement of the parties hereto with respect to the Services listed herein and supersedes all prior statements oral or written. This Agreement may be modified only by mutual written agreement of the parties.

IN WITNESS WHEREOF, the said parties have caused their corporate names and seals to be affixed hereto by the duly authorized officers.

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

\_\_\_\_\_  
(signature)  
Name: Stephanie Reiniche  
Title: Director of Technology

\_\_\_\_\_  
(signature)  
Name: Jeff H. Littleton  
Title: Executive Vice President

Date: XX/XX/XXXX  
Title: President

\_\_\_\_\_  
Date: XX/XX/XXXX  
Jeff H. Littleton  
Title: Executive Vice President

(Seal)

INSTITUTION

(signature)

Name:

Title:

Date:

Title:

Date: XX/XX/XXXX

(Seal)

**GENERAL CONDITIONS**

**GENERAL CONDITION I - WORK PERFORMANCE**

The Institution shall perform the Services by the utilization of its best efforts, in a workmanlike manner by qualified personnel, in accordance with standard scientific and technical procedures, and practices.

**GENERAL CONDITION II - LIMITATION OF OBLIGATION**

Neither party shall be obligated to incur costs (excluding any previously agreed to shared amount) beyond those shown in ARTICLE II, unless agreed to in writing by the parties.

**GENERAL CONDITION III - DISBURSEMENTS**

The Institution agrees that disposition of the funds paid them for the Services shall be generally in accordance with that outlined in the Application for Grant of Funds previously submitted by the Institution and attached hereto. No expenditures in excess of \$1,000.00 beyond that so defined in the proposal shall be made for equipment or supplies except on written approval by the Society's Manager of Research and Technical Services.

**GENERAL CONDITION IV - DELIVERABLES**

Progress, Financial and Final Reports, Research ~~or Technical~~ Paper(s), and Data shall constitute the only deliverables ("Deliverables") under this Agreement and shall be provided as follows:

a. Progress and Financial Reports

Progress and Financial Reports, in a form approved by the Society, shall be made to the Society through its Manager of Research and Technical Services at quarterly intervals; specifically on or before each January 1, April 1, June 10, and October 1 of the contract period.

Furthermore, the Institution's Principal Investigator, subject to the Society's approval, shall, during the period of performance and after the Final Report has been submitted, report in person to the sponsoring Technical Committee/Task Group/Multidisciplinary Task Group (TC/TG/MTG) at the annual and winter meetings, and be available to answer such questions regarding the research as may arise.

b. Final Report

A written report, design guide, or manual, (collectively, "Final Report"), in a form approved by the Society, shall be prepared by the Institution and submitted to the Society's Manager of Research and Technical Services by the end of the Agreement term, containing complete details of all research carried out under this Agreement. Unless otherwise specified, ~~six~~ electronic copies of the final report shall be furnished for review by the Society's Project Monitoring Subcommittee (PMS).

Following approval by the PMS and the TC/TG/MTG, in their sole discretion, final copies of the Final Report will be furnished by the Institution as follows:

- An executive summary in a form suitable for wide distribution to the industry and to the public.  
~~Two bound copies~~
- ~~One unbound copy, printed on one side only, suitable for reproduction.~~
- Two copies on CD-ROM; one in PDF format and one in Microsoft Word.

c. Research HVAC&R Research or ASHRAE Transactions Technical Paper(s)

One or more papers shall be submitted first to the ASHRAE Manager of Research and Technical Services (MORTS) and then to the "ASHRAE Manuscript Central" website-based manuscript review system in a form and containing such information as designated by the Society suitable for publication. Papers specified as deliverables should be submitted ~~as either Research Papers for publication in the Science and Technology for the Built Environment (STBE), HVAC&R Research or Technical Paper(s) for ASHRAE Transactions. Research papers contain generalized results of long term archival value, whereas technical papers are appropriate for applied research of shorter-term value, ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects.~~ The paper(s) shall conform to the instructions posted in "Manuscript Central" for ~~an ASHRAE Transactions Technical or Science and Technology for the Built Environment HVAC&R Research~~ papers. The paper title shall contain the research project number (XXXX-RP) at the end of the title in parentheses, e.g., (XXXX-RP). ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects unless explicitly approved by a vote of the PMS and TC and communicated to MORTS. Conference paper(s) shall conform to the instructions posted in "Manuscript Central" for ASHRAE Conference papers and the title shall contain the research project number at the end of the title in parentheses, e.g., (XXXX-RP).

All papers or articles prepared in connection with an ASHRAE research project, which are being submitted for inclusion in any ASHRAE publication, shall be submitted through the Manager of Research and Technical Services first and not to the publication's editor or Program Committee.

d. Data

Data is defined in General Condition VI, "DATA".

e. Project Synopsis

A written synopsis totaling approximately 100 words in length and written for a broad technical audience, which documents 1. Main findings of research project, 2. Why findings are significant, and 3. How the findings benefit ASHRAE membership and/or society in general shall be submitted to the Manager of Research and Technical Services by the end of the Agreement term for publication in ASHRAE Insights.

The Society may request the Institution submit a technical article suitable for publication in the Society's ASHRAE JOURNAL. This is considered a voluntary submission and not a Deliverable. Technical articles shall be prepared using dual units; e.g., rational inch-pound with equivalent SI units shown parenthetically. SI usage shall be in accordance with IEEE/ASTM Standard SI-10.

GENERAL CONDITION V - CHANGES IN THE SCOPE OF SERVICES

The Society or the Institution may, at any time, by written request suggest changes to the scope of Services, including but not limited to (a) revising, adding or deleting from the Services, or (b) revising the period of performance. Such request will be incorporated into this Agreement by mutual consent in writing. If any changes in the Scope of Services result in an increase or decrease in the total cost for the Services, the fixed sum described in ARTICLE II will be adjusted before such change becomes effective.

GENERAL CONDITION VI - DATA

The Institution agrees to maintain true and complete books and records, including but not limited to notebooks, reports, charts, graphs, analyses, computer programs, visual representations etc., (collectively, the "Data"), generated in connection with the Services. Society representatives shall have access to all such Data for examination and review at reasonable times. The Data shall be held in strict confidence by the Institution and shall not be released to third parties without prior authorization from the Society, except as provided by GENERAL CONDITION VII, PUBLICATION. The original Data shall be kept on file by the Institution for a period of two years after receipt of the final payment and upon request the Institution will make a copy available to the Society upon the Society's request.

GENERAL CONDITION VII - PUBLICATION

The intent of the parties is to make the results of the Services available to, and for the benefit of, the public. In view of their financial support of the Services, the Society shall own the exclusive rights to publication of all Data, Research ~~or Technical~~ Papers, Progress, Financial and Final Reports resulting from the project for the shortest of the following periods:

- a. Until the Society gives the Institution written permission to publish the results, or
- b. Until the Research ~~or Technical~~ Paper described in GENERAL CONDITION IV, DELIVERABLES, is published, at which time the paper or derivative paper based on data resulting from the Services, may be published by the Institution with acknowledgement to the Society, or
- c. Until the period of one year has passed from the submission of said Research ~~or Technical~~ Paper to the Society at which time the paper or derivative paper based on data resulting from the Services, may be published by the Institution with acknowledgement to the Society,

Prior to publication by either party, the Institution may catalog and place theses or reports of the Services in the Institution's library for research and reference purposes.

The cooperative character of the investigation shall be recognized in each text, on the title page or on the cover of the Final Reports, Research ~~or Technical~~ Papers or other published accounts of the Services by including the following annotation: “Results of Cooperative Research between the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., and ~~{Name of InstitutionXXXX}~~.”

Prior to the Institution’s offering for sale or distribution any book, manual, guide, software, or other such product of commercial value created in connection with the Services, the Institution and/or the Principal Investigator shall enter into a royalty or publication agreement with the Society.

The Institution may not use the ASHRAE name or logo in any manner which may imply the Society's endorsement of any publication or software resulting from the Services without prior written permission from the Society.

#### GENERAL CONDITION VIII - PATENTS

The Institution agrees to promptly disclose any patentable or copyrightable inventions resulting from the Services to the Society and will assist the Society in seeking a patent(s) with respect to such inventions. Alternatively, the Society may permit the Institution to seek a patent provided: (i) the Institution executes all documents necessary to obtain such patent; (ii) the Institution grants to the Society, a worldwide, non-exclusive, irrevocable, sublicensable, royalty-free license use for any purpose, the patent work; and (iii) the Institution shares its net income from such patent(s) with the Society in the portions 40% to the Society and 60% to the Institution.

#### GENERAL CONDITION IX - TERMINATION

The Society shall have the right to terminate this Agreement upon 30 days' notice in writing to the Institution for any reason. If the Society exercises this termination right, the Institution agrees to stop all work to the extent specified in the notice and incur no further expenses beyond those authorized in such notice.

Likewise, the Institution shall have the right to terminate this Agreement upon 30 days' notice in writing to the Society for any reason. If the Institution exercises this termination right, the Institution agrees to stop all work immediately upon the date notice is given, except to the extent authorized by the Institution.

In the event of termination by either party, the Society will determine, in consultation with the Institution, the portion of the fixed sum earned to the date of termination. The Institution agrees, upon the Society’s request, to complete the portion of the Services initiated prior to the notice of termination. The Society will pay the Institution for such Services and any agreed upon expenses up to the fixed sum of the Agreement stated in Article II, “TYPE OF AGREEMENT.” Expiration, cancellation or termination of the Agreement under any circumstances will in no way be construed as a restriction, limitation or waiver of either party’s rights to pursue any additional remedy (ies) at law or equity.

#### GENERAL CONDITION X - KEY PERSONNEL

The Institution agrees to assign the persons listed in the proposal to perform the Services for the time period and at the level of activity stated in the proposal. Should, for any reason, one or more of these persons be unavailable to carry out the assignment, the Institution shall, with prior approval of the Society, replace them

with a person(s) of equal abilities and qualifications.

#### GENERAL CONDITION XI - STATUS, ASSIGNMENT

The Institution's status under this Agreement shall be that of an independent contractor and not that of an agent or employee. The Institution shall have no right or power to enter into any contract or commitment on behalf of the Society. The parties acknowledge that the identity and expertise of the Institution were and continue to be material circumstances upon which the Society relied in entering into this Agreement, and therefore this Agreement is not assignable by the Institution without the prior written consent of the Society.

#### GENERAL CONDITION XII - COPYRIGHT INFRINGEMENT

The Institution represents and warrants to the Society that any and all materials to be prepared under this Agreement for the Society do not and will not infringe upon the copyright, patent, or license or otherwise violate the proprietary rights of any person or entity. The Institution hereby agrees to indemnify and hold the Society harmless from and against all liability, loss, damage or injury and reasonable costs and expenses (including reasonable attorneys' fees and costs of any investigation or suit related thereto, and of any judgment under any such suit satisfying any claim described herein) arising from: (i) any misrepresentation by, or breach of the representations and warranties given by, the Institution herein, or from a breach of any covenant or warranty of the Institution contained in this Agreement, or from any misrepresentation in or omissions from any other instruments, or any breach of any covenant or warranty in any instrument, furnished or to be furnished by the Institution hereunder; or (ii) from any suit, action, proceeding, claim or investigation pending or threatened against or affecting the Institution or the Society which alleges any such infringement.

In the event there is such a claim, the Institution agrees to: (i) procure for the Society the continuing right to use of the material without restriction; (ii) replace the material which is the subject of an infringement claim with material of equal suitability, in the opinion of the Society, for the use to which the infringing material was used; or (iii) modify the material which is the subject of the infringement claim so that it is no longer subject to such a claim.

#### GENERAL CONDITION XIII - INSURANCE

The Institution hereby represents and warrants to the Society, and agrees hereby to furnish the Society with a certificate proving compliance therewith, that it is presently conducting its business so as to comply in all respects with all applicable statutes, ordinances, rules, regulations and orders of any governmental authority with regard to Workers' Compensation Insurance coverage. Such coverage may take the form of a certificate of workers' compensation or proof of self-insurance.

The Institution covenants and agrees to purchase and maintain, during the term of this Agreement Employer's Liability Insurance ("Insurance") in a minimum amount of One Million Dollars (\$1,000,000) for the injury or death of any one employee. The terms of such Insurance shall provide that the Society receive 30 days' written advance notice prior to the cancellation, termination, alteration or material change of any such Insurance coverage.

The Institution shall, at its own expense, purchase and maintain during the performance of this Agreement, Comprehensive Automobile Liability and Comprehensive General Liability Insurance with coverage and in such minimum amounts as provided below:

1. Comprehensive Automobile Liability insurance shall include coverage for owned, hired and non-owned vehicles and shall not be in an amount less than Three Hundred Thousand Dollars (\$300,000) combined single limit for any one occurrence.

2. Comprehensive General Liability insurance shall include coverage for personal injury, bodily injury and property damage for Premises-Operations, and Products/Completed Operations Hazard. The amount of such insurance shall not be in an amount less than One Million Dollars (\$1,000,000) combined single limit for any one occurrence.

All insurance policies referred to herein shall include, by endorsement to the policy(ies), the Society as an "additional insured." The Institution shall incur the cost of any and all premiums and endorsements related to all types of insurance described herein.

Evidence of the coverage for each type of insurance described herein shall state that coverage provided is primary and is not excess or contributing with any insurance or self-insurance maintained by the Institution.

The Society shall have the right to inspect or obtain a copy of the original policy(ies) of insurance. The Institution shall, if requested, furnish the required certificates and endorsements to the Society prior to commencing performance of the Services described herein. All insurance certificates, endorsements, cancellations, terminations, alterations and material changes of such insurance shall be issued and submitted to the following:

Manager of Research and Technical Services  
ASHRAE, Inc.  
~~1791 Tullie Circle, NE~~ 180 Technology Parkway NW  
Peachtree Corners, Atlanta, GA 3009230329

#### GENERAL CONDITION XIV - INDEMNIFICATION

In connection with any and all third party actions, losses, claims, demands and damages arising in connection with the performance of this Agreement.

- A. The Society agrees to indemnify and hold harmless the Institution, from and against any and all losses, claims, demands, and damages that may arise by reason of any acts or omissions on the part of the Society, its agents or employees, in performance of this Agreement, and shall assume full responsibility for the defense thereof, and upon its failure to do so on upon proper notice, the Institution reserves the right to defend such action and to charge all costs to the Society.
- B. The Institution agrees to indemnify and hold harmless the Society, from and against any and all losses, claims, demands, and damages that may arise by reason of acts or omissions on the part of the Institution, its agents, employees, contractors and subcontractors, in performance of this Agreement, and shall assume full responsibility for the defense thereof, and upon its failure to do so on proper notice, the Society reserves the right to defend such action and to charge all costs to the Institution.

#### GENERAL CONDITION XV - REPRESENTATIONS

Standard of Care. The Institution represents that it is knowledgeable and experienced in research services and possesses the necessary expertise, facilities, and legal right to provide the Services contemplated hereunder. The Institution represents to the Society that the Services shall be performed in a workmanlike manner consistent with the standards of care, diligence, and skill ordinarily exercised by similar professional research

institutions.

Laws and Regulations. The Institution represents and certifies that in the performance of the Services it is familiar with, understands and will comply with all applicable statutes, rules, regulations, orders, judgments, directives or other governmental requirements of the United States and of any state or political subdivision or of any foreign nation, jurisdiction, or subdivision where the Services will be conducted, including, without limit, licensing and certification requirements, laws and regulations designed to protect human and animal test subjects, environmental laws, health and safety laws, worker health and safety laws pertaining to labor wages, hours and other conditions of employment. The Institution shall obtain and/or will obtain all permits, licenses, or other forms of documentation required to provide the Services for the Society in compliance with said laws. The Institution shall furnish the Society with certification of compliance with applicable permits and licenses prior to performing the Services. Where appropriate, the Institute shall certify that it complies with all the Department of Health and Human Services (National Institute of Health [NIH]) guidelines regarding use of human and animal subjects in research and that an approved animal or human subjects Board has assured compliance for the Services.

GENERAL CONDITION XVI - WARRANTY

The Institution warrants that all Services performed under this Agreement shall conform to the specifications described in the proposal referenced in Article I, Statement of Work, and the Society shall provide the Institution notice of any non-conformance as soon as practicable after discovery of such non-conformance. Institution shall promptly correct, at no additional charge to Society, any such non-conformance caused in material part by the Institution’s acts or omissions.

GENERAL CONDITION XVII - MISCELLANEOUS

- a. Notices. All notices or other communications required to be given hereunder must be in writing and delivered either personally, by facsimile with electronic confirmation, by overnight courier or by U.S. mail, certified, return receipt requested, postage prepaid, and addressed as provided in this Agreement or as otherwise requested in writing by the receiving party. Notices delivered personally will be effective upon delivery and notices delivered by facsimile, overnight courier or U.S. mail will be effective upon their receipt by the party to whom they are addressed.

If to Society:

ASHRAE, Inc.  
180 Technology Parkway NW1791 Tullie Circle, NE  
Peachtree CornersAtlanta, GA 3009230329  
 Attn: Steve HammerlingMichael Vaughn

If to Institution:

XXXXX  
XXXXX  
XXXXX

- b. Governing Law. This Agreement will be governed by and construed and enforced in accordance with the laws of the State of Georgia, without regard to any conflicts of laws principles applied in that state.
- c. Severability. In the event any provision of this Agreement or any part thereof is declared invalid or

unenforceable by a final judgment or decree of a court of competent jurisdiction from whose decision no appeal is taken, or a decree of a competent governmental agency, all other sections, provisions and parts of this Agreement, and the application of such provision in any other circumstances, shall remain in full force and effect.

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

\_\_\_\_\_  
(signature)

Name: Jeff H. Littleton

\_\_\_\_\_  
Date:

Jeff H. Littleton

Title: —Executive Vice President

Date: XX/XX/XXXX

INSTITUTION

\_\_\_\_\_  
(signature)

Name:

\_\_\_\_\_  
Date:

Title:

Date: XX/XX/XXXX\_\_\_\_\_

**APPENDIX B** MODEL RESEARCH CO-FUNDING MEMORANDUM-OF-UNDERSTANDING  
(MOU) NON-ASHRAE RESEARCH

<Lead Research Organization> and ASHRAE  
MEMORANDUM OF UNDERSTANDING  
<Project Identifier> Support  
<Date>

This Memorandum of Understanding ("MOU") serves as an Agreement ("Agreement") between the <Name and address of lead research organization> and the American Society of Heating, Refrigerating, and Air-Conditioning Engineers Inc. (ASHRAE; 1791-180 Technology Parkway NW, Peachtree Corners, GA 30092 Tullie Circle, NE, Atlanta, GA 30329) in support of ASHRAE research project <Project Identifier and title>.

**1. FUNDING SUPPORT**

For the effort to be awarded and contracted by <Lead Research Organization>, ASHRAE shall provide funding support in the amount of X thousand, X hundred and X dollars (\$XX,XXX). Payment will be made to <Lead Research Organization> in two (2) equal payments:

- ASHRAE shall pay <Lead Research Organization> X thousand, X hundred and X dollars (\$XX,XXX) within 30 days of execution of this MOU and ASHRAE receipt of an <Lead Research Organization> invoice for payment,
- ASHRAE shall pay <Lead Research Organization> the balance of X thousand, X hundred and X dollars (\$XX,XXX) within 30 days of ASHRAE's receipt of the <Lead Research Organization> approved final report (see item 4 below) and an <Lead Research Organization> invoice for payment.

**2. PROJECT MANAGEMENT**

<Lead Research Organization> shall maintain management control and oversight of the project. It is understood and agreed that an ASHRAE designated representative will be included on the Project Monitoring Subcommittee with responsibility for managing <Project Identifier>.

**3. SUSPENSIONS AND TERMINATIONS**

ASHRAE shall have the right to terminate this Agreement without prejudice if the effort is prematurely terminated or the <Lead Research Organization> approved final report is not received by <Project Completion Date>.

**4. REPORTS**

<Lead Research Organization> shall retain the sole copyright to any and all reports resulting from the project.

After approval for release of the report(s) by Project Monitoring Subcommittee, <Lead Research Organization> shall extend to ASHRAE a nonexclusive right to publish, reproduce, duplicate and use such report(s) providing that the <Lead Research Organization> copyright notice is included on all copies of the report(s) distributed by ASHRAE. Also, ASHRAE may allow others to publish, reproduce, duplicate and use such report(s) providing that the <Lead Research Organization> copyright notice is included on all such copies of the report(s). ASHRAE agrees that when the report(s) is (are) used by ASHRAE, and reproduced for forwarding to others, that

the reports shall be reproduced in full and will include all public notices, acknowledgments, and warnings. ASHRAE warrants that it shall distribute the report(s) to interested parties at a charge to recipients that does not exceed reasonable out-of-pocket costs for copying, handling, and postage. However, except as provided above, publication of these report(s) in technical journals or other publications, whether in whole or in part, is not authorized without the expressed prior consent of <Lead Research Organization>.

