



Shaping Tomorrow's
Built Environment Today

MINUTES

RESEARCH ADMINISTRATION COMMITTEE

OCTOBER 12TH & OCTOBER 26TH, 2020

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OCTOBER 12TH & OCTOBER 26TH, 2020

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**PRINCIPAL MOTIONS
RESEARCH ADMINISTRATION COMMITTEE
OCTOBER 12TH & OCTOBER 26TH, 2020**

NO.	PAGE	MOTION
1	1	the draft minutes of the RAC 2020 Virtual annual meeting be approved as drafted - OA/WH Motion Passed RAC 11-0-1-2 ¹ -(14) CNV
2	2	Update ASHRAE Research page on ASHRAE website to indicate that nominations or applications for the following awards and grants will not be considered for SY20-21 due to severe budget constraints: <i>New Investigator Award</i> , <i>Innovative Research Grant</i> , and <i>Graduate Student Grant-in-Aid (GIA)</i> .- WM/CS Motion Passed RAC 12-0-1-1 ² (14) CNV
3	3	URP-1911 be <u>rejected for funding as URPs</u> – WM/LC Motion Passed RAS 6-0-0-0 (6) CV – Motion Passed RAC 13-0-1-0 (14) CNV
4	3	URP-1914 be <u>rejected for funding as URPs</u> – WM/LC Motion Passed RAS 6-0-0-0 (6) CV – Motion Passed RAC 13-0-1-0 (14) CNV
5	4	<u>Service to ASHRAE Research Award</u> for SY 20-21 be awarded to Lawrence Markel for his work on RP-1848, <i>Assessing the Impacts and Value of ASHRAE’s Standards and Technology</i> – AK/BH Motion Passed RPS 6-0-0-0 (6) CV - Motion Passed RAC 13-0-1-0 (14) CNV
6	4	<u>WS-1790 Water Solubility and the Distribution of Water Between Vapor and Liquid Phases of Low GWP Refrigerants</u> be <u>Conditionally Accepted</u> – RAS vote 5-0-1 (6) CNV – RAC Vote 13-0-1 (14) CNV
7	4	<u>WS-1854, Database of Ultraviolet Inactivation Rate Constants (k-values) for Microorganisms Critical to System Design</u> – CE/OA <u>Conditionally Accepted</u> – RAS vote 3-2-1 (6) CNV - RAC Vote 8-4-1-1 (14) CNV
8	4	<u>WS -1858, Evaluation of HVAC ventilation effectiveness in reducing semi-volatile organic compounds (SVOCs) in indoor spaces</u> – WM/CS <u>Return w/ Comments</u> – RAS Vote: 6-0-0-(6) CV
9	5	<u>WS-1918, The Verification of openings, the limitations of openings, air distribution and humidity conditions in Naturally Ventilated spaces to compliment Section 6.4 of ASHRAE Standard 62.1</u> – Return w/ comments – NF/LC Return– RAS Vote: 5-0-1-6 CNV
10	5	<u>RTAR-1913, Study of the Level of Filtration Required to Maintain Electronic Equipment Reliability in Regions of High Sea Salt Concentrations</u> – CS/WH <u>Return to TC for rework & refocus</u> – RPS Vote 5-0-1 (6) CNV
11	5	<u>RTAR-1917, Further Exploration of ASHRAE Limits on Temperature Cycles, Ramps and Drifts</u> – TC 2.1 (Physiology & human Environment), be <u>rejected</u> . RPS Vote: 4-2-0-(6) CV

¹ Pouchak and Kashef absent for vote

² Kashef absent for vote

**New Action Items
Research Administration Committee (RAC)
Fall Meeting 2020**

Action #	Responsibility	Summary of Action	Status
1	Abdelaziz, Ow	Finalize conflict-of-interest text initiated by Wilkins for RAC members who bid on research projects while serving on RAC that could be added to RAC Reference Manual.	New
2	MORTS	Pass URPs 1905, 1911, and 1914 on to the ASHRAE Washington D.C. Office, who in turn could share with NIH, NIOSH, which they may wish to fund. Also notify ETF as to what we did regarding these three URPs.	New
3	MORTS	Investigate to determine if the Service to ASHRAE Research Award can awarded to more than one individual each year.	New
4	STAFF	Send e-mail to Section 3 Liaison with comments on Conditionally Accepted WS-1790 included so that he can pass on to TC and help clear conditions.	New
5	STAFF	Include information that Hywel Davies provided on new UV database developed in the U.K. in response letter to Work Statement authors for conditionally accepted WS-1854.	New
6	MORTS	Include information item in RAC report to TechC Operations Subcommittee that RAC and Publications Committee are now ready to roll-out the new PTAR process to the TCs.	New