<Lead Research Organization> shall provide ASHRAE with one (1) single-sided, non-bound, pseudo-original of the report for said purposes. Two copies of the electronic document shall also be delivered electronically ~~or on CD-ROM~~ that integrates all text, figures, tables, photographs, etc. into 1) a single-file Microsoft Word document and 2) into a single-file Adobe Acrobat PDF document.

**ACKNOWLEDGMENT OF SUPPORT**

In the acknowledgment section of the report, a line will be added to reflect that a portion of the project support monies were contributed by ASHRAE.  
This project was supported, in part, by the ASHRAE.

**6. DATA AND PATENT RIGHTS**

Technical data developed under this program are considered the valuable property of <Lead Research Organization>. It is expected that <Lead Research Organization> will allow results arising from this effort to be incorporated into the pertinent sections of the ASHRAE Handbooks. <Lead Research Organization> reserves the right to control data release until approved for release by Project Monitoring Subcommittee.

**7. ENTIRE AGREEMENT**

This Agreement, and all other exhibits and attachments expressly incorporated into the Agreement, as the same may be amended or modified in writing, constitutes the entire Agreement between the parties and superseded all prior understandings, transactions, communications and writings with respect to the matters referred to therein.

The terms outlined in this Agreement may not be modified or terminated orally. No modification or termination, nor any claimed waiver of any of the provisions hereof, shall be binding unless in writing and signed by the party against whom such modification, termination or waiver is sought to be enforced. Such notification shall be directed to the signatories of this Agreement.

< Lead Research Organization>

American Society of Heating,  
Refrigeration and Air-Conditioning  
Engineers, Inc.

By:  
(Signature)

By: .....  
(Signature)

(Name)  
(Title)  
(Date)

Jeff Littleton  
Executive Vice President  
(Date)



**REFERENCE MANUAL**

**for**

**RESEARCH ADMINISTRATION  
COMMITTEE**

**REVISED: ~~25XX-02XX-12-XX~~**

## REVISION HISTORY

Revised XX-XX-XX Changes to GIA to allow for attendance to any ASHRAE Technical Conference.  
Changes references to Technical Paper deliverable  
Various editorial changes

Revised 25-02-12	Changes to Appendix I - Procedure for Service to ASHRAE Research Award
Revised 23-06-30	Include Conflict of Interest
Revised 14-10-1	Changed Appendix H - Procedure for Service to ASHRAE Research Award Award submission date changed from September 30 <sup>th</sup> to September 1 <sup>st</sup>
Revised 14-7-1	Added Section A3.1.11 Updated Appendix B – ASHRAE Research Project Analysis – Criteria A
Revised 16-10-1	Added new Appendix C Executive Session Report Example and re-lettered subsequent appendices

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**RAC Reference Manual**

This reference manual describes the present operations of RAC. It may be modified by a majority vote of RAC.

**TABLE OF ACRONYMS**

<u>BOD</u>	<u>Board of Directors</u>
<u>DAL</u>	<u>Director-at-Large</u>
<u>EHC</u>	<u>Environmental Health Committee</u>
<u>GIA</u>	<u>Grant-In-Aid</u>
<u>H&amp;A</u>	<u>Honors and Awards Committee</u>
<u>HVAC&amp;R</u>	<u>Heating, Ventilating, Air Conditioning &amp; Refrigeration</u>
<u>IRG</u>	<u>Innovative Research Grant</u>
<u>MBO</u>	<u>Management By Objectives</u>
<u>MOP</u>	<u>Manual of Procedures</u>
<u>MORTS</u>	<u>Manager of Research &amp; Technical Services</u>
<u>MTG</u>	<u>Multidisciplinary Task Group</u>
<u>NIA</u>	<u>New Investigator Award</u>
<u>PES</u>	<u>Proposal Evaluation Subcommittee</u>
<u>PI</u>	<u>Principal Investigator</u>
<u>PMS</u>	<u>Project Monitoring Subcommittee</u>
<u>RAC</u>	<u>Research Administration Committee</u>
<u>RAP</u>	<u>Research Advisory Panel</u>
<u>RAS</u>	<u>Research Activities Subcommittee</u>
<u>RFP</u>	<u>Request for Proposal</u>
<u>RIP</u>	<u>Research Implementation Plan</u>
<u>RL</u>	<u>Research Liaison</u>
<u>RP</u>	<u>Research Project</u>
<u>RSP</u>	<u>Research Strategic Plan</u>
<u>RPS</u>	<u>Research Planning Subcommittee</u>
<u>ROB</u>	<u>Rule(s) of the Board of Directors</u>
<u>RRO</u>	<u>Robert's Rules of Order</u>
<u>RTAR</u>	<u>Research Topic Acceptance Request</u>
<u>SBL</u>	<u>Society's Bylaw(s)</u>
<u>SPC</u>	<u>Standard Project Committee</u>
<u>SSPC</u>	<u>Standing Standard Project Committee</u>
<u>STBE</u>	<u>Science and Technology for the Built Environment</u>
<u>TAC</u>	<u>Technical Activities Committee</u>
<u>Tech C</u>	<u>Technology Council</u>
<u>TC</u>	<u>Technical Committee</u>
<u>TG</u>	<u>Task Group</u>
<u>TRG</u>	<u>Technical Resource Group</u>
<u>TRP</u>	<u>Tentative Research Project</u>
<u>WS</u>	<u>Work Statement</u>

**SECTION A - SUBCOMMITTEES****Part 2 Research Activities Subcommittee (RAS)****A2.1 Responsibilities**

- A2.1.1 RAS shall act for the RAC in reviewing and approving Work Statements (WS) for inclusion in requests for proposals (RFPs). Research Planning Subcommittee (RPS) members and RAC consultants shall also be encouraged to review WS and provide their comments to RAS. Appendix ~~J~~L provides the current form used to evaluate WS.
- A2.1.2 RAS shall review solicited and unsolicited proposals approved by TC/TG/~~MTG~~s and provide a recommendation to RAC on each in accordance with procedures of the RAC Research Manual.
- A2.1.3 RAS shall be responsible for maintenance of the Research Manual.
- A2.1.4 RAS shall review and recommend to the RAC procedures relating to establishing, conducting, monitoring, and completing ASHRAE research. The forms used in conjunction with such procedures are also the initial responsibility of RAS. These forms will be included in the Research Manual.
- A2.1.5 RAS shall encourage innovative research through the ASHRAE Innovative Research Grant Program by reviewing invited full proposals once per year (See Appendix ~~HF~~s). Conflict of Interest Guidelines can be found in Appendix D.
- A2.1.6 RAS shall be responsible for maintenance of the standard RP final report cover (See Appendix ~~L~~N).

**Part 3 Research Planning Subcommittee (RPS)****A.3.1 Responsibilities**

- A3.1.1 RPS shall strive to increase the dissemination of the results of ASHRAE sponsored research in the international community.
- A3.1.2 RPS shall consider and rank all grant-in-aid (GIA) applications at the Winter Meeting and provide recommendations for funding to RAC based on the procedures, criteria, and scoring shown in Appendix ~~CE~~s. The MORTS shall identify and report to the most appropriate TC/TG/~~MTG~~s the research project of each GIA.
- A3.1.3 RPS shall recommend the recipient of the Homer Addams Award to the RAC. An approved recommendation from RAC will be forwarded to the Honors and Awards Committee for their approval. (See Appendix ~~FD~~s)
- A3.1.4 RPS shall recommend the recipient of the New Investigator Award (NIA) to RAC. (See Appendix ~~EG~~s)
- A3.1.5 RPS will annually review all eligible nominations received and make a recommendation to the RAC for its consideration on the “Service to ASHRAE Research Award” recipient based on the procedures in Appendix ~~HJ~~s.

- A3.1.6 RPS will as required view for consistency all RAC sponsored awards against Honors and Awards Committee's Guidelines for Awards (see Appendix ~~GI~~). Conflict of Interest Guidelines can be found in Appendix D.
- A3.1.7 RPS shall recommend to RAC changes in the descriptions, procedure, and applications for the GIA, Homer Addams, NIA, and Service to ASHRAE Research Awards (Appendices ~~EC~~, ~~DF~~, ~~EG~~, and ~~HJ~~). RAC in turn ~~would~~ shall pass on to the Society Honors and Awards Committee for approval any proposed changes to the criteria and evaluation procedures of the Service to ASHRAE Research Award and Homer Addams Award; Both of these awards are Society level awards administered by the Honors and Awards Committee and are handled as pass-through awards through RAC for the recipient selection.
- A3.1.8 At each meeting, all submitted RTARs will be reviewed by RPS and either approved, returned, or rejected. RTARs approved by RPS will be submitted to RAC for full committee approval. Research Activities Subcommittee (RAS) members and RAC consultants shall also be encouraged to review RTARs and provide their comments to RPS. Appendix ~~KI~~ provides the current form used to evaluate RTARs.
- A3.1.9 RPS shall review, evaluate, and develop recommendations for RAC action in any area specifically assigned to RPS by the RAC.
- A3.1.10 RPS shall encourage innovative research through the ASHRAE Innovative Research Grant Program by reviewing submitted pre-proposals once per year (See Appendix ~~HF~~).
- A3.1.11 RPS shall be responsible for evaluating opportunities to co-fund research projects led by other non-profit organizations and for providing a recommendation to RAC. Input will be sought for each opportunity by RPS from appropriate TC/~~TG~~/~~MTG~~s to better determine the value of the proposed research to ASHRAE and to avoid duplication of effort.

## **SECTION B - RESEARCH LIAISONS**

### Part 1 Selection

- B1.1 A Research Liaison shall be a member of the RAC who has been designated by the Chair to liaise on research matters with TCs, TGs, and MTGs ~~w/~~ with research authority which are assigned to a Section, as well as SSPCs, and other committees authorized to sponsor research projects.

### Part 2 Organization

- B2.2 The programs of the RAC are divided into ~~ten~~ eleven (11) Sections as follows:

### Part 4 Specific Responsibilities

- B4.3 Tasks Expected of Research Liaisons

## RAC Reference Manual

- B4.3.6. At the completion of the research project, ensure that the sponsoring TC/TG/MTG acts promptly on the approval of the final report and ~~technical-research~~ paper(s). If the research is of particular interest to a wide range of ASHRAE members, encourage the TC/TG/MTG to obtain an article for the ASHRAE Journal. Make sure that the TC/TG/MTG completes the Disposition of ASHRAE Research Form (see Research Manual) and submits it to the MORTS.
- B4.3.8 At the completion of the research project, the Research Liaison will remind and encourage the sponsoring TC/TG/MTG and project principal investigator (PI) to consider taking advantage of the ASHRAE Research – International Dissemination Travel Grant Program (see Appendix ~~KM~~) to help promote and disseminate the project results to a world-wide audience.

**APPENDIX B**

**ASHRAE RESEARCH PROJECT ANALYSIS**  
 (Completed by Staff [Month Year] )

Project Number & Title: (Project # same as RTAR and WS assigned by MORTS)

Responsible TC/TG/MTG/SSPC:

Justification of Need:

Work Statement Authors:

Research Strategic Plan Goals Applicable to this Research:

RTAR Submitted

Position on Implementation Plan:

Coordinated with TC/TG/MTG/SSPC:

Relates to Previous Project:

Vote of TC/TG/MTG/SSPC:

Vote of RAC:

Vote of RAS:

Vote of Tech Council:

Allocation of ASHRAE Funds Per Fiscal Year

<u>20XX-20XX</u>	<u>20XX-20XX</u>	<u>20XX-20XX</u>
\$	\$	\$

CRITERIA A: Best Value for ASHRAE:

Was the lowest cost **responsive** bid selected? **TBD** If YES, then go to CRITERIA B.

If NO, then all four of the following conditions should be satisfied for the recommended bidder to be approved:

- 1) The recommended proposal has the lowest cost to ASHRAE per point (\$/point - using average score) among all **responsive** proposals - **TBD**
- 2) The average proposal score is five points or more higher than the average score for the lowest-cost **responsive** proposal - **TBD**
- 3) The proposal was scored higher than the lowest-cost **responsive** proposal by at least 2/3 of the PES members **TBD**
- 4) The PES members feel selection of the higher cost recommended proposal is justified and a written explanation of their reasons has been provided - **TBD**

CRITERIA B. Actual or Perceived Conflicts of Interest:

Was the bidder selected a WS author? **TBD** If NO, then stop.

If YES, the following two additional questions should be answered as TRUE for the recommended bidder to be approved:

- 1) The selected bidder's proposal does not include material that exceeds what was requested in the WS? **TBD**
- 2) The WS does not specify unique facilities or equipment that only the selected bidder can provide? **TBD**

<u>ESTIMATED</u>	<u>XXM</u>	<u>\$XXX.XXX</u>	<u>SCORE</u>	<u>\$/POINT</u>
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**RAC/Tech Council Conflicts-of-Interest:**

**MORTS NOTES:**

Reasons Why Other Recommended or Registered Bidders Did Not Bid:

Potential Bidders:

Bids Due: December 15, 201X

Total Number of Bids:

Bidders:

PES:

Research Subcommittee Chair:

TC Recommended Contractor: TBD

P.I. & Track Record(s):

1. XXXXX

XXXXXX,

Other Key Personnel:

XXXX-

Subcontractor: None

Proposal Evaluation Criteria Used:

Proposals will be evaluated according to the following criteria:

**APPENDIX DE**

**ASHRAE GRADUATE STUDENT GRANT-IN-AID DESCRIPTION,  
APPLICATION REQUIREMENTS, AND SELECTION CRITERIA**

Overview of Award

A Grant-in-Aid is a grant of funds to a full-time graduate student of ASHRAE-related technologies. It is awarded once each year for use in the following academic year.

**Past recipients of this award are NOT eligible to reapply for this award.**

Multiple awards (typically 10 to 25) are made each year in the amount of up to \$10,000. The awards are meant for the students' personal use while pursuing an HVAC&R related education. The goal of the Grant-In-Aid program is to encourage outstanding graduate students to become involved in ASHRAE, its research and establish careers that include active engagement within and continued contributions to Society activities. Part of the award will be used to pay for the student's travel and registration for one Society Winter or Annual meeting, or any ASHRAE sponsored Topical Conference within the 18 months following notification of award. An award in the amount of \$5,000 will be paid upon confirmation of the student's enrollment. An additional \$5,000 shall be paid upon receipt of a report prepared by the awardee documenting his/her attendance at one of the next three ASHRAE Society meetings or ASHRAE sponsored Topical Conference following the award; these funds will be retained by ASHRAE if the awardee does not attend one of these meetings.

In addition, grant-in-aid recipients are eligible for an additional \$1,500.00 honorarium if they author and present a peer-reviewed paper at an ASHRAE Annual or Winter meeting or ASHRAE sponsored Topical Conference, or submit an article that is published in the Science and Technology for The Built Environment. The presentation or publication must be based on the thesis/research supported by the grant-in-aid. The honorarium will be paid by the Manager of Research and Technical Services (MORTS) to the GIA recipient upon confirmation of presentation or publication of the paper.



Date \_\_\_\_\_

**Information on Applicant (to be filled out by applicant)**

**Past recipients of this award are NOT eligible to reapply for this award.<sup>i</sup>**

Submit electronic pdf copy of completed application along with "official transcripts" to: ~~Michael Steve Hammerling Vaughn~~ – MORTS,

\_\_\_\_\_ [MORTS@ASHRAE.net](mailto:MORTS@ASHRAE.net), and Donna Daniel, ~~Research Assistant Manager of~~   
~~Research Administrator~~, [ddaniel@ashrae.org](mailto:ddaniel@ashrae.org)

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APPENDIX ~~FE~~**HOMER ADDAMS AWARD**

This award is named for Homer Addams, a founder and past president of ASHVE, which is a predecessor of ASHRAE. His bequest makes possible the annual award of \$5000 and a certificate to a current or former graduate student who has been engaged in an ASHRAE research project within the past two years. The basis for the award will be an evaluation of ASHRAE Transactions ~~and HVAC&R~~ Science & Technology in the Built Environment (STBE) Research papers that have been published within the prior ASHRAE Society year (July 1 to June 30) and that were deliverables from ASHRAE sponsored research projects.

In August of each year the ASHRAE Manager of Research & Technical Services (MORTS) identifies papers published within the previous society year that were deliverables from ASHRAE research projects and where the primary contributing author was a graduate student who was supported through ASHRAE funds within the past two Society years. In September, MORTS contacts the advisors for each of the graduate students and requests a letter of recommendation. The letter should confirm the student's prominent role in the paper and provide an assessment of the overall quality of the research and performance (including submitting an official copy of the most recent academic transcripts from the University) of the student, as well as the student's potential for contributing to ASHRAE in the future. Prior to the winter meeting, the MORTS forwards the papers, recommendations, and names of the graduate students to the Research Planning Subcommittee (RPS) of the Research Administration Committee (RAC).

At the ASHRAE Winter Meeting, the RPS recommends the name of the recipient to RAC. Following approval by RAC, the name is submitted to the Honors and Award Committee (HAC) for final approval. The recipient is notified and the award of \$5000 is made at the following Annual Meeting. Funding for the award is provided by funds administered by both HAC (\$1500) and RAC (\$3500).

APPENDIX ~~GF~~**ASHRAE NEW INVESTIGATOR AWARD**Support and Commitments:

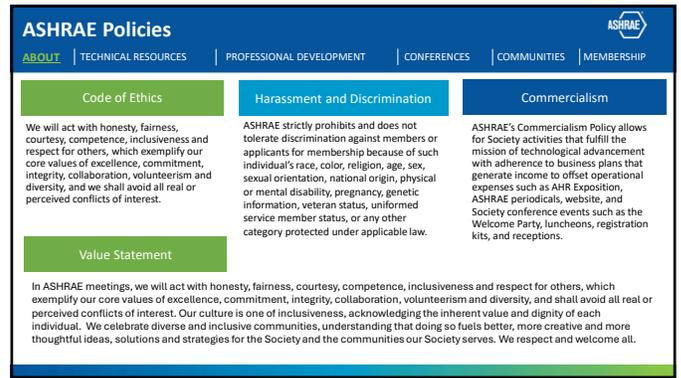
An ASHRAE New Investigator Award carries a base grant of \$50k per year in the first two years with an additional award of \$25K available in the 3rd year if it is matched by an industrial contributor. The maximum award from ASHRAE would be \$125K and the maximum available to the recipient would be \$150K. It should be noted that the university should not use the award for overhead/indirect costs. The award should only be used for direct costs associated with the NIA recipient research. The industrial support must be from industries engaged in activities related to ASHRAE's areas of interest. New Investigators who transfer at any time, prior to or during the period of their grant, to institutions that do not meet the institutional eligibility criterion must resign their awards.

The research project undertaken by the award is assigned to an ASHRAE Technical Committee or Task Group (TC or TG). The awardee is expected to attend the annual and winter ASHRAE meetings for the first year of the award and to present an informal report at the sponsoring TC or TG meeting. In addition, the research resulting from this award will submitted as a Research paper to the Science and Technology in the Built Environment (STBE) and be presented at ASHRAE meetings ~~as a Technical paper~~. The research may also be presented and published elsewhere later as appropriate.

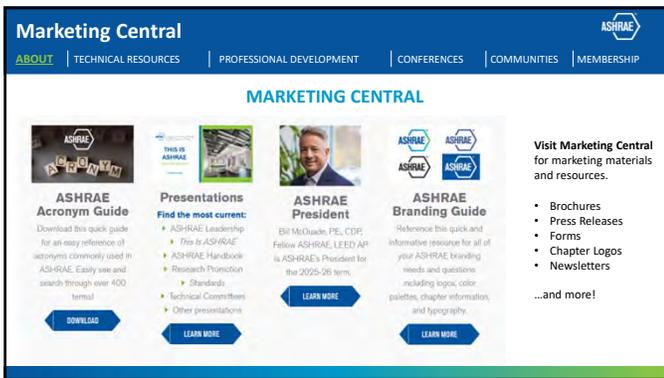
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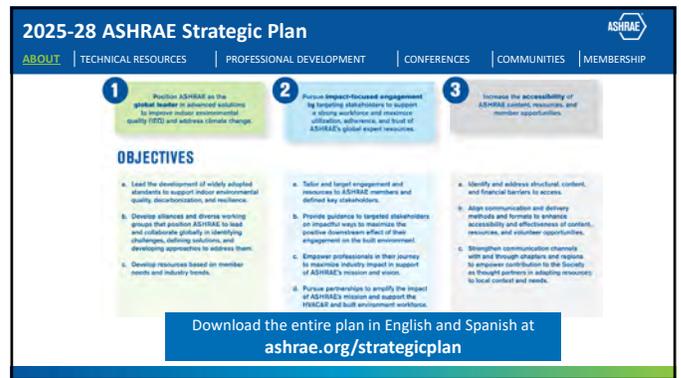
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**RP and ASHRAE Foundation: Supporting ASHRAE's Mission**

ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | CONFERENCES | COMMUNITIES | MEMBERSHIP

**Fundraising Totals for SY 2024-25**

<p><b>RP Campaign Total</b></p> <p>↑ <b>\$2,824,181</b></p> <p>Within the RP Campaign</p> <p><b>\$1,977,286</b> For Research</p> <p><b>\$494,487</b> For Endowed Research</p> <p><b>\$257,081</b> For Scholarships</p> <p><b>\$95,078</b> For YEA, ALI and other Programs</p>	<p><b>\$4.825M</b></p> <p><b>ASHRAE Awarded Scholarships</b></p> <p><b>40</b> Endowed Chapter Scholarships</p> <p><b>39</b> Society Student Scholarships</p>	<p><b>ASHRAE Foundation</b></p> <p>↑ <b>\$1.95M</b> In New Endowments</p> <p><b>College of Fellows</b></p> <p><b>\$5,000</b> Total Raised</p> <p><b>Life Members Club</b></p> <p><b>\$46,000</b> Total Raised</p>
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More than 4,500 contributions from Members, Organizations and other Associations

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**Center for Excellence in Building Decarbonization (CEBD)**

ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | CONFERENCES | COMMUNITIES | MEMBERSHIP




- **Streamlined, Flexible International Building Code Framework**
  - ✓ Framework completed & rolled out at 2025 Decarb Conf
  - ✓ First country session held in Kenya (Brazil & India are planned)
  - ✓ Developed Building Code Strategy Game for Chapters
- **Research, standards & guide projects moving forward**
  - ✓ AI Data Center Framework
  - ✓ Decarb Strategies for Supermarket Industry Archetypes Guide
  - ✓ Update HVAC Equipment Service Life Data
  - ✓ Whole Life Carbon Gap Analysis
  - ✓ Whole Building/MEP Benchmarking Data Research
  - ✓ Whole Life Carbon Calculation Guide for Building Systems
  - ✓ Refrigerant Emissions Management, Tracking, and Compliance
- **Training content expanded (Guides & Online Training)**
- **Five strategic initiatives w/draft actions presented in Las Vegas**

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**Standards & Guidelines**

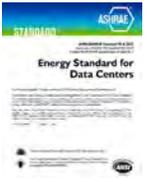
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**New Standards**









**Coming Soon!** ASHRAE Standard 244: Sustainability Assessment for Mechanical, Electrical, and Plumbing Products

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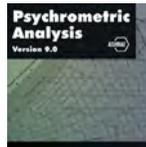
**ASHRAE Bookstore**

ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | CONFERENCES | COMMUNITIES | MEMBERSHIP

Get the Latest and Greatest Publications & Downloads









Visit the ASHRAE Bookstore in Palace Ballroom I Emperors Level, and at the AHR Expo

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**Professional Development**

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**eLearning**

Updated Course



**Standard 90.1-2022 Changes Over Time**

**ASHRAE Learning Institute**

Free Publication



Register for ALI's Live Virtual Training and receive a FREE ASHRAE Standard or Guideline!

**Certification**

Record Application Total SY 2025



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**Professional Development**

ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | CONFERENCES | COMMUNITIES | MEMBERSHIP

**Farr and Setty Family Foundation Funds Scholarships for ALI, AGT, and eLearning Registrants**

ASHRAE Members in their **first 5 years** of membership get **35% off** one ALI, AGT, or eLearning course, thanks to support from the Farr and Setty Family Foundation Funds!

- ✓ One-time use per Society Year
- ✓ Apply 3 weeks before your course
- ✓ Must include a chapter officer's support letter

**Where to apply?** Check the page of the course you're interested in for an application.



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### 2026 Topical Conferences

ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | **CONFERENCES** | COMMUNITIES | MEMBERSHIP

- Los Angeles, CA, April 13-14, 2026  
**2026 Women in ASHRAE Leadership Symposium**
- Varanasi (Kashi), Uttar Pradesh April 24-25, 2026  
**Fourth ASHRAE Developing Economies Conference**
- Seattle, WA, September 23-25, 2026  
**2026 ASHRAE Building Decarbonization Conference**
- Beirut, Lebanon, October 8-9, 2026  
**Seventh International Conference on Efficient Building Design**
- Kuwait University City, Kuwait, November 16-18, 2026  
**Ninth International Conference on Energy Research and Development (ICERD-9)**

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### 2026 AHR Expo

ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | **CONFERENCES** | COMMUNITIES | MEMBERSHIP

**AHR VEGAS FEB 2-4 2026**

AHR Expo opens Monday at 10:00 AM in the Las Vegas Convention Center, Central and South Halls.

Flash your ASHRAE Conference badge for FREE entry to the Expo.

Stop by the **ASHRAE Booth C2102**

Hear **Bill McQuade, 2025-26 ASHRAE President** address the *2025 State of the Industry: Today's Market Challenges, Opportunities & What's Ahead* Tuesday, February 3 / 10:00-11:00AM  
S222 (Las Vegas Convention Center – South Hall)

**Show Times**  
Monday & Tuesday: 10AM – 6PM | Wednesday: 10AM – 4PM

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### Future Conferences + 2026 ASHRAE Annual Conference

ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | **CONFERENCES** | COMMUNITIES | MEMBERSHIP

#### Changes to Future ASHRAE Annual Conferences

The Future of ASHRAE Conferences Ad Hoc charge is to recommend a new overall Society conference strategy which specifically focuses on **changes to the typical Annual Conference**.

A recommendation will be made at the 2026 Annual Conference in Austin. Approved changes would be reflected in 4-5 years.

Join us in Austin, TX  
June 27 – July 1

Registration Opens in March

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### Nominate for Committees and Awards

ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | CONFERENCES | **COMMUNITIES** | MEMBERSHIP

#### Find Committees and Nominate Yourself or Others

- FEB 2026** **February:** Nominations for appointed committees are due.
- JUN 2026** **June:** Speak with your committee ExO/CO if your current appointment/elected position ends to be nominated for another.
- SEP 2026** **September 18:** Nominations for elected positions are due. (Publications & Education Council, Tech Council, RAC, TAC, Standards, Handbook, Nominating)

#### HONORS & AWARDS

The following awards have a **MAY 1** deadline:

- Fellow
- Honorary Member
- ASHRAE Hall of Fame
- F. Paul Anderson Award
- ASHRAE Pioneers of the Industry
- ASHRAE Award for Distinguished Public Service

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### ASHRAE Simplified Model

Learn More at [ashrae.org/2026Bylaws](http://ashrae.org/2026Bylaws)

Member Grade				Student Member Grade		Other	
Member	Young Professional	Tenured Professional	Life Service Member	Presidential Member	Student Member	Student Branch Advisor	Honorary Member
50% (+ tier discount)	FREE	90% (+ tier discount)	80% (+ tier discount)	FREE			
Anyone involved in the building sciences industry	Anyone 25 yo+ with 25 years cumulative membership	30 yr. immediate member + 5 (or 10 for 15 qualifying service points)	Served as Society President	Must be currently enrolled in university, college, junior college or technical institute	Faculty member who is ASHRAE member & must attend application and attend annual report		Any notable person of government, professional distinction & elected by the BOD
Handbook Online + Journal, HPC, Insights + Tech Portal + Member Pricing + Voting Privileges and Service as C-3A level roles + Checked to Clearinghouse	Handbook Online + Journal, HPC, Insights + Tech Portal + Member Pricing	Same as Member + waived dues, expense discounts to W&A Conferences, Invitations to VIP events (Presidential Day)	Same as Young and Tenured Professionals				Full Member Benefits if Requested
Additional New Member Benefits: Receive a Compl Winner of Annual Conference to attend in first 2 years + Handbook Online access for 1 year							

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### Proposed Dues Rates

Career and Economic discounts off main dues rate as set by the Board of Directors.

Economic discount based on country of residence as defined by the World Bank.

High Income = Tier 1, Upper Middle Income = Tier 2, Lower Middle Income = Tier 3, Low Income = Tier 4

ASHRAE Membership Dues Rate Table	Career Based Discount					
	All Others	Young Pro OR Tenured Pro	Student Branch Advisor	Student	Life Service & Honorary	
World Bank Tier 1	0%	\$290	\$145	\$60	\$30	FREE
World Bank Tier 2	20%	\$230	\$115	\$45	\$25	FREE
World Bank Tier 3	40%	\$175	\$90	\$35	\$20	FREE
World Bank Tier 4	60%	\$115	\$60	\$25	\$10	FREE

The dues rates and percentages are for illustrative purposes only, based on 2026-2027 dues rates. The Finance Committee is responsible for reviewing, recommending changes and interpreting fees, dues, and privileges. (ROB 2.408.004)

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**Timeline** Learn More at [ashrae.org/2026Bylaws](http://ashrae.org/2026Bylaws)

**COMPLETED**

- February 2025: MMAH to bring motion to the Board of Directors to approve plan. Motion will be tabled to allow for 60-day "cooling off period." **COMPLETE**
- By the 2025 May BOD Meeting: BOD to approval the final plan. **COMPLETE**
- June – November 2025: MMAH works with SRC for Bylaws amendments **COMPLETE**
- 2025 Fall BOD Meeting: BOD passed Bylaws amendment by unanimous vote.

**UPCOMING**

- 2026 Winter Conference: Bylaws amendment presented at the Meeting of the Members (Saturday Plenary Session) in Las Vegas.
- Spring 2026: Proposed Bylaws amendment on Spring Ballot
- June 28, 2026: Election closes
- By June 30, 2027: If Bylaws amendment are approved, all changes made to membership database, website, promotional materials, ROB, Committee/Council MOPs and training materials. *(One year to implement changes to various documents and reports)*
- July 1, 2027: New model implemented.



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**New Mastercard Program for Business Owners**

ABOUT | TECHNICAL RESOURCES | PROFESSIONAL DEVELOPMENT | CONFERENCES | COMMUNITIES | **MEMBERSHIP**

**Coming Soon!**  
More information on [ashrae.org](http://ashrae.org) in March 2026

**Are you an ASHRAE Member who owns a business?**

Consider applying for an ASHRAE Mastercard!

- Spend \$10,000 on your ASHRAE Mastercard within the first 90 days, and Mastercard will pay your annual ASHRAE Member dues the following Society Year.
- Up to 2.1% unlimited cash back on all purchases with autopay.
- 5% cash back on HVACR supplies and equipment.



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**Media Inquiries**



**Asked to make a statement on behalf of ASHRAE?**

Please send all media inquiries to [publicrelations@ashrae.org](mailto:publicrelations@ashrae.org) before responding to members of the press.



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**Thank you!**

**Questions or Comments?**

[ashrae.org](http://ashrae.org)



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MBO Submissions to Planning Committee

Last submission date: 2/2/2026

Generation date: 7/3/2025

Committee: Research Administration Committee

Chair: Wen Jin

Vice-chair: Charneux Roland

MBO #	Description	Metric	Completion % /Date	Financial Assist Req'd?	Staff Assist Req'd?	MBO Comments
(how do we determine success?)						
1	Update RAC MOP, Reference Manual to specify rules for formation/operation of RAP to develop research strategic plan	Updates to governing documents available on the website	6-30-2026		Yes	Request was for standing RAP subcommittee of RAC. Draft revisions to RAC guidance documents have been made but more RAC and RAP discussion is needed to define RAP's role and responsibilities outside of RSP development. <b>UPDATE:</b> RAC working with RAP to determine roles and responsibilities to incorporate into guidance documents
2	Establish a standing RTAR/WS writing mentorship program.	Potential actions: standing RTAR/WS help desk or office hour during ASHRAE meetings; Panel discussions to share the best practices; list of "all star" authors for potential review.	6-30-2026		Yes	One key issue contributing to delays in the RTAR/WS approval process is the lack of clarity and effectiveness in authors' writing. RAC often struggles to understand the significance, objectives, and overall intent of the proposed project. To address this, establishing an author mentorship program would help authors, especially first-time or inexperienced authors to improve the quality and clarity of proposals, ensuring they communicate critical information more effectively and streamline the review process. <b>UPDATE:</b> RAC is compiling a list of potential members and recruiting members at Research Breakfast. RAC also considering 'office hours' to address questions.
3	Establish a routine to review budget guidelines	Updates to governing documents available on the website	6-30-2026		Yes	We may need to raise the current budget cap from 350k to 375k to reflect the inflation. RAC can institute a policy to review this every year or couple of years to consider increasing costs to perform ASHRAE research <b>UPDATE:</b> RAC passed motion in LV to increase limit to \$450k
4	Establish a central location for all training materials.	Updates to RAC pages on ASHRAE webpage	6-30-2026		Yes	Update training materials and post current versions to ASHRAE webpage. <b>UPDATE:</b> training materials available on website and Research Subcommittee Chairs Basecamp
5	Improving RAC feedback on RTARs/WSS	Quarterly updates to TCs on RTARs, WSS. Post training and resources to ASHRAE website and Basecamp	6-30-2026			Another factor that may contribute to delays in the RTAR/WS approval process is a limited understanding of the context and key points raised during RAC's discussions. While review comments and RL communications provide some insight, they may not capture the full scope of the debate. Providing a clear and concise summary of the RAC panel discussion could help authors better understand the concerns and expectations, thereby improving their responses and reducing approval delays. There are also potential actions that we could take to help TCs and authors to take actions long-before the RTAR/WS deadlines. <b>UPDATE:</b> RAS/RPS chairs now being asked to summarize comments after discussion to develop comprehensive list of comments to be addressed for approval.
6	Identify the best mechanism to provide a data repository for RPs	Create the framework design or identify existing infrastructure.	6-30-2026		Yes	There is a need for standardized requirements or guidelines for documenting/formatting of data resulting from ASHRAE research. RAC can explore establishing 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 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:</b> Inquiry made with staff for data repository. A subcommittee is reviewing draft language from other organizations and language for ASHRAE Research Agreement
7	Establish new requirements for lay description of research projects and, best research findings from Research chairs.	Streamline reporting requirements for RPs	6-30-2026			RAC sought feedback at Research Breakfast and from RP 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 deliverables as appropriate to implement this requirement. <b>UPDATE:</b> working with RP for template slide to eventually incorporate into Research Agreement



**RESEARCH MANUAL**  
**SY 21-2225-26 EDITION**

REVISED: XX-XX-XX22-01-06

## RESEARCH PROJECT MANUAL

### OVERVIEW

The purpose of this manual is to present, in one document, all of the information and procedures needed by individuals who initiate, approve, conduct, monitor and utilize ASHRAE research.

ASHRAE has been sponsoring research to advance the arts and sciences of HVAC&R for the benefit of the public since 1919. It is a unique program that depends on voluntary funding and the many volunteers who plan and monitor the research. ASHRAE research has grown steadily over the years to the current commitment of more than ~~\$10.86~~ million for over ~~400.975~~ projects. Research findings have truly benefited our members, our industry, and the public. The Research Administration Committee (RAC) is committed to finding ways to improve the operation of the system and to focus research on those areas of technology critical to ASHRAE.

This document details all aspects of ASHRAE research projects from the strategic plan for the program to the dissemination of the information generated. Sample forms and examples of well-done documents are included.

It is intended to supplement, not supplant, the official ASHRAE documentation such as the Rules of the Board, and Manuals of Procedures.

The subject of Special Projects (projects sponsored by or co-sponsored by outside organizations) is not covered in this manual. A document entitled "Policy and Procedures for ASHRAE Special Projects" covers this subject in detail.

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[2.3 Approval Process.....X](#)  
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## **1. RESEARCH STRATEGIC PLANNING AND OVERALL APPROVAL PROCESS**

### **Research Approval Process for Projects Initiated by RTARs**

(Note: Currently, for projects up to ~~\$450k-350k~~ only approval by RAC is needed. ~~For P~~ projects between ~~\$450k-350k~~ and ~~\$250k-500k~~ require approval by both RAC and Technology Council. Projects above ~~\$250k-500k~~ require approval by RAC, Technology Council, and Board of Directors. The flowchart below will be revised to reflect the above change in the approval level required.)

## **2. DEVELOPMENT OF DESIGN GUIDES AND OTHER SPECIAL PUBLICATIONS AS RESEARCH PROJECTS**

### **2.1 Background**

ASHRAE research funding can be used to support development of publications intended for commercial sale through the ASHRAE Book Store. The intent is to rely on this funding for the development of a publication where there is an industry need and a commercial value for it and where development of the publication requires an effort beyond what can be expected from a volunteer effort. In addition, the publication should serve to disseminate prior research or otherwise be related to past or ongoing ASHRAE Research.

The Research Administration Committee (RAC) will appropriate approximately 10% of the research budget for developing guidance publications for engineers and/or researchers. The 10% number is not meant to be a strict allocation; in some years research funding for design guide development may be significantly greater or less than 10%.

### **2.3 Approval Procedure**

The procedure required to initiate a publication project is similar to the procedure required to initiate a research project. The first step in developing a funded publication project is to fill out the Publication Topic Acceptance Request (PTAR) ~~form~~ form. ~~This form includes a coversheet (Section 2.4) and outline (Section 2.5), which and~~ serves the same purpose as the RTAR form used for research projects. The information provided as part of the PTAR submission must describe the need and intended audience for the publication, describe why the effort cannot be completed through a volunteer effort, describe how the publication will serve to disseminate prior ASHRAE Research, and otherwise describe why the publication will be of value to ASHRAE. This form will be used to inform both the Research Administration Committee (RAC) and the Publications Committee (under Publishing and Education Council) of the value of this publication to the society. It is important to note that the PTAR is a necessary step and cannot be skipped because it is used to coordinate the efforts of multiple committees.

Approval of a Publication Topic is obtained by submitting a PTAR form to MORTS by May 15, August 15, or December 15 to be considered during the Annual, Fall, or Winter Meeting, respectively. MORTS will assign an ID number to submitted PTARs and forward them on to the Publications Committee through ASHRAE Editor, Special Publications. In submitting the PTAR requesting a publication, the TC

(or other ASHRAE committee) must make the case that this is appropriate for ASHRAE Research funding, as opposed to other publication funding mechanisms. The PTAR will be evaluated by the Publications Committee, who will either approve or reject it based on the evaluation criteria. If approved, it will be forwarded to the RAC for concurrence. The PTAR ~~template outline (Section 2.5)~~ and the evaluation form used by the Publications Committee and RAC ~~(Section 2.6)~~ are ~~shown~~ included at the end of this section below. Requests for unsolicited research projects for new or updates to existing publications will also be sent to Publications Committee for their evaluation and will then follow the procedures in Section 7 of the Research Manual.

Once the PTAR is approved by both the Publications Committee and RAC, the TC (or other committee) will prepare and submit a Work Statement for Publication (WSP) form with WSP coversheet (Section 2.7) and WSP outline (Section 2.8) to RAC who will administer the funding and the execution of the project. The main purpose of the WSP is to articulate the committee's expectation for the final work product. The WSP will be used by potential bidders to develop and submit their approach to complete a publication with the correct scope, appropriate level of detail, quality, and timeline. The WSP also lists the membership of the subcommittee that will oversee the project during its duration and the criteria that they will use to evaluate proposals from bidders.

RAC will evaluate each WSP using the criteria shown in the evaluation form in Section 2.9 at the end of this section. In evaluating the WSP, RAC may:

- ACCEPT the WSP, in which case the WSP will be added to the Society's Research Implementation Plan.
- CONDITIONALLY ACCEPT the WSP, in which case it will be returned to the TC (or other committee) that submitted the WSP for a minor revision; a conditionally accepted WSP may be approved by the RL and does not have to be reevaluated by RAC.
- RETURN the WSP to the TC, signifying that major revisions are necessary; a returned WSP must be reevaluated by RAC.
- REJECT the WSP signifying that RAC does not consider it acceptable for research funding.

The WSP will form the basis for the contract awarded to the successful bidder, therefore a high quality WSP is critical to ensuring a successful publication project. Competing bids responding to this WSP will be evaluated by a proposal evaluation subcommittee as described below, using the criteria and weighting elements that the TC sets in the WSP. The TC should develop proposal evaluation criteria and weights that best suits their needs, an example of a set of criteria is shown below:

Element Number	Proposal Review Criterion	Weighting Factor
1	Contractor's understanding of topic	30 %
2	Plan for completing the project	20 %
3	Contractor's experience with technology central to the publication	20 %
4	Clarity of contractor's written publications	20 %
5	Student involvement	10 %

~~The WSP template and the evaluation form used by RAC are shown at the end of the Manual as an Appendix.~~

The expectation is that publications produced through this process and with research funding will be factual, relevant, and fully supported by previously cited or new research. The PMS will have an oversight role in assuring that publications are technically sound and absent of commercial bias (see below). The WSP must make clear to the bidders that their final product must fulfill this expectation.