**Carry-Over Action Items
Research Administration Committee (RAC)
Annual Meeting 2020**

Action #	Responsibility	Summary of Action	Status
1	Staff	1850-TRP Return letter to TC 4.2 should recommend award to White Box Technology as lowest cost responsive bid or TC should prepare project for rebid with expanded list of bidders.	Complete
2	Staff	Continue to collect project cost data for the new research project estimating guide.	On-going
3	Staff	Send PES training module to RAC members.	Complete
4	Staff	Return letters to TC 6.3 for RTARs 1910 & 1911 should strongly encourage TC 6.3 to combine RTAR 1910 and 1911 into one project work statement with the tracking number 1910. Also add TC 1.4 as co-sponsor.	Complete
5	Staff	Poll for new member training in July or Aug.	Complete
6	MORTS	Present the Service to ASHRAE Research Award at the Annual meeting instead of Winter meeting because award recommendation needs to be endorsed by Honors and Awards and Members Council at winter meeting first.	On-going
7	MORTS	Poll for new member training in July or Aug.	Complete
8	MORTS	Recommend the SY19-20 Service to ASHRAE Research Award be presented at the Annual meeting instead of Winter meeting because award recommendation needs to be endorsed by Honors and Awards and Members Council at winter meeting first.	Complete

**RECURRING ACTION ITEMS
(EACH MEETING)**

<u>Responsibility</u>	<u>Summary of Action</u>
Chair	Report to Technology Council on RAC's MBO Status.
Research Liaisons	Remind all TC chairs and research subcommittee chairs in section that a draft of all Work Statement and RTARs, and all later versions should be sent to their Research Liaison for review before information is passed on to the Manager of Research.
RPS (Primary) RAS (Secondary)	Review RTARs
RAS (Primary) RPS (Secondary)	Review Work Statements
RAS (Primary) RPS (Secondary)	Review TRPs and URPs
RPS (Primary) (Secondary)	Review and revise the Society's Research Implementation Plan based upon accepted RTARs.
Subcommittee Chairs	Report Status of assigned MBOs.
Staff	Distribute copies of Technology Council's Action Items and Motions affecting RAC.
BOD ExO	Report to the RAC Chair BOD's Actions and Motions affecting RAC.
Staff	Forward international URPs to RAS Chair in addition to the cognizant TC and Research Liaison.

**RECURRING ACTION ITEMS
(ANNUAL MEETING)**

<u>Responsibility</u>	<u>Summary of Action</u>
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.

**RECURRING ACTION ITEMS
(WINTER MEETING)**

<u>Responsibility</u>	<u>Summary of Action</u>
RPS	Plan workshop for new RAC members at the Annual meeting.
RPS	Review Grant-In-Aid Applications

RPS	Review New Investigator Award Nominations
RPS	Review Homer Addams Award Nominations
MORTS	Prepare semi-annual report to RAC by May 15.
RAC	Decide if spring meeting is needed and set date for spring meeting.

RECURRING ACTION ITEMS
(FALL MEETING)

Responsibility Summary of Action

RAS	Plan Research Workshop for 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.

LIST OF ATTACHMENTS

None



Shaping Tomorrow's
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MINUTES

RESEARCH ADMINISTRATION COMMITTEE OCTOBER 12TH & OCTOBER 26TH, 2020

MEMBERS PRESENT:

Christopher Wilkins, *Chair*
Michael Pouchak, *Vice-chair* – Joined 2:15 pm
Omar Abdelaziz, *Chair RAS*
Dennis Loveday, *Chair RPS*
Ahmed Kashef, *RL Section 1.0* – Joined 2:52 pm
Chee Sheng Ow, *RL Section 3.0*
William Hutzler, *RL Section 2.0*
Natascha Ferretti, *RL Section 4.0*
Jin Wen, *RL Section 5.0*
Stefan Elbel, *RL Section 6.0*
William Murphy, *RL Section 7.0*
Christopher Seeton, *RL Section 8.0*
Paolo Tronville, *RL Section 9.0*
Lorenzo Cremaschi, *RL Section 10.0*
Tyler Glesne, *BOD Ex-Officio*