**2.4 Publication Topic Acceptance Requests (PTARs) Coversheet**

**Publication Topic Acceptance Request Cover Sheet**

(Please Check to Insure the Following Information is in the PTAR)

Date: \_\_\_\_\_

Title: \_\_\_\_\_

A. Title

B. Summary

C. Background

D. Publication Need

E. Target Audience

F. Rationale for PTAR

G. Level of Effort

H. References

PTAR # \_\_\_\_\_  
(To be assigned by MORTS)

Results of this Project will affect the following Handbook Chapters, Special Publications, etc.:  
\_\_\_\_\_

---

Responsible: \_\_\_\_\_ Date of Vote: \_\_\_\_\_

For

Against

Abstaining

Absent or not returning Ballot

Total Voting Members

PTAR Authors

Lead: \_\_\_\_\_

Others: \_\_\_\_\_

Co-sponsoring TC/TGMTG/SSPCs (give vote and date) \_\_\_\_\_

Expected Work Statement Authors

Lead: \_\_\_\_\_

Others: \_\_\_\_\_

Potential Co-funders (organization, contact person information): \_\_\_\_\_

Has an electronic copy been furnished to the MORTS?  Yes  No

Has the Research Liaison reviewed the PTAR?  Yes  No

\* Reasons for negative vote(s) and abstentions: \_\_\_\_\_

**2.5 Publication Topic Acceptance Request (PTAR) Outline**

**PTAR #** \_\_\_\_\_

**Title:**

Insert proposed project title

**Summary**

**Background**

Provide the state of the art with key references (at the end of this document) substantiating it

**Publication Need**

Use the state of the art described above as a basis to specify the need for the proposed effort (250 words maximum).

- Does this guide summarize, combine, or integrate research from new ASHRAE research projects or other sources?
- Is there a clear need to present this in a more understandable form for engineers and practitioners to use this information?
- Is there an urgent need with respect to the ASHRAE strategic plan to publish this guide?
- For guideline revisions, is there a substantial lacking of new research, information, technology, products, or approaches in the existing guide? How old is the latest revision?
- If this information is covered (wholly or partially) by another ASHRAE publication, why should there be an additional publication on this topic? Are there resources on this topic available from other organizations, and if so how would this be different?

**Target Audience**

Requires support from ASHRAE publications committee

Statement of why this needs to be a paid project instead of a volunteer effort

What prior or ongoing ASHRAE Research will be disseminated through development of this Publication?

(Where possible, list specific ASHRAE Research project by number (RP-XXXX) and Title.

**Anticipated Funding Level and Duration**

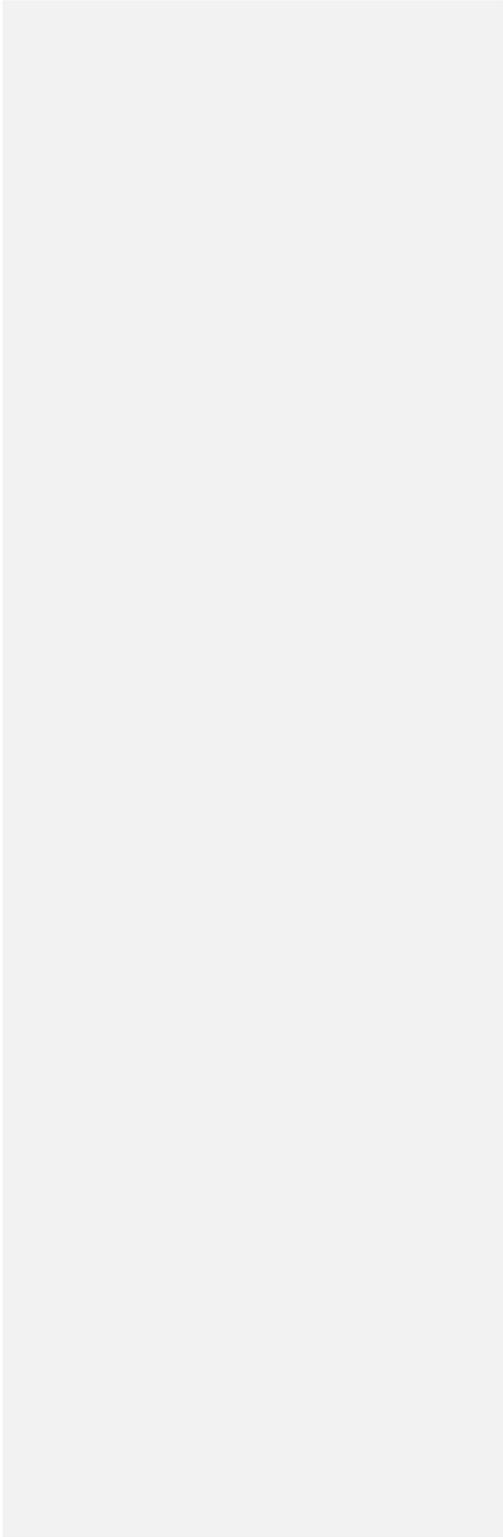
Funding Amount Range: \$ _____
Duration in Months: _____

**References**

List the key references cited in this PTAR
--

**Feedback to RAC and Suggested Improvements to PTAR Process**

Now that you have completed the PTAR process, RAC is interested in getting your feedback and suggestions here on how we can improve the process.
--



**2.6 Publication Topic Acceptance Request (PTAR) Evaluation Form**

<b>Project ID</b>	XXXX	
<b>Project Title</b>	-	
<b>Sponsoring TC</b>	-	
<b>Cost / Duration</b>	-	
<b>Submission History</b>	-	
<b>RAC 20XX Meeting Review</b>		
	<b>Satisfied?</b>	<b>Comments &amp; Suggestions</b>
<b>Background:</b> The PTAR should describe current state of the art with some level of literature review that documents the importance/magnitude of a problem. References should be provided. If not, then note it in your comments.		
<b>Publication Need:</b> Based on the background provided is the need for and the value of the publication clearly identified? Have one or more of the publication need criteria been adequately conveyed? Has the Publications Committee confirmed that they support this product? If not, then the PTAR should be rejected.		
<b>Appropriate as a Research Project:</b> Will this publication disseminate past or ongoing research and/or is additional research required to develop the publication.	-	
<b>Statement of why this should be a paid project:</b> Has the PTAR adequately made the case that performing this work is not an appropriate task for a volunteer effort? If not, Reject.		
<b>Decision Options</b>	<b>Decision?</b>	<b>Suggested Approval Conditions</b>
ACCEPT		
REJECT		

**ACCEPT Vote** - Topic is ready for development into a work statement (WS).

**REJECT Vote** - Topic is not acceptable for the ASHRAE Research Program

**2.7 Work Statement for Publication (WSP) Coversheet**

**WORK STATEMENT FOR PUBLICATION COVER SHEET**

(Please Check to Insure the Following Information is in the Work Statement )

- A. Title
- B. Executive Summary
- C. Background
- D. Objectives
- E. Audience/Publication Need
- F. Proposed Table of Contents
- G. Proposal Evaluation Criteria
- H. Project Milestones

Date: \_\_\_\_\_

Title: Guideline \_\_\_\_\_

WS# \_\_\_\_\_  
(To be assigned by MORTS - Same as PTAR #)

Results of this Project will affect the following Handbook Chapters  
Special Publications, etc:  
\_\_\_\_\_

Responsible: \_\_\_\_\_

Date of Vote: \_\_\_\_\_

- For
- Against
- Abstaining
- Absent or not returning Ballot
- Total Voting Members

This W/S has been coordinated with TC/IG/SSPC (give vote and date):  
\_\_\_\_\_

Has PTAR been submitted?  
Strategic Plan \_\_\_\_\_  
Theme/Goals \_\_\_\_\_

Work Statement Authors: \*\*  
\_\_\_\_\_

Proposal Evaluation Subcommittee:  
Chair: \_\_\_\_\_  
Members: \_\_\_\_\_

Project Monitoring Subcommittee:  
(If different from Proposal Evaluation Subcommittee)  
\_\_\_\_\_

Recommended Bidders (name, address, e-mail, tel number) \*\*  
\_\_\_\_\_

Potential Co-funders (organization, contact person information):  
\_\_\_\_\_

(Three qualified bidders must be recommended, not including WS authors.)

- Is an extended bidding period needed?
- Has an electronic coop been furnished to the MORTS?
- Will this project result in a special publication?
- Has the Research Liaison reviewed work statement?

Yes	No	How Long (weeks)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\* Reasons for negative vote(s) and abstentions  
\_\_\_\_\_

\*\* Denotes WS author is affiliated with this recommended bidder  
Use additional sheet if needed.

**2.8 Work Statement for Publication (WSP) Outline**

**WORK STATEMENT#**

**Title:**

**Sponsoring TC/TG/MTG/SSPC:**

**Co-Sponsoring TC/TG/MTG/SSPCs (List only TC/TG/MTG/SSPCs that have voted formal support)**

**Executive Summary:**

**Background:**

Less than 500 words

**Objectives:**

Brief description of the work product and how it will reach its intended audience

**Audience/Publication Need:**

Requires support from ASHRAE publisher or other agency that will publish the work product in some form(s).

**Proposed Table of Contents:**

Should be at least at chapter level, generally with 8 – 15 substantive elements.

**Level of Effort:**

Estimate the cost and amount of time to successfully complete the project

**Proposal Evaluation Criteria:**

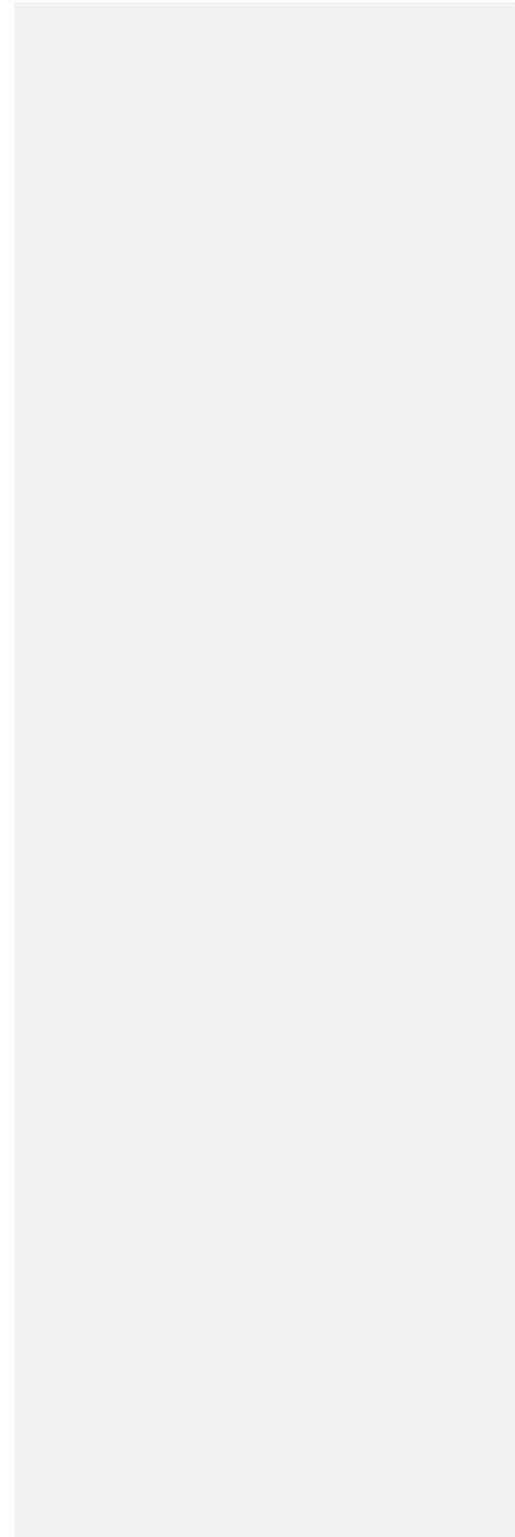
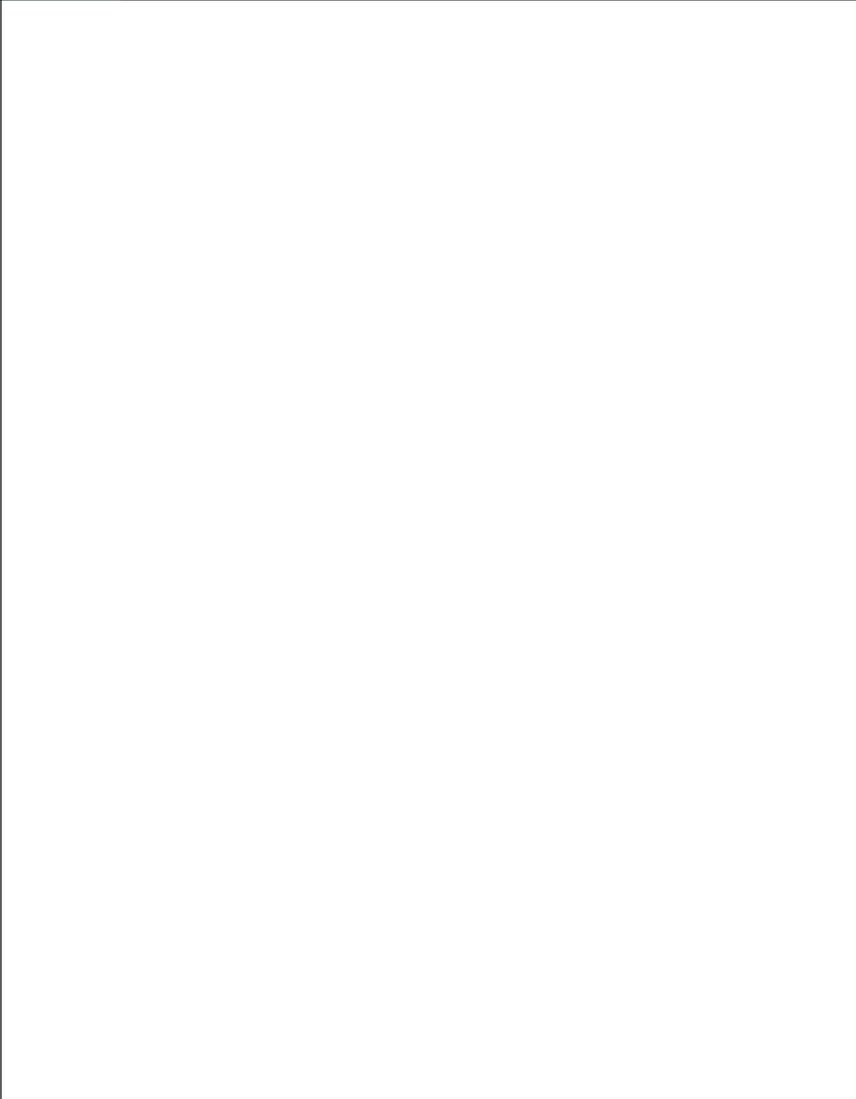
No.	Proposal Review Criterion	Weighting Factor

**Project Milestones:**

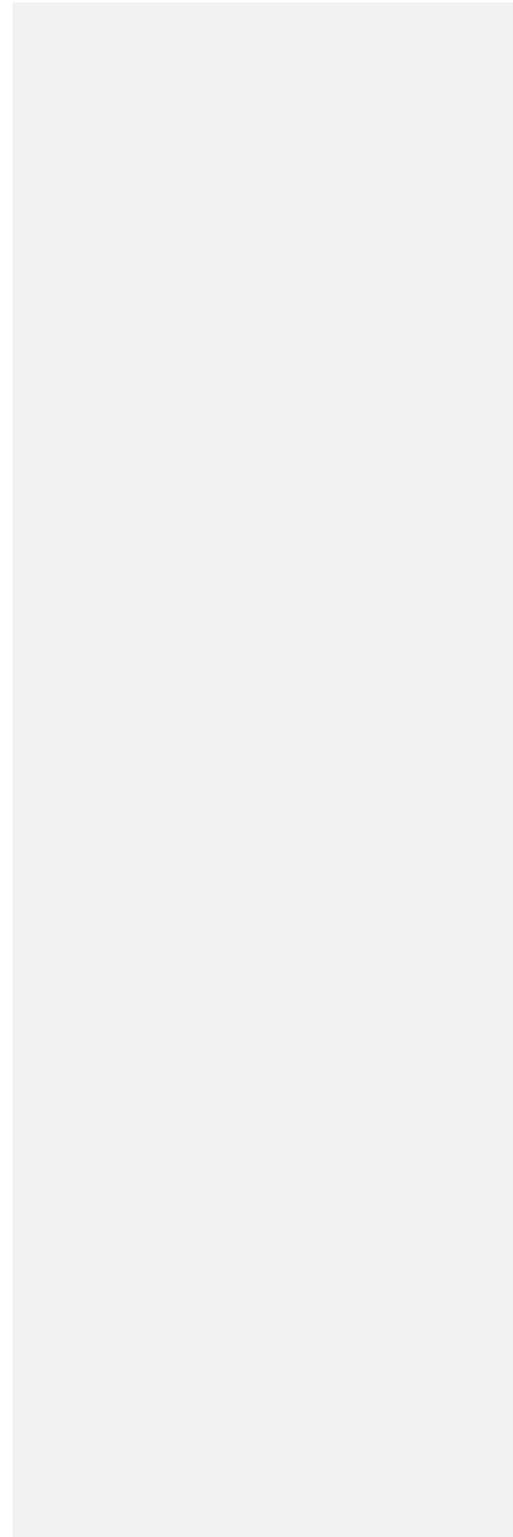
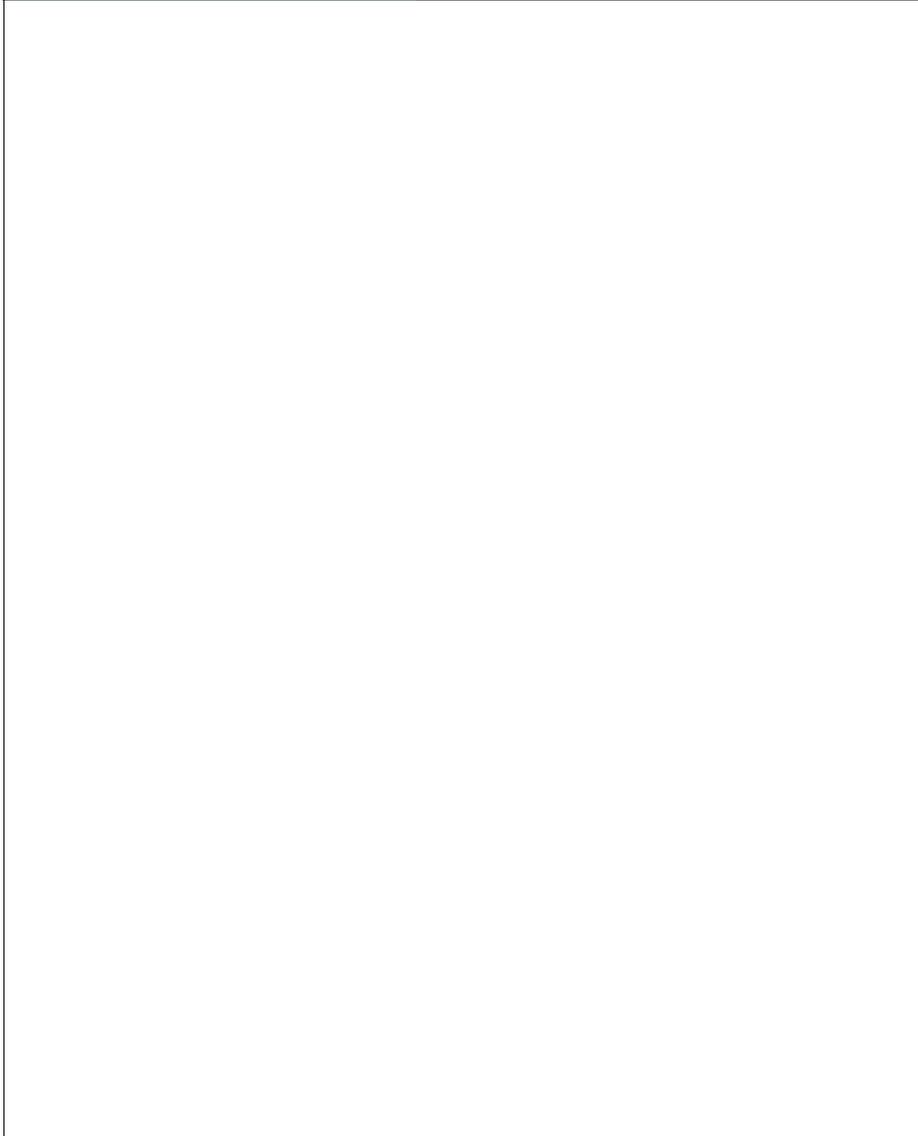
No.	Major Project Completion Milestone	Deadline Month

**Authors:**

**References:**



**Other Information for Bidders (Optional):**



**Feedback to RAC and Suggested Improvements to Work Statement Process**

Now that you have completed the work statement process, RAC is interested in getting your feedback and suggestions here on how we can improve the process.

2.9 Work Statement for Publication (WSP) Evaluation Form

<b>Project ID</b>	XXXX	
<b>Project Title</b>		
<b>Sponsoring TC</b>		
<b>Cost / Duration</b>		
<b>Submission History</b>		
<b>RAC 2017 Winter Meeting Review</b>	<b>RTAR STAGE FOLLOWED</b>	
<b>Check List Criteria</b>		<b>Comments &amp; Suggestions</b>
<b>State-of-the-Art:</b> The WS should include some level of literature review that documents the importance/magnitude of a problem and the need for this publication. If not, then it should be returned for revision.		
<b>Audience/Publication Need:</b> Is there a plan for this work product to reach the intended audience? Does this WS include information that documents support from ASHRAE Publications Committee or other agency that will publish the work product? If not, reject.		
<b>Detailed Bidders List Provided?</b> The contact information in the bidder list should be complete so that each potential bidder can be contacted without difficulty.		
<b>Does the proposed table of contents adequately cover the topic?</b> The table included in the WS should be broken down at least at the chapter level and include 8-15 substantive elements		
<b>Evaluation Criteria and Milestones.</b> Are the metrics listed in the evaluation criteria appropriate and adequate for the PES to evaluate the likelihood of success? Are the milestones appropriate to evaluate the progress of the work?		
<b>Time and Cost Estimate Reasonable?</b> The time duration and total cost of the project should be reasonable so that the project can be as it is described in the WS.		
<b>Proposed Project Biddable?</b> Examining the WS as a whole, is the project described in the WS of sufficient clarity and detail such a potential bidder can actually understand and develop a proposal for the project? If the WS is considered to not be biddable, then either major revisions are in order or the WS should be rejected.		
<b>Decision Options</b>	<b>Initial Decision</b>	<b>Suggested Approval Conditions</b>
ACCEPT		
COND. ACCEPT		
RETURN		
REJECT		
<b>ACCEPT Vote</b> - Work statement(WS) ready to bid as-is		
<b>CONDITIONAL ACCEPT Vote</b> - Minor Revision Required - RL can approve WS for bid without going back to RAC once TC satisfies RAC's approval condition(s) to his/her satisfaction		
<b>RETURN Vote</b> - WS requires major revision before it can bid		
<b>REJECT Vote</b> - Topic is no longer considered acceptable for the ASHRAE Research Program due to duplication of work by another project or because the work statement has a fatal flaw(s) that makes it unbiddable		

### 3. RESEARCH IMPLEMENTATION PLAN & RESEARCH TOPIC ACCEPTANCE REQUESTS (RTARs)

#### 3.2 RTAR Submission and Approval Process

a) Pick a topic that ranks highly on the TC's long-range research plan (if topics have little support at the TC level they are unlikely to be approved by the Society) and can be described in a manner that demonstrates clear support of the ASHRAE Research Strategic Plan (*Navigation for a Sustainable Future*). The topic need not contribute directly to the goals identified in the Research Strategic Plan; however, those that do will likely be given a higher priority for funding when research funds are limited.

b) Do your homework:

- Review the key literature and demonstrate you have done so by citing the key references.
- Demonstrate a firm grasp of relevant prior work.
- Clearly define the state-of-the-art and information gaps.
- Define a valuable and doable objective.
- Identify the specific goals served within the ASHRAE Research Strategic Plan, to what degree and why. If none of the goals in the Research Strategic Plan are supported by the topic, the proposed research will likely receive greater scrutiny by RAC.
- Clearly define the advancement to the state-of-the-art and provide quantitative estimates of the improvement expected wherever possible.
- Clearly define the justification and value to ASHRAE, being as quantitative and specific as possible.
- Obtain TC vote and address all negative and abstention votes by providing the reasons for those votes and, if appropriate, a response to the concern(s) expressed in those votes.
- Provide realistic estimated project costs and duration. To do this, the RTAR must contain a description of the approach envisioned for the research. For instance, the RTAR should indicate if the project is primarily a paper study, or whether it involves computer simulations, laboratory testing, and/or field measurements. For simulations, laboratory, or field testing, describe the size of the anticipated test matrix (e.g., two different ventilation strategies will be tested in four buildings).
- Coordinate with other relevant TC and seek a letter of support from the interested TC Chairs.
- Actively solicit interest among possible co-funding organizations. If interest by other organizations in co-sponsoring the project is known, suspected, or even considered a possibility, list the organization and a contact person with contact information on the RTAR cover sheet, and seek a letter of support from an authorized representative. When an RTAR is approved ASHRAE's Manager of Research and Technical Services (MORTS) can assist with this; will send list of potential co-funders to ASHRAE Manager of Development to develop letters of intent and co-funding agreements (Appendix 5).
- Provide **ALL** required information.

i) MORTS assigns I.D. numbers to submitted RTARs. Individual RAC members grade them "Accept", "Accept with comments", "Return", or "Reject". MORTS distributes the consolidated grades and comments to all the RAC members, and RAC convenes (Spring Meeting, Annual Meeting, Fall Meeting, or Winter Meeting) to discuss the RTARs and votes to "Accept", "Accept with comments", "Return", or "Reject" each RTAR.

- "Accept" means that RAC accepts the RTAR for further development into a work statement and for inclusion on the Society's Research Implementation Plan.
- "Accept with comments" means that only minor edits to the RTAR are required, and once these edits have been made to the satisfaction of your Research Liaison, the RTAR is considered accepted by RAC for further development into a work statement and for inclusion on the Society's Research Implementation Plan without further consideration by the full RAC.
- "Return" means that the Topic is probably acceptable for ASHRAE research, but RTAR is not quite ready.
- "Reject" means that RAC does not believe the topic is appropriate for ASHRAE research based upon the information submitted in the RTAR and the TC is encouraged to drop the topic.

**3.4 Example RTAR Review Ballot Form used by RAC**

RAC members use the form below to record their review comments and initial disposition decision on the RTAR prior to the RAC meeting to discuss the RTAR. The completed form is submitted to ASHRAE staff, who in turn incorporates this information into the RTAR Review Summary form.

**Example RTAR Review Ballot Used by Individual RAC Members Prior to Meeting**

<b>Project ID</b>	0007	
<b>Project Title</b>	Design on a Dime	
<b>Sponsoring TC</b>	TC 8.05, Liquid-to-Refrigerant Heat Exchangers	
<b>Cost / Duration</b>	\$70,000 / 12 Months	
<b>Submission History</b>	2nd RTAR Submission, RTAR Returned Spring 2025	
<b>Classification: Research or Technology Transfer</b>	Basic/Applied Research	
<b>RAC 2025 Winter Meeting Review</b>		
<b>Essential Criteria</b>	<b>Satisfied?</b>	<b>Comments &amp; Suggestions</b>
<b>Background:</b> The RTAR should describe current state of the art with some level of literature review that documents the importance/magnitude of a problem. References should be provided. If not, then note it in your comments.	YES	Detailed list of references provided
<b>Research Need:</b> Based on the background provided is the need for additional research clearly identified? If not, then the RTAR should be rejected.	YES	Critical need for Society
<b>Relevance and Benefits to ASHRAE:</b> Evaluate whether relevance and benefits are clearly explained in terms of: a. Leading to innovations in the field of HVAC & Refrigeration b. Valuable addition to the missing information which will lead to new design guidelines and valuable modifications to handbooks and standards. Is this research topic appropriate for ASHRAE funding? If not, Reject.	YES	Potential Labor Saving technology for industry
<b>IF ABOVE THREE CRITERION ARE NOT ALL SATISFIED - MARK "REJECT" BELOW &amp; CONTINUE REVIEW BELOW</b>		
<b>Other Criteria</b>		
<b>Project Objectives:</b> Based on the background and need, evaluate whether the project objectives are: 1. Aligned with the need 2. Specific 3. Clear without ambiguity 4. Achievable If not, then appropriate feedback should be provided.	NO	The project would greatly benefit the handbook chapter noted, but there is no mention of the related standard XXX in development
<b>Expected Approach and Budget:</b> Is there an adequate description of the approach in order for RAC to be able to evaluate the appropriateness of the budget? If not, then the RTAR should be returned for revision. Anticipated funding level and duration:	YES	
<b>References:</b> Are the references provided?		
<b>Decision Options</b>	<b>Decision?</b>	<b>Suggested Approval Conditions:</b>
ACCEPT AS-IS	ACCEPT w/COMMENTS	RTAR must mention Standard XXX and how the project is likely to benefit it too
ACCEPT w/COMMENTS		
REJECT		
<b>ACCEPT w/COMMENTS Vote</b> - Minor Revision Required - RAC can approve RTAR for development into WS without going back to RAC once TC satisfies RAC's approval condition(s) <b>RETURN Vote</b> - RTAR requires major revision before it can resubmitted <b>REJECT Vote</b> - Topic is not acceptable for the ASHRAE Research Program		

**3.5 Example RTAR Review Summary from RAC**

When RAC meets, they use the RTAR Review Summary form below to help guide their discussion of the RTAR. In many cases, a RAC member's initial disposition decision on a particular RTAR may change after reading other member's comments on the summary form and after participating to the meeting discussion of the RTAR. A final version of the review summary form, which reflects the discussion and final decision that was made by RAC on the RTAR during the meeting, is developed and used as the basis for the return letter to the TC/TG/MTG w/ research authority/SSPC or other committees authorized to sponsor research projects. Example RTAR Review Summary Used by RAC during Meeting and for Return Letter to TC

<b>Project ID</b>	0007	
<b>Project Title</b>	Design on a Dime	
<b>Sponsoring TC</b>	TC 9.05, Liquid-to-Refrigerant Heat Exchangers	
<b>Cost / Duration</b>	\$70,000 / 12 Months	
<b>Submission History</b>	2nd RTAR Submission, RTAR Returned Spring 2025	
<b>Classification: Research or Technology Transfer</b>	Basic/Applied Research	
<b>RAC 2026 Winter Meeting Review</b>		
<b>Essential Criteria</b>	<b>Voted (N)</b>	<b>Comments &amp; Suggestions</b>
<b>Background:</b> The RTAR should describe current state of the art with some level of literature review that documents the importance/magnitude of a problem. References should be provided. If not, then note it in your comments.	<b>CD</b>	AB - Detailed list of References provided. CD - RTAR is missing several key references that I have provided to MORTS for transmittal to TC.
<b>Research Need:</b> Based on the background provided is the need for additional research clearly identified? If not, then the RTAR should be rejected.		AB - Critical need for Society. CD - Need not well justified. What about ISO project? GH - Good project!
<b>Relevance and Benefits to ASHRAE:</b> Evaluate whether relevance and benefits are clearly explained in terms of: a. Leading to innovations in the field of HVAC & Refrigeration b. Valuable addition to the missing information which will lead to new design guidelines and valuable modifications to handbooks and standards. Is this research topic appropriate for ASHRAE funding? If not, reject.		AB - Potential labor saving technology for industry. EF - control equipment is difficult for the typical HVAC designer to document with current guidance. Thaa said, can ASHRAE organization be contacted regarding possible co-sponsorship?
<b>IF ABOVE THREE CRITERIA ARE NOT ALL SATISFIED - MARK "REJECT" BELOW &amp; CONTINUE REVIEW BELOW</b>		
<b>Other Criteria</b>	<b>Voted (N)</b>	<b>Comments &amp; Suggestions</b>
<b>Project Objectives:</b> Based on the background and need, evaluate whether the project objectives are: 1. Aligned with the need 2. Specific 3. Clear without ambiguity 4. Achievable If not, then appropriate feedback should be provided.	<b>AB</b>	AB - this project would greatly benefit the handbook chapter noted, but there is no metric of the related standard/DOC in development.
<b>Expected Approach and Budget:</b> Is there an adequate description of the approach in order for RAC to be able to evaluate the appropriateness of the budget? If not, then the RTAR should be resubmitted for revision. Anticipated timeline, level and duration.	<b>CD</b>	CD - 12 months seems too short given scope. 18 months more feasible.
<b>References:</b> Are the references provided?	<b>EF</b>	EF - check out references on related standards.
<b>Decision Options</b>	<b>Initial Decision?</b>	<b>Final Approval Conditions:</b>
ACCEPT AS-IS	<b>EF, LJ</b>	AB - RTAR must mention Standard/DOC and how this project is likely to benefit it too.
ACCEPT W/COMMENTS	<b>AB, GH</b>	
RETURN		
REJECT	<b>CD</b>	

**ACCEPT Vote** - Topic is ready for development (less a work statement (WS))  
**ACCEPT W/COMMENTS Vote** - Minor Revision Required - RL can approve RTAR for development into WS (must) going back to RAC once TC satisfies RAC's approval conditions)  
**RETURN Vote** - WS requires major revision before it can be submitted  
**REJECT Vote** - Topic is not acceptable for the ASHRAE Research Program

#### 4. WORK STATEMENTS

##### 4.1 Work Statement Development and Approval Process

**Table A. Factors for Prioritization of Work Statements for Funding**

<p>Status of TRP</p> <ul style="list-style-type: none"> <li>• Is this a project rebid?</li> </ul> <p>Newly approved TRPs?</p> <ul style="list-style-type: none"> <li>• Age of Project – Based on date of work statement approval</li> </ul> <p>Co-Sponsorship</p> <ul style="list-style-type: none"> <li>• Multiple TC sponsors/Co-sponsors</li> <li>• Single TC Sponsor</li> </ul> <p>Co-Funding – <del>is there a firm co-funding commitment has ASHRAE Development staff indicated there is likely co-funding</del> (e.g., from AHRI, <u>commercial sponsors, or other</u>)?</p> <p>Cost of Project</p> <ul style="list-style-type: none"> <li>• Should we fund more and smaller projects or fewer and larger ones?</li> <li>• Does it require RAC Level Approval, Tech Council approval, Board approval?</li> </ul> <p>Overall value of the project and the research, as well as contribution to ASHRAE's Research Plan(s), to ASHRAE and Society</p> <p>Note: the above factors are not listed in any particular order or level of importance</p>
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#### 4.2 Work Statement Preparation

The Work Statement submitted by a TC (TG, MTG ~~with~~ /research authority, SSPC or other committees authorized to sponsor a research project) expands the RTAR and is the only technical document that potential bidders will receive. The WS must contain all of the following sixteen elements, eight of which are either imported directly or expanded from RTAR elements.

#### 4.3 Work Statement Cover Sheet

The purpose of the Work Statement Cover Sheet is to ensure that all WS items are complete. Also, the Cover Sheet:

- ~~lists~~ lists at least three prospective bidders in addition to any Work Statement authors who may bid
- ~~list all Co-Funding organizations that have submitted a current letter of support to ASHRAE.~~ list all Co-Funding organizations that have submitted a current letter of support to ASHRAE.

~~If interest by other organizations in co-sponsoring the project is known, suspected, or even considered a possibility, the name, address, and phone number of the proper contact should be furnished on the Work Statement Cover Sheet as a "potential" sponsor. Once a written letter of support is obtained by a TC from a potential co-sponsor, the ASHRAE MORTS will finalize a co-sponsorship agreement with that organization or individual for the project.~~

#### 4.4 Work Statement Outline

**WORK STATEMENT#** (Same as RTAR#)  
 SPONSORING TC/TG/MTG/SSPC:# & NAME  
 CO-SPONSORING TC/TG/MTG/SSPCs (List only TC/TG/MTG/SSPCs that have voted formal support)

##### Deliverables/Where Results Will Be Published:

Insert generic ASHRAE requirements (listed below) as well as and any project-specific requirements defined in the "Scope" section. Each major task or phase of the research method outlined in the Scope should be linked to a deliverable report, memorandum, or summary.

Items a through e below are generic ASHRAE requirements a contractor is required to provide on every ASHRAE research project. These cover:

- Quarterly progress and financial reports to MORTS (to be reviewed by the Project Monitoring Subcommittee (PMS)).
- A final report.
- A research ~~or technical~~ paper, submitted for peer review and publication in the *ASHRAE Transactions* or *Science and Technology for the Built Environment*. ~~ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects unless explicitly approved by a vote of the PMS and TC and communicated to MORTS.~~
- Any data obtained from the research.
- A project summary.

Progress, Financial and Final Reports, Research ~~or Technical~~ Paper(s), and Data shall constitute required deliverables ("Deliverables") under this Agreement and shall be provided as follows:

- b. Final Report

A written report, design guide, or manual, (collectively, "Final Report"), in a form approved by the Society, shall be prepared by the Institution and submitted to the Society's Manager of Research and Technical Services by the end of the Agreement term, containing complete details of all research carried out under this Agreement. Unless otherwise specified, six electronic copies of the final report shall be furnished for review by the Society's Project Monitoring Subcommittee (PMS).

Following approval by the PMS and the TC/TG, in their sole discretion, final copies of the Final Report will be furnished by the Institution as follows:

- An executive summary in a form suitable for wide distribution to the industry and to the public.  
~~Two bound copies~~
- ~~One unbound copy, printed on one side only, suitable for reproduction.~~
- Two copies ~~on CD-ROM~~; one in PDF format and one in Microsoft Word.

c. Science Research and Technology for the Built Environment or ASHRAE Transactions Technical Papers

One or more papers shall be submitted first to the ASHRAE Manager of Research and Technical Services (MORTS) and then to the "ASHRAE Manuscript Central" website-based manuscript review system in a form and containing such information as designated by the Society suitable for publication. Papers specified as deliverables should be submitted ~~as either Research Papers for publication in the Science and Technology for the Built Environment (STBE) or Technical Paper(s) for ASHRAE Transactions. Research papers contain generalized results of long-term archival value, whereas technical papers are appropriate for applied research of shorter-term value. ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects.~~ The paper(s) shall conform to the instructions posted in "Manuscript Central" ~~for an ASHRAE Transactions Technical or Science and Technology for the Built Environment papers.~~ The paper title shall contain the research project number (XXXX-RP) at the end of the title in parentheses, e.g., (XXXX-RP). ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects unless explicitly approved by a vote of the PMS and TC and communicated to MORTS. Conference paper(s) shall conform to the instructions posted in "Manuscript Central" for ASHRAE Conference papers and the title shall contain the research project number at the end of the title in parentheses, e.g., (XXXX-RP).

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~~Note: A research or technical paper describing the research project must be submitted after the TC has approved the Final Report. Research or technical papers may also be prepared before the project's completion, if it is desired to disseminate interim results of the project. Contractor shall submit any interim papers to MORTS and the PMS for review and approval before the papers are submitted to ASHRAE Manuscript Central for review.~~

All papers or articles prepared in connection with an ASHRAE research project, which are being submitted for inclusion in any ASHRAE publication, shall be submitted through the Manager of Research and Technical Services first and not to the publication's editor or Program Committee.

#### 4.5 Tips for Writing an Effective Work Statement

##### Cost

Is the proposed level of effort and funding commensurate with work required? Is the proposed level of effort and funding commensurate with the project's expected benefits?

Can the ASHRAE research budget afford the project for its duration? Consider whether the project can or should be funded protracted for budgetary reasons.

Is there a formal commitment letter of support from outside organizations for co-funding? ~~Did ASHRAE receive a letter (on company letterhead) with the amount of co-funding?~~

##### Suitability

Is the background adequately presented?

Has the work statement been coordinated with other organizations' committees? Is there a formal letter of support from outside organizations for co-funding? Have they been asked for co-funding?