GUESTS:

Tim McGinn

ASHRAE STAFF

Michael Vaughn, *MORTS*
Donna Daniel, *COORD*

MEMBERS ABSENT:

William McQuade, *Coordinating Officer*
Hywel Davies, *CIBSE Consultant*

A. CALL TO ORDER

Chair Wilkins called the meeting of the committee to order at 2:00 pm EDT, Monday, October 12, 2020, and reconvened the meeting to order at 2:00 pm, EDT on Monday, October 26, 2020.

B. REVIEW OF AGENDA

The ASHRAE Code of Ethics is to be adhered to by those doing ASHRAE business whether or not they are an ASHRAE member. The link below will be provided in future agendas
<https://www.ashrae.org/about-ashrae/adhvae-code-of-ethics>;

Action #1 < Ow, Abdelaziz>: Develop draft conflict-of-interest text for RAC members who bid on research projects while serving on RAC that could be added to RAC Reference Manual.

C. APPROVAL OF 2020 VIRTUAL ANNUAL MEETING DRAFT MINUTES

It was moved and seconded that,

- (1) the draft minutes of the RAC 2020 annual meeting be approved as drafted. – OA/WH

MOTION PASSED: 11-0-1-2³ (14), CNV

D. CHAIR'S REPORT – WILKINS

- a) Disposition of RAC Motions from Last Meeting – All motions passed at higher levels.
- b) Chair asked for names of individuals interested in serving on RAC be sent to him for membership consideration.
- c) New and On-going Action Items Assigned by Tech. Council:
 - 1. Define success metric for each SY 20-21 RAC MBO.
- d) Discussion Items:
 - 1. PTAR process update – Publications Committee staff liaison Cindy Michaels informed us they are now ready to launch new PTAR process.
 - 2. RAP Progress to date – RAP has met 7 times since Nov. 4, 2019 kick-off meeting and is making good progress. Next meeting is scheduled for Dec. 4th, 2020.
 - 3. Mike Pouchak gave an update on MBO #2.2 which is to Improve RAC feedback loop to TCs for review comments on submissions to RAC of (RTAR, WS, etc.). Goal is to automate much of the process.
 - 4. PES training module is complete & 1st training session will be scheduled once budget constraints are lifted and prior to the posting of new TRPs for bid.
- e) New Information Items:
- f) 1. New RAC member Chee Sheng OW recently rolled-off Publications Committee and he will be a key resource & Liaison to Publication Committee for RAC this year as we start to roll-out the new PTAR process to TCs.
- g) MBOs

E. STAFF SUGGESTED CHANGES TO THE RESEARCH PAGE OF ASHRAE WEBSITE

Given our objective this year to prioritize TC developed research projects over all other research expenditures, should we remove from the ASHRAE website information on the following RAC programs or update the website to indicate that submissions for these programs will not be accepted for SY 20-21 so that TC members and others don't invest a lot of time and effort in a project proposal or award application that we can't fund this year:

- Graduate Student Grant-in-Aid Program – Fiscal Impact \$250,000
- New Investigator Award – Fiscal Impact \$125,000
- Innovative Research Grant – Fiscal Impact \$125,000
- Unsolicited Research Proposals – Fiscal Impact TBD

Continue with the following RAC programs for SY 20-21:

- Homer Addams Award – Fiscal Impact \$3,500
- Service to ASHRAE Research Award - \$150

It is moved and seconded that,

- (2) The ASHRAE website be updated to include language that the Graduate Grant-in-Aid, New Investigator, Innovative Research Grant, and Unsolicited Research Proposals are suspended for the society year 2020-2021.