**4.6 Example WS Review Ballot & WS Review Summary used by RAC**

RAC members use the form below to record their review comments and initial disposition decision on the WS prior to the RAC meeting to discuss the WS. The completed form is submitted to ASHRAE staff, which in turn incorporates this information into the WS Review Summary form as shown below

<b>Project ID</b>	0007	
<b>Project Title</b>	Design on a Dime	
<b>Sponsoring TC</b>	TC 8.05, Liquid-to-Subliquid Heat Exchangers	
<b>Cost / Duration</b>	\$70,000 / 12 Months	
<b>Submission History</b>	1st submission as WS. RTAR Accepted 2025.04	
<b>Classification: Research or Technology Transfer</b>	Dual/Applied Research	
<b>RAC 2026 Winter Meeting Review</b>		
<b>RTAR Check List Criteria</b>	<b>Justified?</b>	<b>Comments &amp; Suggestions</b>
<b>State-of-the-Art (Background):</b> The WS should include some level of literature review that documents the importance/significance of a problem. If not, then the WS should be returned for revision. <b>RTAR Review Criterion</b>		
<b>Advancement to the State-of-the-Art:</b> Is there enough justification for the need of the proposed research. Will this research significantly contribute to the advancement of the State-of-the-Art. <b>RTAR Review Criterion</b>		AA - Reference included
<b>Reference and Benefits to ASHRAE:</b> Evaluates whether references and benefits are clearly explained in terms of: a. Leading to innovations in the field of HVAC h. Multigravimetric b. Valuable addition to the existing information which will lead to new design guidelines and valuable modifications to handbooks and standards. Is this research topic appropriate for ASHRAE funding? If not, Reject. <b>RTAR Review Criterion</b>		
<b>IF THE THREE CRITERIA ABOVE ARE NOT ALL SATISFIED - MARK "REJECT" BELOW BUT ADDRESS THE FOLLOWING CRITERIA AS APPROPRIATE</b>		
<b>WS Check List Criteria - START HERE</b>	<b>Justified?</b>	<b>Comments &amp; Suggestions</b>
<b>Detailed Bidder List Provided?</b> The contact information in the bidder list should be complete so that each potential bidder can be contacted without difficulty.	NO	AA - No bidder list or contact information
<b>Proposed Project Description Correct?</b> Are there technical errors and/or technical omissions that the WS has that prevents it from correctly describing the project. If there are, then the WS needs major revision.	YES	
<b>Task Breakdown Reasonable?</b> Is the project divided into tasks that make technical and practical sense? Are the results of each task such that the results of the former naturally flow into the latter? If not, then major revisions are needed to the WS that would include: adding tasks, removing tasks, and re-sequencing tasks among others.	NO	
<b>Adequate Intermediate Deliverables?</b> The project should include the review of intermediate results by the PRAC at frequent intervals prior to the project. Before project work continues the PRAC must approve the intermediate results.	NO	
<b>Proposed Project Feasible?</b> Can the project as described in the WS be accomplished? If difficulties exist in the project's WS that prevent a successful conclusion of the project, then the project is not doable. In this situation, major revision of the WS is needed to resolve the issues that cause the difficulty.	YES	
<b>Time and Cost Estimate Reasonable?</b> The time duration and total cost of the project should be reasonable so that the project can be as it is described in the WS.	YES	
<b>Proposed Project Biddable?</b> Examining the WS as a whole, is the project described in the WS of sufficient clarity and detail such a potential bidder can actually understand and develop a proposal for the project? This criterion combines the previous three criteria into an overall question concerning the biddability of the WS. If the WS is considered to not be biddable, then other major revisions are in order or the WS should be rejected.	YES	
<b>Decision Options:</b>	<b>Initial Decision:</b>	<b>Suggested Approval Conditions:</b>
ACCEPT	COND. ACCEPT	
COND. ACCEPT		
RETURN		
REJECT		Specify results and deliverables from each task that will be reviewed and approved by the PRAC before proceeding to the next task.
<b>ACCEPT Vote</b> - WS is sufficient(WS) ready to bid as is <b>CONDITIONAL ACCEPT Vote</b> - Minor Revisions Required - RE can approve WS for bid without going back to RAC (see TC 2.01 for RAC's approval condition(s) to further clarification) <b>RETURN Vote</b> - WS requires major revision before it can bid <b>REJECT Vote</b> - Topic is no longer considered acceptable for the ASHRAE Research Program due to duplication of work by another project or because the work statement has a fatal flaw(s) that makes it unbiddable.		

Page 1

4.6.1 Example WS Review Ballot used by Individual RAC Members Prior to Meeting

Project ID	0007	
Project Title	Design on a Dime	
Sponsoring TC	TC 12.5 (Building Information Modeling - BIM)	
Cost / Duration	\$250,000/24M	
Submission History	1 <sup>st</sup> Submission as WS, RTAR Accepted 10.06	
Classifications: Research or Technology Transfer	Basic/Applied Research	
Winter 2010 Meeting Review	Reviewer's Name: AA	
Check List Criteria	Satisfied?	Additional Comments & Suggestions
Detailed Bidders List Provided? The contact information in the bidder list should be complete so that each potential bidder can be contacted without difficulty.	N	AA - No bidder list or contact information
Proposed Project Description Correct? Are there technical errors and/or technical omissions that the WS has that prevents it from correctly describing the project? If there are, than the WS needs major revision.	Y	
Task Breakdown Reasonable? Is the project divided into tasks that make technical and practical sense? Are the results of each task such that the results of the former naturally flow into the latter? If not, then major revisions are needed to the WS that would include: adding tasks, removing tasks, and re-structuring tasks among others.	N	
Adequate Intermediate Deliverables & Critical Project Milestones Identified? The project should include the review of intermediate results by the PMS at logical and critical milestone points during the project. Before project work continues, the PMS must approve the intermediate results.	N	
Proposed Project Doable? Can the project as described in the WS be accomplished? If difficulties exist in the project's WS that prevent a successful conclusion of the project, then the project is not doable. In this situation, major revision of the WS is needed to resolve the issues that cause the difficulty.	Y	
Time and Cost Estimate Reasonable? The time duration and total cost of the project should be reasonable so that the project can be as it is described in the WS.	Y	
Proposed Project Biddable? Examining the WS as a whole, is the project described in the WS of sufficient clarity and detail such a potential bidder can actually understand and develop a proposal for the project? This criterion combines the previous three criteria into an overall question concerning the usefulness of the WS. If the WS is considered to not be biddable, then either major revisions are in order or the WS should be rejected.	Y	
Decision Options	Decision?	Additional Comments or Approval Conditions
ACCEPT		
COND. ACCEPT	X	Specify results and deliverables from each task that will be reviewed and approved by the PMS before proceeding to the next task.
RETURN		
REJECT		

ACCEPT Vote - Work statement (WS) ready to bid as-is  
 CONDITIONAL ACCEPT Vote - Minor Revision Required - RL can approve WS for bid without going back to RAC once TC satisfies RAC's approval condition(s) to his/her satisfaction  
 RETURN Vote - WS requires major revision before it can bid  
 REJECT Vote - Topic is no longer considered acceptable for the ASHRAE Research Program due to duplication of work by another project or because the work statement has a fatal flaw(s) that makes it unbiddable.

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4.6.2 Example WS Review Summary Ballot used by RAC at Meeting

Project ID	0007	
Project Title	Design on a Dime	
Sponsoring TC	TC 12.5, Liquid to Refrigerant Heat Exchanger	
Cost / Duration	\$70,000 / 12 Months	
Submission History	1st submission as WS. RTAR Accepted 2/25/06	
Classification: Research or Technology Transfer	Basic/Applied Research	
RAC 2026 Winter Meeting Review	RTAR STAGE FOLLOWED	
Check List Criteria	Voted No	Comments & Suggestions
<b>State-of-the-Art (Background):</b> The WS should include some level of literature review that documents the importance/significance of a problem. If not, then the WS should be returned for revision. <b>RTAR Review Criteria:</b>		
<b>Advancement to the State-of-the-Art:</b> Is there enough justification for the need of the proposed research. Will this research significantly contribute to the advancement of the State-of-the-Art. <b>RTAR Review Criteria:</b>		
<b>Relevance and Benefits to ASHRAE:</b> Evaluate whether relevance and benefits are clearly explained in terms of: a. Leading to innovations in the field of HVAC & Refrigeration. b. Valuable addition to the existing information which will lead to new design guidelines and valuable modifications to handbooks and standards. Is this research topic appropriate for ASHRAE funding? If not, Reject. <b>RTAR Review Criteria:</b>		
<b>IF THE THREE CRITERIA ABOVE ARE NOT ALL SATISFIED, MARK "REJECT" BELOW, BUT ADDRESS THE FOLLOWING CRITERIA AS APPROPRIATE:</b>		
<b>Detailed Bidders List Provided?</b> The contact information in the bidder list should be complete so that each potential bidder can be contacted without difficulty.	AA, DD	AA - no list or contact information. DD - no bidder listed
<b>Proposed Project Description Correct?</b> Are there technical errors and/or technical omissions that the WS has that prevents it from correctly describing the project? If there are, then the WS needs major revision.		
<b>Task Breakdown Reasonable?</b> Is the project divided into tasks that make technical and practical sense? Are the results of each task such that the results of the former naturally flow into the latter? If not, then major revisions are needed to the WS that would include adding tasks, removing tasks, and re-structuring tasks among others.	AA	AA - Spreadsheets and documents need to be reviewed and approved by the PMS before proceeding to the next task
<b>Adequate Intermediate Deliverables?</b> The project should include the review of intermediate results by the PMS at logical milestone points during the project. Before project work continues, the PMS must approve the intermediate results.	AA	
<b>Proposed Project Feasible?</b> Can the project as described in the WS be accomplished? If difficult, what in the project's WS that present a successful completion of the project, then the project is not feasible. In this situation, major revision of the WS is needed to resolve the items that cause the difficulty.		
<b>Time and Cost Estimate Reasonable?</b> The time duration and total cost of the project should be reasonable so that the project can be as it is described in the WS.	DD	DD - Cost estimate appears to be low given multiple field sites specified in multiple tasks
<b>Proposed Project Biddable?</b> Examining the WS as a whole, is the project described in the WS of sufficient clarity and detail such a potential bidder can actually understand and develop a proposal for the project? This criterion combines the previous three criteria into an overall question concerning the usefulness of the WS. If the WS is considered to not be biddable, then other major revisions are in order so the WS should be rejected.		
<b>Decision Options:</b>	Final Review	Final Approval/Completion
ACCEPT		Specify results and deliverables from each task that will be reviewed and approved by the PMS before proceeding to next task
COND. ACCEPT	AA, BB, CC, DD	
RETURN		
REJECT		
<p><b>ACCEPT Vote</b> - Work statement(WS) ready to bid and</p> <p><b>CONDITIONAL ACCEPT Vote</b> - Minor Revisions Required - RL can approve WS for bid without going back to RAC once TC (with the RAC's approval/condition(s)) to further justification.</p> <p><b>RETURN Vote</b> - WS requires major revision before it can bid</p> <p><b>REJECT Vote</b> - Topic is no longer considered acceptable for the ASHRAE Research Program due to duplication of work by another project or because the work statement has a fatal flaw(s) that makes it unbiddable.</p>		
Project ID	0007	
Project Title	Design on a Dime	
Sponsoring TC	TC 12.5 (Building Information Modeling - BIM)	
Cost / Duration	\$260,000/24M	
Submission History	1st Submission as WS. RTAR Accepted 10/06	
Classification: Research or Technology Transfer	Basic/Applied Research	
Winter 2010 Meeting Review	RTAR STAGE FOLLOWED	
Check List Criteria	Voted No	Comments & Suggestions
<b>Detailed Bidders List Provided?</b> The contact information in the bidder list should be complete so that each potential bidder can be contacted without difficulty.	AA, DD	AA - No list or contact information DD - No bidders list
<b>Proposed Project Description Correct?</b> Are there technical errors and/or technical omissions that the WS has that prevents it from correctly describing the project? If there are, then the WS needs major revision.		

<b>Task Breakdown Reasonable?</b> Is the project divided into tasks that make technical and practical sense? Are the results of each task such that the results of the former naturally flow into the latter? If not, then major revisions are needed to the WS that would include: adding tasks, removing tasks, and re-structuring tasks among others.	AA	AA—Specify results and deliverables from each task that will be reviewed and approved by the PMS before proceeding to the next task.
<b>Adequate Intermediate Deliverables &amp; Critical Project Milestones Identified?</b> The project should include the review of intermediate results by the PMS at logical and critical points during the project. Before project work continues, the PMS must approve the intermediate results.	AA	
<b>Proposed Project Doable?</b> Can the project as described in the WS be accomplished? If difficulties exist in the project's WS that prevent a successful conclusion of the project, then the project is not doable. In this situation, major revision of the WS is needed to resolve the issues that cause the difficulty.		
<b>Time and Cost Estimate Reasonable?</b> The time duration and total cost of the project should be reasonable so that the project can be as it is described in the WS.	DD	DD—Cost estimate appears to be low given multiple field sites specified in multiple States.
<b>Proposed Project Biddable?</b> Examining the WS as a whole, is the project described in the WS of sufficient clarity and detail such a potential bidder can actually understand and develop a proposal for the project? This criterion combines the previous three criteria into an overall question concerning the usefulness of the WS. If the WS is considered to not be biddable, then either major revisions are in order or the WS should be rejected.		
<b>Decision Options</b>	<b>Initial Decision</b>	<b>Additional Comments or Approval Conditions</b>
ACCEPT		
COND-ACCEPT	AA, BB, CC;	Specify results and deliverables from each task that will be reviewed and approved by the PMS before proceeding to the next task.
RETURN		
REJECT		

ACCEPT Vote—Work statement (WS) ready to bid as is  
 CONDITIONAL ACCEPT Vote—Minor Revision Required—RL can approve WS for bid without going back to RAC once TC satisfies RAC's approval condition(s) to his/her satisfaction  
 RETURN Vote—WS requires major revision before it can bid  
 REJECT Vote—Topic is no longer considered acceptable for the ASHRAE Research Program due to duplication of work by another project or because the work statement has a fatal flaw(s) that makes it unbiddable.

**(SAMPLE Form)**  
**ADDITIONAL INFORMATION FOR CONTRACTORS**

6. A ~~Technical Research~~ Paper shall be prepared in a form suitable for presentation at a Society meeting and the author should be prepared to attend such a meeting to make the presentation. In the abstract of this paper, the author should refer to the volume(s) and chapter(s) of the ASHRAE Handbook series related to the work reported and state in the conclusion the possible effect of the research on the technological base.

All Deliverables under this Agreement and voluntary technical articles shall be prepared –using dual units, e.g., rational inch-pound with equivalent SI units shown parenthetically. SI usage shall be in accordance with IEEE/ASTM Standard SI-10.

7. ASHRAE, in return for their financial support, expects that the sponsored research will be reported first at an ASHRAE meeting and in an ASHRAE publication. This may be ASHRAE *Science and Technology in the Built Environment or ASHRAE Transactions (if explicitly approved by the PMS and TC and communicated to MORTS)*, the *ASHRAE Journal*, or the *International Journal of Heating, Ventilation, Air-Conditioning and Refrigerating Research*. The Principal Investigator should be willing to wait for this to take place before presenting the work elsewhere. The submission of papers for publication by ASHRAE shall be made to the Manager of Research and Technical Services.

## 6. SOLICITED PROPOSALS

### 6.1 Evaluation of Solicited Proposals

RAC has the authority to approve for funding projects less than \$~~450~~350,000. Technology Council has authority to approve funding for projects costing from \$~~450~~350,001 to \$~~250~~500,000. For projects costing over \$~~250~~500,000, Technology Council forwards its recommendation to the Board of Directors for their final approval.

**ASHRAE RESEARCH PROJECT ANALYSIS**  
(Completed by Staff January)

Project Number & Title: "

Responsible TC/TG/MTG/SSPC:

Justification of Need:

Work Statement Authors:

Research Strategic Plan Goals Applicable to this Research:

RTAR Submitted:

Position on Implementation Plan:

Coordinated with TC/TG/MTG:

Relates to Previous Project:

Vote of TC/TG/TG/MTG/SSPC:

Vote of RAC:

Vote of RAS:

Vote of Tech Council:

Allocation of ASHRAE Funds Per Fiscal Year

<u>201XX-</u>	<u>20X+X-</u>	<u>20X+X-20X+X</u>
<u>20X+X</u>	<u>20X+X</u>	<u>\$TBD</u>
<u>\$TBD</u>	<u>\$TBD</u>	

CRITERIA A: Best Value for ASHRAE:

Was the lowest cost responsive bid selected? **TBD** If YES, then go to CRITERIA B.

If NO, then all four of the following conditions should be satisfied for the recommended bidder to be approved

- 1) The recommended proposal has the lowest cost to ASHRAE per point (\$/point - using average score) among all responsive proposals - **TBD**
- 2) The average proposal score is five points or more higher than the average score for the lowest-cost responsive proposal - **TBD**
- 3) The proposal was scored higher than the lowest-cost responsive proposal by at least 2/3 of the PES members - **TBD**
- 4) The PES members feel selection of the higher cost recommended proposal is justified and a written explanation of their reasons has been provided - **TBD**

CRITERIA B. Actual or Perceived Conflicts of Interest:

Was the bidder selected a WS author? **TBD** If NO then stop.

If YES, the following two additional questions should be answered as TRUE for the recommended bidder to be approved:

- 1) The selected bidder's proposal does not include material that exceeds what was requested in the WS? **TBD**
- 2) The WS does not specify unique facilities or equipment that only the selected bidder can provide? **TBD**

<u>ESTIMATED</u>	<u>18XXM</u>	<u>\$50-XX,000</u>	<u>SCORE</u>	<u>\$/POINT</u>
Bidder 1	M	\$		
Bidder 2				

**RAC/Tech Council Conflicts-of-Interest:**

**MORTS NOTES:**

Reasons Why Other Recommended or Registered Bidders Did Not Bid:

Potential Bidders:

Bids Due: December 15, 201X

Total Number of Bids:

Bidders:

PES:

Research Subcommittee Chair:

TC Recommended Contractor: TBD

P.I. & Track Record(s):

1. XXXXX

XXXXXX,

Other Key Personnel:

XXXX-

Subcontractor: None

Proposal Evaluation Criteria Used:

Proposals will be evaluated according to the following criteria:

**7.2 URP Review form used by RAC and PES Reviewers**

<b>Project ID</b>		
<b>Project Title</b>		
<b>Principal Investigator (PI)</b>		
<b>Cost / Duration</b>		
<b>Classification: Research or Technology Transfer</b>		
		<b>URP Criteria</b>
<b>Check List Criteria</b>	<b>VOTED NO</b>	<b>Comments &amp; Suggestions</b>
<b>Innovation:</b> Is the proposed research innovative in concept and application?		
<b>Distinctiveness:</b> Does the proposed research involve unique approach, skills equipment which otherwise are not available to any other researchers?		
<b>New Research Topic:</b> In this a new subject of research which TCs have not yet proposed?		
<b>Timeliness:</b> Would a significant opportunity be lost if the project had to go through ASHRAE Research open bid process?		
<b>Co-funding:</b> Is significant co-funding or cost sharing available for the proposed research?		
<b>AT LEAST ONE "YES" VOTE ABOVE IS REQUIRED TO QUALIFY FOR FURTHER CONSIDERATION AS A URP. IF THERE IS NOT AT LEAST ONE "YES" VOTE ABOVE, MARK "REJECT" BELOW</b>		
<b>State-of-the-Art (Background):</b> The proposal should include some level of literature review that documents the importance / magnitude of a problem.		
<b>Advancement to the State-of-the-Art:</b> Is there enough justification for the need of the proposed research? Will this research significantly contribute to the advancement of the State-of-the-Art?		
<b>Relevance and Benefits to ASHRAE:</b> Evaluate whether relevance and benefits are clearly explained in terms of: a. Leading to innovations in the field of HVAC & Refrigeration b. Valuable addition to the missing information which will lead to new design guidelines and valuable modifications to handbooks and standards. Is this research topic appropriate for ASHRAE funding? If not, Reject.		
<b>IF ABOVE THREE RTAR REVIEW CRITERION ARE NOT ALL SATISFIED – MARK "REJECT" BELOW</b>		
<b>Proposed Project description Correct?</b> Are there technical errors and/or technical omissions that the WS has that prevents it from correctly describing the project? If there are, then reject the proposal		

<b>Task Breakdown Reasonable?</b> Is the project divided into tasks that make technical and practical sense? Are the results of each task such that the results of the former naturally flow into the latter? If not, then reject the proposal.		
<b>Adequate Intermediate Deliverables &amp; Critical Project Milestones Identified?</b> The project should include the review of intermediate results by the PMS at logical milestone points during the project. Before project work continues, the PMS must approve the intermediate results.		
<b>Proposed Project Doable?</b> Can the project as described in the proposal be accomplished? If difficulties exist in the proposal that prevent a successful conclusion of the project, then the project is not doable. In this situation, reject the proposal.		
<b>Time and Cost Estimate Reasonable?</b> The time duration and total cost of the project should be reasonable so that the project can be as it is described in the proposal.		
<b>PI Qualifications:</b> Is PI adequately qualified to successfully complete the proposed research? Does PI have enough resources and access to suitable laboratory and equipment to perform the research? If not, then reject the proposal.		
<b>THE ABOVE CRITERIA ARE SIMILAR TO THOSE FOR WORK STATEMENT EVALUATIONS. PLEASE EVALUATE SIMILAR TO WORK STATEMENT</b>		
<b>Decision Options</b>	<b>Decision</b>	<b>Approval Conditions</b>
ACCEPT		
REJECT		

**7.3 Guidelines for Unsolicited Research Proposals**

10. Deliverables

(Insert generic ASHRAE requirements listed below plus any project specific requirements.)

Progress, Financial and Final Reports, Research ~~or Technical~~ Paper(s), and Data shall constitute the only deliverables ("Deliverables") under this Agreement and shall be provided as follows:

- a. Progress and Financial Reports  
Progress and Financial Reports, in a form approved by the Society, shall be made to the Society through its Manager of Research and Technical Services at quarterly intervals; specifically on or before each January 1, April 1, June 10, and October 1 of the contract period.

Furthermore, the Institution's Principal Investigator, subject to the Society's approval, shall, during the period of performance and after the Final Report has been submitted, report in person to the most applicable Technical Committee/Task Group (TC/TG or Committee) at the annual and winter meetings, and be available to answer such questions regarding the research as may arise.

- b. Final Report  
A written report, design guide, or manual, (collectively, "Final Report"), in a form approved by the Society, shall be prepared by the Institution and submitted to the Society's Manager of Research and Technical Services by the end of the Agreement term, containing complete details of all research carried out under this Agreement. Unless otherwise specified, six copies of the final report shall be furnished for review by the Society's Project Monitoring Subcommittee (PMS).

The Final Report shall include an Executive Summary of approximately 800 words that includes the need that initiated the project, a brief description of the technical approach, the results and how the results will benefit the industry and/or the public.

Following approval by the PMS and the TC/TG/MTG/SSPC, in their sole discretion, final copies of the Final Report will be furnished by the Institution as follows:

- An executive summary in a form suitable for wide distribution to the industry and to the public.
- ~~Two bound copies~~
- ~~One unbound copy, printed on one side only, suitable for reproduction.~~
- Two copies ~~on disk or CD-ROM~~; one in PDF format and one in Microsoft Word.

- c. Research Science and Technology for the Built Environment ~~or ASHRAE Transactions Technical Paper(s)~~

One or more papers shall be submitted first to the ASHRAE Manager of Research and Technical Services (MORTS) and then to the "ASHRAE Manuscript Central" Website-based manuscript review system in a form and containing such information as designated by the Society suitable for publication. Papers specified as deliverables. The papers should be submitted as either Research Papers for publication in the Science and Technology for the Built Environment (STBE) or Technical Paper(s) for ASHRAE Transactions. Research papers contain generalized results of long-term archival value, whereas technical papers are appropriate for applied research of shorter-term value. ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects. The paper(s) shall conform to the instructions posted in "Manuscript Central" for an ASHRAE Transactions Technical or Science and Technology for the Built Environment papers. The paper title shall contain the research project number at the end of the title in parentheses, e.g., (xxxx-RP). ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects unless explicitly approved by a vote of the PMS and TC and communicated to MORTS. Conference paper(s) shall conform to the instructions posted in "Manuscript Central" for ASHRAE Conference papers and the title shall contain the research project number at the end of the title in parentheses. e.g., (XXXX-RP).

All papers or articles prepared in connection with an ASHRAE research project, which are being submitted for inclusion in any ASHRAE publication, shall be submitted through the Manager of Research and Technical Services first and not to the publication's editor or Program Committee.

Note: A research or technical paper describing the research project must be submitted after the TC has approved the Final Report. Research papers may also be prepared before the project's completion, if it is desired to disseminate interim results of the project. Contractor shall submit any interim papers to MORTS and the PMS for review and approval before the papers are submitted to ASHRAE Manuscript Central for review.

Proposals should be submitted to:

MANAGER OF RESEARCH & TECHNICAL SERVICES  
ASHRAE  
4791 Tullie Circle, NE180 Technology Parkway NW  
Peachtree Corners Atlanta, GA 3009230329  
MORTS@ashrae.net

#### 7.4 ASHRAE Innovative Research Grant Program

##### Schedule:

Pre-proposals are due August 15 and should be submitted to ASHRAE's Manager of Research & Technical Services, 180 Technology Parkway NW, Peachtree Corners, GA 30092-1791 Tullie Circle, NE, Atlanta, GA 30329. Full proposals are due March 15.

#### 8. RESEARCH AGREEMENT

Once a project, from whatever source, has been approved for funding, the Principal Investigator is notified and sent a sample of the standard ASHRAE Research Agreement. (~~See attached copy~~—the latest approved version of the agreement can be found in Appendix A of the RAC Manual of Procedures and on the "Research" page of the ASHRAE website.) This gives the institution the opportunity to object to any provisions. In the few instances where objections have been raised, they have usually been easily negotiated.

After 2 to 3 weeks, if no objections are received or when objections have been resolved, a final copy of the ASHRAE Research Agreement is prepared for the specific project listing the cost, payment schedule, report schedule and list of deliverables. Two copies are signed by the President and Executive Vice-President of ASHRAE and forwarded to the institution. Upon receipt of a copy signed by authorities of the institution, the initial payment is made, and the project begun.

Subsequent payments are made upon receipt of the quarterly progress reports, the final report (15% of total contract) and upon receipt and acceptance of all deliverables (10% of total contract).

#### RESEARCH AGREEMENT

~~This Research Agreement (the "Agreement") with an effective date of XXX is between American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (the "Society") with a principal place of business at 1791 Tullie Circle, NE, Atlanta, GA 30329 and (the "Institution") XXX, with a principal place of business at XXXX.~~

~~Whereas, the Society has indicated a desire to undertake a research project relating to "XXX"; and,~~

~~WHEREAS, the Institution represents that they have the necessary knowledge, expertise and capability to perform the Services;~~

~~NOW, THEREFORE, the parties hereto, in consideration of the mutual promises and undertakings herein contained do hereby mutually promise and agree as follows:~~

#### ARTICLE I – STATEMENT OF WORK

~~The Institution shall perform the Services described in the proposal entitled, "XXX)," dated XXX. The proposal is hereby made a part of this Agreement by reference and designated Appendix A.~~

#### ARTICLE II – TYPE OF AGREEMENT

~~This Agreement shall be a fixed sum contract in the amount of \$XXX which shall include, but not necessarily be limited to: actual direct labor, materials, travel, subcontracts, employee benefits, general and administrative expenses and overhead, as specified in the proposal.~~

ARTICLE III - PERIOD OF PERFORMANCE

The period of performance shall be from XXX to XXX unless terminated at an earlier date pursuant to the general provision of GENERAL CONDITION IX, TERMINATION, or extended to a later date in accordance with GENERAL CONDITION V, CHANGES IN SCOPE OF SERVICES.

ARTICLE IV - PAYMENTS

During the period of performance, the Society agrees to pay the sum of \$XX to the Institution in [(A)] equal installments of \$[B]. The first installment shall be paid on or within thirty days after the execution of the Agreement. Subsequent payments shall be made within thirty days of the Society's acceptance of Progress and Financial Reports described in GENERAL CONDITION IV, DELIVERABLES, during the term of the Agreement. In addition, a payment of \$XX shall be made contingent upon submission of the Final Report described in GENERAL CONDITION IV, and the final payment of \$XX shall be made contingent upon completion of all Services, the acceptance of the Final Report and the receipt of the Research or Technical Paper described in GENERAL CONDITION IV.

Payment of each installment, except the first and final two, shall be contingent upon receipt and acceptance, in the Society's sole discretion, of the Progress Reports described in GENERAL CONDITION IV.

ARTICLE V - COMPLETE AGREEMENT

This Agreement plus the attached GENERAL CONDITIONS I through XVII constitute the complete agreement of the parties hereto with respect to the Services listed herein and supersedes all prior statements oral or written. This Agreement may be modified only by mutual written agreement of the parties.

IN WITNESS WHEREOF, the said parties have caused their corporate names and seals to be affixed hereto by the duly authorized officers.

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

Name: \_\_\_\_\_ Name: \_\_\_\_\_  
Date: \_\_\_\_\_ Date: \_\_\_\_\_  
\_\_\_\_\_ Jeff H. Littleton \_\_\_\_\_  
Title: President Title: Executive Vice President

{Seal}

INSTITUTION

Name:

Date:

Title:

{Seal}

GENERAL CONDITIONSGENERAL CONDITION I – WORK PERFORMANCE

The Institution shall perform the Services by the utilization of its best efforts, in a workmanlike manner by qualified personnel, in accordance with standard scientific and technical procedures, and practices.

GENERAL CONDITION II – LIMITATION OF OBLIGATION

Neither party shall be obligated to incur costs (excluding any previously agreed to shared amount) beyond those shown in ARTICLE II, unless agreed to in writing by the parties.

GENERAL CONDITION III – DISBURSEMENTS

The Institution agrees that disposition of the funds paid them for the Services shall be generally in accordance with that outlined in the Application for Grant of Funds previously submitted by the Institution and attached hereto. No expenditures in excess of \$1,000.00 beyond that so defined in the proposal shall be made for equipment or supplies except on written approval by the Society's Manager of Research and Technical Services.

GENERAL CONDITION IV – DELIVERABLES

Progress, Financial and Final Reports, Research or Technical Paper(s), and Data shall constitute the only deliverables ("Deliverables") under this Agreement and shall be provided as follows:

## a. Progress and Financial Reports

Progress and Financial Reports, in a form approved by the Society, shall be made to the Society through its Manager of Research and Technical Services at quarterly intervals; specifically, on or before each January 1, April 1, June 10, and October 1 of the contract period.

Furthermore, the Institution's Principal Investigator, subject to the Society's approval, shall, during the period of performance and after the Final Report has been submitted, report in person to the sponsoring Technical Committee/Task Group (TC/TG) at the annual and winter meetings, and be available to answer such questions regarding the research as may arise.

## b. Final Report

A written report, design guide, or manual, (collectively, "Final Report"), in a form approved by the Society, shall be prepared by the Institution and submitted to the Society's Manager of Research and Technical Services by the end of the Agreement term, containing complete details of all research carried out under this Agreement. Unless otherwise specified, six copies of the final report shall be furnished for review by the Society's Project Monitoring Subcommittee (PMS).

Following approval by the PMS and the TC/TG, in their sole discretion, final copies of the Final Report will be furnished by the Institution as follows:

- An executive summary in a form suitable for wide distribution to the industry and to the public.
- Two bound copies
- One unbound copy, printed on one side only, suitable for reproduction.
- Two copies on CD-ROM; one in PDF format and one in Microsoft Word.

## c. Science and Technology for the Built Environment or ASHRAE Transactions Technical Papers

One or more papers shall be submitted first to the ASHRAE Manager of Research and Technical Services (MORTS) and then to the "ASHRAE Manuscript Central" website-based manuscript review system in a form and containing such information as designated by the Society suitable for publication. Papers specified as deliverables should be submitted as either Research Papers for Science and Technology for the Built Environment or Technical Paper(s) for ASHRAE Transactions. Research papers contain generalized results of long-term archival value, whereas technical papers are appropriate for applied research of shorter-term value. ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects. The paper(s) shall conform to the instructions posted in "Manuscript Central" for an ASHRAE Transactions Technical or Science and Technology for the Built Environment papers. The paper title shall contain the research project number (XXXX-RP) at the end of the title in parentheses, e.g., (XXXX-RP).

All papers or articles prepared in connection with an ASHRAE research project, which are being submitted for inclusion in any ASHRAE publication, shall be submitted through the Manager of Research and Technical Services first and not to the publication's editor or Program Committee.

d. Data

Data is defined in General Condition VI, "DATA"

e. Project Synopsis

A written synopsis totaling approximately 100 words in length and written for a broad technical audience, which documents 1. Main findings of research project, 2. Why findings are significant, and 3. How the findings benefit ASHRAE membership and/or society in general shall be submitted to the Manager of Research and Technical Services by the end of the Agreement term for publication in ASHRAE Insights

The Society may request the Institution submit a technical article suitable for publication in the Society's ASHRAE JOURNAL. This is considered a voluntary submission and not a Deliverable. Technical articles shall be prepared using dual units, e.g., rational inch-pound with equivalent SI units shown parenthetically. SI usage shall be in accordance with IEEE/ASTM Standard SI-10.

GENERAL CONDITION V – CHANGES IN THE SCOPE OF SERVICES

The Society or the Institution may, at any time, by written request suggest changes to the scope of Services, including but not limited to (a) revising, adding or deleting from the Services, or (b) revising the period of performance. Such request will be incorporated into this Agreement by mutual consent in writing. If any changes in the Scope of Services result in an increase or decrease in the total cost for the Services, the fixed sum described in ARTICLE II will be adjusted before such change becomes effective.

GENERAL CONDITION VI – DATA

The Institution agrees to maintain true and complete books and records, including but not limited to notebooks, reports, charts, graphs, analyses, computer programs, visual representations etc., (collectively, the "Data"), generated in connection with the Services. Society representatives shall have access to all such Data for examination and review at reasonable times. The Data shall be held in strict confidence by the Institution and shall not be released to third parties without prior authorization from the Society, except as provided by GENERAL CONDITION VII, PUBLICATION. The original Data shall be kept on file by the Institution for a period of two years after receipt of the final payment and upon request the Institution will make a copy available to the Society upon the Society's request.

GENERAL CONDITION VII – PUBLICATION

The intent of the parties is to make the results of the Services available to, and for the benefit of, the public. In view of their financial support of the Services, the Society shall own the exclusive rights to publication of all Data, Research or Technical Papers, Progress, Financial and Final Reports resulting from the project for the shortest of the following periods:

- a. \_\_\_\_\_ Until the Society gives the Institution written permission to publish the results, or
- b. \_\_\_\_\_ Until the Research or Technical Paper described in GENERAL CONDITION IV, DELIVERABLES, is published, at which time the paper or derivative paper based on data resulting from the Services, may be published by the Institution with acknowledgement to the Society, or
- c. \_\_\_\_\_ Until the period of one year has passed from the submission of said Research or Technical Paper to the Society at which time the paper or derivative paper based on data resulting from the Services, may be published by the Institution with acknowledgement to the Society,

Prior to publication by either party, the Institution may catalog and place theses or reports of the Services in the Institution's library for research and reference purposes.

The cooperative character of the investigation shall be recognized in each text, on the title page or on the cover of the Final Reports, Research or Technical Papers or other published accounts of the Services by including the following annotation: "Results of Cooperative Research between the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., and [Name of Institution]."

Prior to the Institution's offering for sale or distribution any book, manual, guide, software, or other such product of commercial value created in connection with the Services, the Institution and/or the Principal Investigator shall enter into a royalty or publication agreement with the Society.

The Institution may not use the ASHRAE name or logo in any manner which may imply the Society's endorsement of any publication or software resulting from the Services without prior written permission from the Society.

#### GENERAL CONDITION VIII – PATENTS

The Institution agrees to promptly disclose any patentable or copyrightable inventions resulting from the Services to the Society and will assist the Society in seeking a patent(s) with respect to such inventions. Alternatively, the Society may permit the Institution to seek a patent provided: (i) the Institution executes all documents necessary to obtain such patent; (ii) the Institution grants to the Society, a worldwide, non-exclusive, irrevocable, sub-licensable, royalty-free license use for any purpose, the patented work; and (iii) the Institution shares its net income from such patent(s) with the Society in the portions 40% to the Society and 60% to the Institution.

#### GENERAL CONDITION IX – TERMINATION

The Society shall have the right to terminate this Agreement upon 30 days' notice in writing to the Institution for any reason. If the Society exercises this termination right, the Institution agrees to stop all work to the extent specified in the notice and incur no further expenses beyond those authorized in such notice.

Likewise, the Institution shall have the right to terminate this Agreement upon 30 days' notice in writing to the Society for any reason. If the Institution exercises this termination right, the Institution agrees to stop all work immediately upon the date notice is given, except to the extent authorized by the Institution.

In the event of termination by either party, the Society will determine, in consultation with the Institution, the portion of the fixed sum earned to the date of termination. The Institution agrees, upon the Society's request, to complete the portion of the Services initiated prior to the notice of termination. The Society will pay the Institution

for such Services and any agreed upon expenses up to the fixed sum of the Agreement stated in Article II, "TYPE OF AGREEMENT." Expiration, cancellation or termination of the Agreement under any circumstances will in no way be construed as a restriction, limitation or waiver of either party's rights to pursue any additional remedy (ies) at law or equity.

#### GENERAL CONDITION X – KEY PERSONNEL

The Institution agrees to assign the persons listed in the proposal to perform the Services for the time period and at the level of activity stated in the proposal. Should, for any reason, one or more of these persons be unavailable to carry out the assignment, the Institution shall, with prior approval of the Society, replace them with a person(s) of equal abilities and qualifications.

#### GENERAL CONDITION XI – STATUS ASSIGNMENT

The Institution's status under this Agreement shall be that of an independent contractor and not that of an agent or employee. The Institution shall have no right or power to enter into any contract or commitment on behalf of the Society. The parties acknowledge that the identity and expertise of the Institution were and continue to be material circumstances upon which the Society relied in entering into this Agreement, and therefore this Agreement is not assignable by the Institution without the prior written consent of the Society.

#### GENERAL CONDITION XII – COPYRIGHT INFRINGEMENT

The Institution represents and warrants to the Society that any and all materials to be prepared under this Agreement for the Society do not and will not infringe upon the copyright, patent, or license or otherwise violate the proprietary rights of any person or entity. The Institution hereby agrees to indemnify and hold the Society harmless from and against all liability, loss, damage or injury and reasonable costs and expenses (including reasonable attorneys' fees and costs of any investigation or suit related thereto, and of any judgment under any such suit satisfying any claim described herein) arising from: (i) any misrepresentation by, or breach of the representations and warranties given by, the Institution herein, or from a breach of any covenant or warranty of the Institution contained in this Agreement, or from any misrepresentation in or omissions from any other instruments, or any breach of any covenant or warranty in any instrument, furnished or to be furnished by the Institution hereunder; or (ii) from any suit, action, proceeding, claim or investigation pending or threatened against or affecting the Institution or the Society which alleges any such infringement.

In the event there is such a claim, the Institution agrees to: (i) procure for the Society the continuing right to use of the material without restriction; (ii) replace the material which is the subject of an infringement claim with material of equal suitability, in the opinion of the Society, for the use to which the infringing material was used; or (iii) modify the material which is the subject of the infringement claim so that it is no longer subject to such a claim.

#### GENERAL CONDITION XIII – INSURANCE

The Institution hereby represents and warrants to the Society and agrees hereby to furnish the Society with a certificate proving compliance therewith, that it is presently conducting its business so as to comply in all respects with all applicable statutes, ordinances, rules, regulations and orders of any governmental authority with regard to Workers' Compensation Insurance coverage. Such coverage may take the form of a certificate of workers' compensation or proof of self insurance.

The Institution covenants and agrees to purchase and maintain, during the term of this Agreement Employer's Liability Insurance ("Insurance") in a minimum amount of One Million Dollars (\$1,000,000) for the injury or death of any one employee. The terms of such Insurance shall provide that the Society receive 30 days' written advance notice prior to the cancellation, termination, alteration or material change of any such Insurance coverage.

The Institution shall, at its own expense, purchase and maintain during the performance of this Agreement, Comprehensive Automobile Liability and Comprehensive General Liability Insurance with coverage and in such minimum amounts as provided below:

1. Comprehensive Automobile Liability insurance shall include coverage for owned, hired and non-owned vehicles and shall not be in an amount less than Three Hundred Thousand Dollars (\$300,000) combined single limit for any one occurrence.
2. Comprehensive General Liability insurance shall include coverage for personal injury, bodily injury and property damage for Premises Operations, and Products/Completed Operations Hazard. The amount of such insurance shall not be in an amount less than One Million Dollars (\$1,000,000) combined single limit for any one occurrence.

All insurance policies referred to herein shall include, by endorsement to the policy(ies), the Society as an "additional insured." The Institution shall incur the cost of any and all premiums and endorsements related to all types of insurance described herein.

Evidence of the coverage for each type of insurance described herein shall state that coverage provided is primary and is not excess or contributing with any insurance or self insurance maintained by the Institution.

The Society shall have the right to inspect or obtain a copy of the original policy(ies) of insurance. The Institution shall, if requested, furnish the required certificates and endorsements to the Society prior to commencing performance of the Services described herein. All insurance certificates, endorsements, cancellations, terminations, alterations and material changes of such insurance shall be issued and submitted to the following:

Manager of Research and Technical Services  
ASHRAE, Inc.  
1791 Tullie Circle, NE  
Atlanta, GA 30329

GENERAL CONDITION XIV - INDEMNIFICATION

In connection with any and all third party actions, losses, claims, demands and damages arising in connection with the performance of this Agreement:

- A. The Society agrees to indemnify and hold harmless the Institution, from and against any and all losses, claims, demands, and damages that may arise by reason of any acts or omissions on the part of the Society, its agents or employees, in performance of this Agreement, and shall assume full responsibility for the defense thereof, and upon its failure to do so on proper notice, the Institution reserves the right to defend such action and to charge all costs to the Society.
- B. The Institution agrees to indemnify and hold harmless the Society, from and against any and all losses, claims, demands, and damages that may arise by reason of acts or omissions on the part of the Institution, its agents, employees, contractors, and subcontractors, in performance of this Agreement, and shall assume full responsibility for the defense thereof, and upon its failure to do

so, on proper notice, the Society reserves the right to defend such action and to charge all costs to the Institution.

GENERAL CONDITION XV - REPRESENTATIONS

Standard of Care. The Institution represents that it is knowledgeable and experienced in research services and possesses the necessary expertise, facilities, and legal right to provide the Services contemplated hereunder. The

Institution represents to the Society that the Services shall be performed in a workmanlike manner consistent with the standards of care, diligence, and skill ordinarily exercised by similar professional research institutions.