MOTION PASSED: 13-0-0-1 (14), CNV

F. TRPS & URPS STILL PENDING A FUNDING DECISION

- **1703-TRP**, *Performance of Vapor Retarder Systems Used on Mechanical Insulation*; Responsible Committee: TC 1.8 (Mechanical Systems Insulation); Co-Sponsors: TC 10.3 (Refrigerant Piping, Controls, & Accessories); Co-funding: None; Estimated Duration: 12 months; Estimated Cost to ASHRAE: \$107,412. Status: RAC approved the award of the project to R&D Services, but the start date of the project was delayed until ASHRAE has sufficient funds in its budget to carry-out the project. That target start date right now for this project is September 2021 or later. Primary Reviewer: Kashef – Secondary Reviewer:

³ Pouchak & Kashef joined meeting after this vote.

Kujak

- **1831-TRP**, *Validation of a Test Method for Applying a Standardized Frost Load on a Test Evaporator in a Test Chamber with and Operating Conditioning System*
Responsible Committee: **TC 10.7** (Commercial Food and Beverage Refrigeration Equipment); Potential Co-Sponsors: None; Estimated Duration: 18 months; Estimated Cost to ASHRAE: \$148,500 – Status: RAC approved the award of the project to Creative Thermal Solutions, but the start date of the project was delayed until ASHRAE has sufficient funds in its budget to carry-out the project. That target start date right now for this project is September 2021 or later. New RAC Member Stefan Elbel has a conflict with this project as P.I.
- **1865-TRP**, *Optimizing Supply Air Temperature Control for Dedicated Air Systems*;
Responsible Committee: TC 1.4 (Control Theory and Application); Potential Co-Sponsors: TC 8.10 (Mechanical Dehumidification Equipment and Heat Pipes); Duration: 24 months; Cost to ASHRAE: \$145,654 - Status: RAC approved the award of the project to Texas A&M University and Slipstream Group as a subcontractor in spring 2020, but the start date of the project was delayed until ASHRAE has sufficient funds in its budget to carry-out the project. That target start date right now for this project is **September 2021** or later.
- **1905-URP**, *The Future of Compressor Technologies for Air-Conditioning Applications with Near Zero-GWP Refrigerants*; Responsible Committees: TC 8.1 (Positive Displacement Compressors) & TC 8.2 (Centrifugal Machines); Duration: 24 months; Cost to ASHRAE: \$237,355 – Status: RAC URP review subcommittee recommended that the URP proposal be sent to the responsible TCs for a funding recommendation. Status: RAC wishes to prioritize TC developed research projects, particularly projects related to Co-VID 19 over unsolicited projects when possible. Cost of this project is also high in relation to our uncommitted Research budget for this Society year. This URP will be tabled for now until we are sure we have the funds available to start this project and there is support for project from TC 8.1 & 8.2.

It was moved and seconded that,

- (3) **1911-URP**, *Towards Airborne Pathogen-Free Indoor Air Quality*; not be funded by ASHRAE.

MOTION PASSED RAS: 6-0-0-0, (6) CV

It was moved and seconded that,

- (4) **1914-URP**, *COVID-19 Pandemic: Analysis of Airflow Patterns and Flow Path of Airborne Contaminants*; not be funded by ASHRAE.

MOTION PASSED RAS: 6-0-0-0, (6) CV

Action #2 < Staff>: Pass URPs 1911, and 1914 on to the ASHRAE Washington D.C. Office, who in turn could share with NIH, NIOSH, which they may wish to fund. Also notify ETF as to what we did regarding these three URPs.

G. TRPs that Could Potentially Bid Fall 2020

Insufficient funds exist in RAC's FY20-21 budget to fund the six projects above (1703, 1790, 1831, 1865, 1905-URP, 1911-URP and 1914 URP) or to bid any new projects, but we may be able to fund a small portion of these carryover projects above.

H. SERVICE TO ASHRAE AWARD NOMINATIONS

RAC received two nominations for the Service to ASHRAE award.

It was moved and seconded that,

- (5) Lawrence Markel is awarded the 2020-21 Service to ASHRAE Research Award.

MOTION PASSED: 13-0-0-1 (14), CNV

Action #3 < MORTS>: Investigate to determine if the Service to ASHRAE Research Award can awarded to more than one individual each year.

I. WORK STATEMENT REVIEW

Five work statements were submitted by the TCs for review. Two were conditionally accepted, and two were returned, and one tabled until the next RAC meeting.