Laws and Regulations. The Institution represents and certifies that in the performance of the Services it is familiar with, understands and will comply with all applicable statutes, rules, regulations, orders, judgments, directives or other governmental requirements of the United States and of any state or political subdivision or of any foreign nation, jurisdiction, or subdivision where the Services will be conducted, including, without limit, licensing and certification requirements, laws and regulations designed to protect human and animal test subjects, environmental laws, health and safety laws, worker health and safety laws pertaining to labor wages, hours and other conditions of employment. The Institution shall obtain and/or will obtain all permits, licenses, or other forms of documentation required to provide the Services for the Society in compliance with said laws. The Institution shall furnish the Society with certification of compliance with applicable permits and licenses prior to performing the Services. Where appropriate, the Institute shall certify that it complies with all the Department of Health and Human Services (National Institute of Health [NIH]) guidelines regarding use of human and animal subjects in research and that an approved animal or human subjects Board has assured compliance for the Services.

GENERAL CONDITION XVI - WARRANTY

The Institution warrants that all Services performed under this Agreement shall conform to the specifications described in the proposal referenced in Article I, Statement of Work, and the Society shall provide the Institution notice of any non-conformance as soon as practicable after discovery of such non-conformance. Institution shall promptly correct, at no additional charge to Society, any such non-conformance caused in material part by the Institution's acts or omissions.

GENERAL CONDITION XVII - MISCELLANEOUS

a. Notices. All notices or other communications required to be given hereunder must be in writing and delivered either personally, by facsimile with electronic confirmation, by overnight courier or by U.S. mail, certified, return receipt requested, postage prepaid, and addressed as provided in this Agreement or as otherwise requested in writing by the receiving party. Notices delivered personally will be effective upon delivery and notices delivered by facsimile, overnight courier or U.S. mail will be effective upon their receipt by the party to whom they are addressed.

\_\_\_\_\_ If to Society:

ASHRAE, Inc.  
1791 Tullie Circle, NE  
Atlanta, GA 30329  
Attn: Michael Vaughn

\_\_\_\_\_ If to Institution:

\_\_\_\_\_ XXXXX  
\_\_\_\_\_ XXXXX  
\_\_\_\_\_

XXXXX

b. Governing Law. This Agreement will be governed by and construed and enforced in accordance with the laws of the State of Georgia, without regard to any conflicts of laws principles applied in that state.

c. Severability. In the event any provision of this Agreement or any part thereof is declared invalid or unenforceable by a final judgment or decree of a court of competent jurisdiction from whose decision no appeal is taken, or a decree of a competent governmental agency, all other sections, provisions and parts of this Agreement, and the application of such provision in any other circumstances, shall remain in full force and effect.

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

Name:

Jeff H. Littleton

Date:

Title: ~~Executive Vice-President~~

INSTITUTION

Name:

Date:

Title:

**9. PROJECT MONITORING**

Monitoring:

The PMS is responsible for maintaining close contact with the contractor and providing necessary direction to accomplish the stated objective(s) of the project, within the limitations of the budget and the Work Statement. This includes the technical editing of any resultant Special Publications, assisting with review and editing of Research ~~or Technical~~ Papers and recommending acceptance of the product of the project.

Missed Critical Project Milestone:

The final deliverable is a Final Report or a Manual, a Research ~~or Technical~~ Paper, a Special Publication, a journal article, or a combination of these. The final report must be approved by the PMS and by a vote of the sponsoring TC before the project is complete. Publication of any material prior to approval by the PMS and sponsoring TC is not allowed.

**RESEARCH PROGRESS REPORT**

**Submit Copies of this Report to:**

Manager of Research & Technical Services  
ASHRAE

180 Technology Parkway NW  
Peachtree Corners, GA 30092  
1791 Tullie Circle  
Atlanta, GA 30329

E-mail: MORTS@ashrae.net

\*If the date in (b) of #2 is later than that in (a), a no-cost extension request must be made to ASHRAE headquarters. **Noting a late completion date on this form does not automatically provide such an extension!**

## RESEARCH FINANCIAL REPORT

Submit \_\_\_\_\_ copies to:

Manager of Research & Technical Services  
ASHRAE  
[180 Technology Parkway NW](#)  
[Peachtree Corners, GA 30092](#)  
[1791 Tullie Circle, NE](#)  
[Atlanta, Georgia 30329](#)  
E-mail: [MORTS@ASHRAE.net](mailto:MORTS@ASHRAE.net)

### 10. PROJECT COMPLETION

The completion phase of a project is usually initiated by the submission of the draft of the final report (in some cases this may be a technical manual). The draft of the final report/manual (6 copies and electronic format) is sent to the Manager of Research and Technical Services (MORTS) who distributes copies to the PMS. The PMS reviews and evaluates the report and makes suggestions for corrections and revisions to the Principal Investigator. The PMS shall ensure that an Executive Summary of about 800 words that can be easily understood by a layperson is included in the Final Report. It should include information on project scope, results, and how this project has benefited ASHRAE, the industry and/or the general public.

The PMS comments on the draft final report are considered and incorporated into a final draft. The final draft is reviewed by the PMS and forwarded with a recommendation to the TC (or TG, MTG w/research authority, SSPC, or other authorized committee sponsoring the project) for a vote of approval. When the Principal Investigator feels that he/she has understood the sense of the PMS, he/she will prepare the Research ~~or Technical~~ Paper(s) required by the ~~ASHRAE R~~research ~~A~~greement.

The paper is submitted first to the MORTS and then to the "ASHRAE Manuscript Central" website-based manuscript review system in a form and containing such information as designated by the Society suitable for publication. The paper should be submitted ~~as either a Research Paper for publication in the Science and Technology for the Built Environment (STBE) or Technical Paper for ASHRAE Transactions. Research papers contain generalized results of long-term archival value, whereas technical papers are appropriate for applied research of shorter-term value. ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects.~~ The paper(s) shall conform to the instructions posted in "Manuscript Central" for ~~an ASHRAE Transactions or Science and Technology for the Built Environment papers.~~ The paper title shall contain the research project number at the end of the title in parentheses, e.g., (99XXX-9999-RP). ~~ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects unless explicitly approved by a vote of the PMS and TC and communicated to MORTS. Conference paper(s) shall conform to the instructions posted in "Manuscript Central" for ASHRAE Conference papers and the title shall contain the research project number at the end of the title in parentheses, e.g., (XXXX-RP).~~

The final approved manuscript of the Final Report is furnished to the MORTS as follows:

- An executive summary in a form suitable for wide distribution to the industry and to the public.
- ~~—Two bound copies.~~
- ~~—One unbound copy, printed on one side only, suitable for reproduction.~~
- Two copies ~~on disks~~; one in PDF format and one in Microsoft Word.

## DISPOSITION OF ASHRAE SPONSORED RESEARCH RESULTS

Please complete form and send to:      Manager of Research and Technical Services  
 ASHRAE  
 180 Technology Parkway NW  
 Peachtree Corners, GA 30092

~~1791 Tullie Circle NE~~

Atlanta, GA 30329  
 MORTS@ashrae.net

Manager of Research and Technical Services will send to Special Publications, Handbook and relevant TC's, TG's, MTGs and SSPCs for action.

### 11. DISSEMINATION OF RESULTS

The dissemination of results of a project and their wide acceptance and use is the ultimate goal of ASHRAE research. The actions in Section 10 on project completion describe how some of the dissemination is started. Those actions will result in one or more papers being published in Science and Technology for the Built Environment ~~or ASHRAE TRANSACTIONS~~. ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects unless explicitly approved by a vote of the PMS and TC and communicated to MORTS. Reprints of the paper will also be available to the public at an ASHRAE meeting at a nominal charge. The possibility also exists for a Research ~~or Technical~~ Paper to be made part of a TECHNICAL DATA BULLETIN. For those projects for which an *ASHRAE Journal* article is written the research results become available to all ASHRAE members.

**WORK STATEMENT# 1388** (Same as RTAR)  
 SPONSORING TC/TG/MTG/SSPC: # 6.10 – Fuels and Combustion  
 CO-SPONSORING TC/TGs TC 6.1 and TC 6.6

### J. DELIVERABLES

- a) Progress and Financial Reports to the PMS must be made at quarterly intervals. All available data must be available at or before the scheduled report time. Data and/or reporting information may be transmitted electronically or on ASHRAE approved digital media.
- b) The Principal Investigator shall report in person to the TC at the annual and winter meetings and answer such questions regarding the research as may arise.
- c) Test plan for review and approval by the PMS as per the description of Task 2 in the Scope section above.
- d) List of specific appliances to be tested for review and approval by the PMS as per the description of Task 3 in the Scope section above.
- e) Memorandum proposing suggested changes to standards, code requirements, and test procedures, as described in Task 6 of the Scope section. Contractor will present this material and discuss it with the PMS.
- f) A Final Report shall be prepared and submitted to the Society by the end of the contract period covering complete details of all research carried out on the project. The final report shall include, as a minimum, the following:
  1. An Executive Summary suitable for wide distribution to the industry and to the public.
  2. Description of test procedure, locations, and appliances
  3. Data collected, per Task 4 in the Scope section.
  4. Results should be presented in a format that will facilitate direct comparison of the results for the different barometrically determined altitudes and their use in recommending the amount of gas-input derate for the appliance classes for high- altitude operation.
  5. Specific recommendations for changes to standards and test methods as described in Task 6
 Unless otherwise specified, the final report shall be furnished in the following manner:

~~— Six bound copies~~

~~— One unbound copy, printed on one side only, suitable for reproduction.~~

- Two copies on ASHRAE approved digital media; one in ASCII-PDF format and one in the latest versions of ~~----~~Microsoft Word format for the report and in Microsoft Excel format for data and approved by the PMS.

g) One or more papers based on the final results of the project shall be submitted first to the ASHRAE Manager of Research and Technical Services (MORTS) and then to the "ASHRAE Manuscript Central" website-based manuscript review system in a form and containing such information as designated by the Society suitable for publication. The papers should be submitted ~~as either Research Papers for publication in the~~ Science and Technology for the Built Environment (STBE) ~~or Technical Paper(s) for ASHRAE Transactions. Research papers contain generalized results of long term archival value, whereas technical papers are appropriate for applied research of shorter term value. ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects.~~ The papers shall conform to the instructions posted in "Manuscript Central" for ~~an technical ASHRAE Transactions Technical or~~ Science and Technology for the Built Environment papers. The ~~technical~~ paper title shall contain the research project number (~~xxxx-RP~~) at the end of the title in parentheses, e.g., (9999~~XXXX~~-RP). ~~ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects unless explicitly approved by a vote of the PMS and TC and communicated to MORTS. Conference paper(s) shall conform to the instructions posted in "Manuscript Central" for ASHRAE Conference papers and the title shall contain the research project number at the end of the title in parentheses, e.g., (XXXX-RP).~~

h) A Technical Article suitable for publication in the ASHRAE Journal, if requested by the Society.

#### **APPENDIX 4: SAMPLE WORK STATEMENT AND COVER SHEET**

#### **J. DELIVERABLES**

- f) A Final Report shall be prepared and submitted to the Society by the end of the contract period covering complete details of all research carried out on the project. The final report shall include, as a minimum, the following:
5. Specific recommendations for changes to standards and test methods as described in Task 6
- Unless otherwise specified, the final report shall be furnished in the following manner:
- ~~-six bound copies~~
  - ~~-one unbound copy, printed on one side only, suitable for reproduction.~~
  - Two copies on ASHRAE approved digital media; one in PDF format and one in the latest versions of ~~----~~Microsoft Word format for the report and in Microsoft Excel format for data and approved by the PMS.
- g) One or more papers based on the final results of the project shall be submitted first to the ASHRAE Manager of Research and Technical Services (MORTS) and then to the "ASHRAE Manuscript Central" website-based manuscript review system in a form and containing such information as designated by the Society suitable for publication. The papers should be submitted ~~as either Research Papers for publication in the~~ Science and Technology for the Built Environment (STBE) ~~or Technical Paper(s) for ASHRAE Transactions. Research papers contain generalized results of long term archival value, whereas technical papers are appropriate for applied research of shorter term value. ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects.~~ The papers shall conform to the instructions posted in "Manuscript Central" for ~~an technical ASHRAE Transactions Technical or~~ Science and Technology for the Built Environment papers. The ~~technical~~ paper title shall contain the research project number (~~xxxx-RP~~) at the end of the title in parentheses, e.g., 9999(~~XXXX~~-RP). ~~ASHRAE Conference papers are not acceptable as deliverables from ASHRAE research projects unless explicitly approved by a vote of the PMS and TC and communicated to MORTS. Conference paper(s) shall conform to the instructions posted in "Manuscript Central" for ASHRAE Conference papers and the title shall contain the research project number at the end of the title in parentheses, e.g., (XXXX-RP).~~

**APPENDIX 5: CO-FUNDING AGREEMENT FOR ASHRAE RPs****RESEARCH CO-FUNDING AGREEMENT**

<Co-Funding Organization> and ASHRAE CO-FUNDING AGREEMENT  
for  
<XXXX-RP Title>  
<Date>

This serves as an Agreement ("Agreement") between the <Name and address of Co-Funding Organization> and ASHRAE at 180 Technology Parkway NW, Peachtree Corners, GA 30092 in support of <Project Identifier RP-XXXX and title>

**1. FUNDING SUPPORT**

For the effort to be awarded and contracted by ASHRAE, <Co-Funding Organization>, shall provide co-funding support in the amount of X thousand, X hundred and X dollars (\$XX,XXX) total. Payment will be made to ASHRAE in two (2) equal payments of \$XX,XXX each:

- < Co-Funding Organization> shall pay ASHRAE X thousand, X hundred and X dollars (\$XX,XXX) within 30 days of execution of this Agreement and receipt of an ASHRAE invoice for payment,
- < Co-Funding Organization> shall pay ASHRAE the balance of X thousand, X hundred and X dollars (\$XX,XXX) within 30 days of < Co- Funding Organization> receipt of the ASHRAE approved final report (see item 4 below) and an invoice for payment.

**2. PROJECT MANAGEMENT**

ASHRAE shall maintain management control and oversight of the project. It is understood and agreed however, that an <Co-Funding Organization> designated representative will be included on the Project Monitoring Subcommittee (PMS) with responsibility for managing <RP-XXXX>.

**3. SUSPENSIONS AND TERMINATIONS**

< Co-Funding Organization> shall have the right to terminate this Agreement without prejudice if the effort is prematurely terminated by ASHRAE or if the approved final report is not provided to < Co-Funding Organization> within 30 days of ASHRAE approval of the draft final report for publication.

**4. REPORTS**

ASHRAE shall retain the sole copyright to any and all reports resulting from the project. After approval for release of the report(s) by Project Monitoring Subcommittee (PMS), and ASHRAE sponsoring Technical Committee (TC) <XX,XX>, ASHRAE shall extend to <Co-Sponsoring Organization> a nonexclusive right to publish, reproduce, duplicate and use such report(s) providing that the ASHRAE copyright notice is included on all copies of the report(s) distributed by <Co-Sponsoring Organization>. Also, <Co-Sponsoring Organization> may allow others to publish, reproduce, duplicate and use such report(s) providing that the ASHRAE copyright notice is included on all such copies of the report(s). <Co-Sponsoring Organization> agrees that when the

report(s) is (are) used by <Co-Sponsoring Organization>, and reproduced for forwarding to others, that the reports shall be reproduced in full and will include all public notices, acknowledgments, and warnings. <Co-Sponsoring Organization> warrants that it shall distribute the report(s) to interested parties at a charge to recipients that does not exceed reasonable out-of-pocket costs for copying, handling, and postage. However, except as provided above, publication of these report(s) in technical journals or other publications, whether in whole or in part, is not authorized without the expressed prior consent of <ASHRAE>.

ASHRAE shall provide <Co-Sponsoring Organization> with one (1) single-sided, non-bound, pseudo-original of the report for said purposes upon request. Two copies of the electronic document shall also be delivered electronically that integrates all text, figures, tables, photographs, etc. into 1) a single-file Microsoft Word document and 2) into a single-file Adobe Acrobat PDF document.

#### **5. ACKNOWLEDGMENT OF SUPPORT**

In the acknowledgment section of the report, a line will be added to reflect that a portion of the project support monies were contributed by <Co-Sponsoring Organization>. This project was supported, in part, by the <Co-Sponsoring Organization>.

#### **6. DATA AND PATENT RIGHTS**

Technical data developed under this program are considered the valuable property of ASHRAE. It is anticipated that ASHRAE will allow results arising from this effort to be incorporated into the pertinent sections of the ASHRAE Handbooks. ASHRAE reserves the right to control data release until approved for release by the PMS and its sponsoring TC.

#### **7. ENTIRE AGREEMENT**

This Agreement, and all other exhibits and attachments expressly incorporated into the Agreement, as the same may be amended or modified in writing, constitutes the entire Agreement between the parties and superseded all prior understandings, transactions, communications and writings with respect to the matters referred to therein.

The terms outlined in this Agreement may not be modified or terminated orally. No modification or termination, nor any claimed waiver of any of the provisions hereof, shall be binding unless in writing and signed by the party against whom such modification, termination or waiver is sought to be enforced. Such notification shall be directed to the signatories of this Agreement.

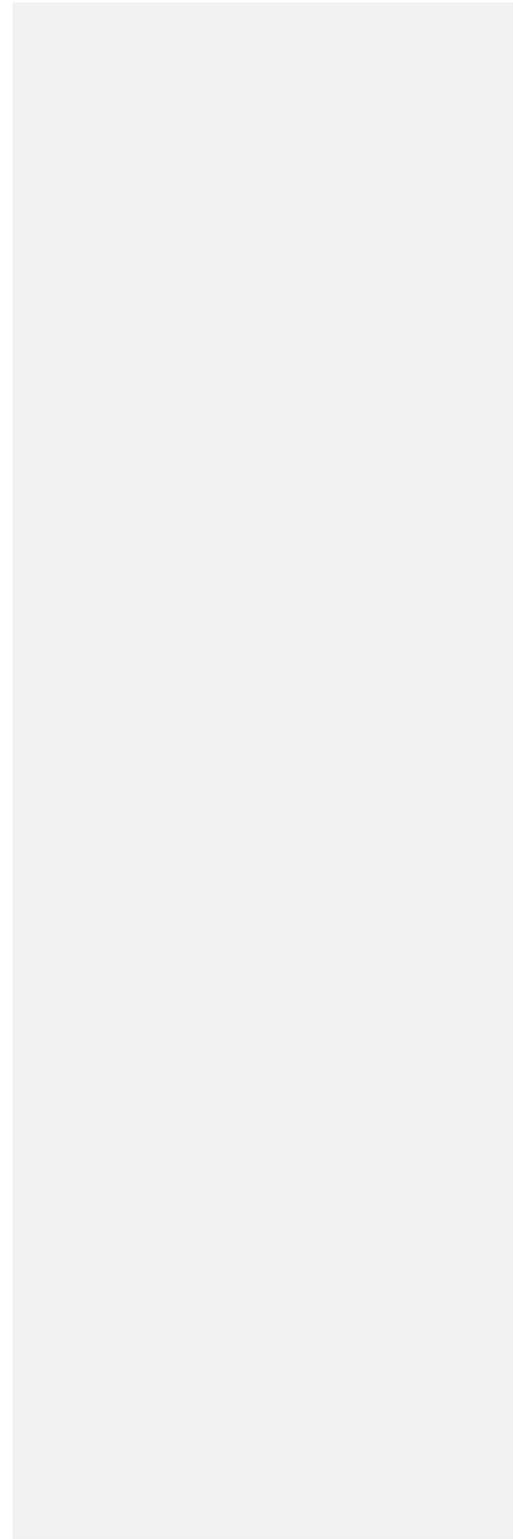
<Co-Sponsoring Organization> \_\_\_\_\_ American Society of Heating, Refrigeration and  
Air-Conditioning Engineers, Inc.

By: \_\_\_\_\_ By: \_\_\_\_\_  
(Signature) (Signature)

\_\_\_\_\_  
(Name) (Name)

\_\_\_\_\_  
(Title) (Title)

\_\_\_\_\_  
(Date) (Date)



# ASHRAE Research Project Summary

RP-XXXX

Project Title:

## Project Team Details

University(ies)

Investigators

- 1.
- 2.

## Project Research Goals

- XXX
- XXX
- XXX
- XXX

## Abstract

Enter Text here.

### Photo

These can be pictures of the test stand, PI in action

### Photo

Can be summary table of results

### Photo

Can be pictures of the standard or guideline where work will publish

## Summary of the Work

Summarize the findings, how this will impact the science, how it will be used to update a Standard. Etc. This should be the Ah Ha moment of the work and the deliverables.

## Success Stories

Share other success stories of the reserach. This would be collaboration that resulted from the work, Students who received their PhD or MA from the work, undergrad students who decided to pursue research programs because of the work, or examples of new reserach areas identified.