It is moved and seconded that,

- (6) **1790-WS**, *Water Solubility and the Distribution of Water Between Vapor and Liquid Phases of Low GWP Refrigerants*, sponsored by; TC 3.3 (Refrigerant Contaminant Control), be conditionally accepted.

MOTION PASSED: 13-0-1-0 (14), CNV

It is moved and seconded that,

- (7) **1854-WS**, *Database of Ultraviolet Inactivation Rate Constants (k-values) for Microorganisms Critical to System Design*, sponsored by; TC 2.9, (Ultraviolet Air & Surface Treatment), be conditionally accepted.

MOTION PASSED: 8-4-1⁴-1 (14), CNV

It is moved and seconded that,

- (8) **1858-WS**, *Evaluation of HVAC ventilation effectiveness in reducing semi-volatile organic compounds (SVOCs) in indoor spaces*, sponsored by; TC 2.3, (Gaseous Air Contaminants and Gas Contaminant Removal Equipment); co-sponsored by: TC 2.4, (Particulate Air Contaminants and Particulate Contaminant Removal Equipment), be returned.

MOTION PASSED RAS: 5-0-0-1, CNV

Action #4 < Staff>: Send e-mail to Section 3 Liaison with comments on Conditionally Accepted WS-1790 included so that he can pass on to TC and help clear conditions.

Action #5 < Staff>: Include information that Hywel Davies provided on new UV database developed in the U.K. in response letter to Work Statement authors for conditionally accepted WS-1854.

Action #6 < MORTS>: Include information item in RAC report to TechC Operations Subcommittee that RAC and Publications Committee are now ready to roll-out the new PTAR process to the TCs..

Meeting recessed at 4:05 pm on Monday October 12th, 2020

RECONVENE – 2:00 PM, October 26, 2020

It is moved and seconded that,

⁴ Paolo Tronville abstained from vote

- (9) **1918-WS**, *The Verification of openings, the limitations of openings, air distribution and humidity conditions in Naturally Ventilated spaces to compliment Section 6.4 of ASHRAE Standard 62.1*), sponsored by; SPC 62.1, (Natural Ventilation Subcommittee), be returned.

MOTION PASSED RAS: 5-0-0-1 (6), CNV

Note: **1912-WS**, (formally WS-1798) *Impact of Combustion Emissions from Gas-Fired Unvented Combustion Devices on Indoor Air Quality*), sponsored by; SSPC 62.2, (Ventilation and Acceptable Indoor Air Quality in Residential Buildings), be tabled until the next RAC meeting.

J. SENSITIVE NEW BUSINESS

None

K. BOD EX-OFFICIO & COORD. OFFICER

BOD-Officio Tyler J. Glesne

L. RTARS

RAC reviewed a total of two RTARs submitted by TC/TGs for addition to the Society's Research Implementation Plan. Both were rejected.

It is moved and seconded that,

- (10) **1913-RTAR**, *Moisture Tolerance and Effects in CO2 Refrigeration systems*. – TC 3.3 (Refrigerant Contaminant Control); co-sponsored by, TC 10.6 (Transport Refrigeration), be rejected.

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

It is moved and seconded that,

- (11) **1917-RTAR**, *Further Exploration of ASHRAE Limits on Temperature Cycles, Ramps and Drifts* – TC 2.1 (Physiology & human Environment), be rejected.

MOTION PASSED RPS: 4-0-2-0 (6), CV

M. CONSULTANTS REPORTS

- a) AHRTI
- b) CIBSE

O. UNFINISHED BUSINESS

None

P. NEW BUSINESS

None

ADJOURNED

The meeting of the Research Administration Committee adjourned at 3:50 PM, Monday, October 26, 2020.

ATTACHMENT # 1
Research Administration Committee MBOs 2020-2021
Chris Wilkins, RAC Chair

MBO #	MBO	Status	Date Due	Assigned To	Applicable initiative #	MBO Comments & Metric	Strategic Direction Specific Comments	Completion Date	Fiscal Impact
1	Initiative 4: Improve Chapter Engagement, Capacity, and Support RAC Initiative: Improve visibility of research results and member contributions to research								
1.1	Improve dissemination of research results through effective creation of research-based publications.	<u>New</u>	January 31 2021	RAC Chair, Ow & Staff	3,4	PES has a critical crucial role in launching ASHRAE research projects. It is important all PES members clearly understand their roles and responsibilities.	Goal 1b, 2b, 3b,3c	1/31/2021	None
1.2	Establish and implement a process allow RAC to better support the efforts of Research Promotion (RP).	<u>Ongoing</u>	June 30 2021	RAC Chair, Vice-Chair & Staff	4	This is an ongoing joint effort between RAC and Publication Committee; has yet to be institutionalized.	Goal 2b and 3c	6/30/2021	Minor
1.3	Elevate Profile of Service to ASHRAE Research Award.	<u>New</u>	June 30 2021	RAC Chair, RPS Chair	4	Will update award criteria (continue Yashar effort) and nominating process. Also seek to have award part of society honors awarded at plenary session (currently awarded at RAC breakfast at 6:30a on Sunday morning) – Photo of presentation & sidebar article in Oct. Edition of ASHRAE Journal is also another way to highlight the award to all ASHRAE members.	Goal 2a and 3c	6/30/2021	None
2	Initiative 3: Organizational Streamlining RAC Initiative: Improve and Streamline RAC processes to generate maximum value for all research efforts								
2.1	Establish and implement a process to coordinate efforts between RAC and Research Promotion.	<u>New</u>	January 2020	RAC Chair and Vice Chair	3	Research Promotion has been raising funds for ASHRAE research without much insight as to how RAC operates. The aim of this MBO is to establish a regularly occurring forum to provide information that will enhance their effectiveness.	Goal 2b and 3c	6/1/2021	Yes, positive
2.2	Determine requirements and establish a framework for forms and a web-based process that could be used to submit, and track research projects start to finish	<u>New</u>	June 2020	RAC Chair and RAS Chair	3	This is a first step towards a longer-term vision of process improvement. This effort will culminate in a value proposition for ASHRAE to determine whether or not to make an investment towards the ultimate goal of building a web-based project tracking tool	Goal 2c and 3b	6/30/2021	none

2.3	Clarify Conflict of Interest guidance for those serving on RAC through revision to MOP and Reference Manual.	New	01/Jul/2021	RAC Chair, RAS Chair	3	RAC has a unique challenge where members can be bidders or WS authors. Our guidance needs to be crystal clear as to the expectations of RAC members.	Goal 2a and 3c	7/1/2021	None
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Goals and Initiatives for 2019-2024 Society Strategic Plan

**STRATEGIC INITIATIVES:
FOCUSING OUR EFFORTS**

To achieve its four goals, ASHRAE will embark on the following initiatives. Each initiative includes a series of cross-functional programs and activities designed to provide maximum force toward reaching the goals and objectives outlined above.

**INITIATIVE 1: Market
Prioritization – Member
Passion and Core Market**

A. Volunteerism is the lifeblood of ASHRAE and can only be accomplished with the support of our members’ employers. ASHRAE will meet with top employers to gain continued time and financial support of ASHRAE volunteers.

B. Only through close communication with its key constituencies can ASHRAE deliver relevant and timely products and services. ASHRAE will research the true impact of its standards and technology and share the results with the world. ASHRAE will actively reach out to its key constituencies to achieve open, two-way dialogue. The dialogue will be used to validate programs and identify new opportunities.

C. Students and young engineers are the future of ASHRAE. ASHRAE will work with universities to develop HVAC&R-related courses for university credit, use ASHRAE publications for education, and continue to strengthen our student branches.

**INITIATIVE 2: ASHRAE
Efficiency – Organizational
Assessment**

A. ASHRAE must become more agile so that it can deliver products and services in a timely manner while respecting the value of volunteer time. ASHRAE will review all aspects of the organization to identify and

remove encumbrances to agility and the respectful use of volunteer time.

B. The technical committees are the engine that drives ASHRAE technology. They must operate at full efficiency for ASHRAE to meet its desired goals. ASHRAE will review all aspects of the technical committee organization to ensure it is ready for today's and tomorrow's needs.

C. Alignment with other existing organizations may be the fastest way to achieve success. ASHRAE will consider all arrangements on working with other existing organizations, including consolidation, partnerships, and joint ventures.

INITIATIVE 3: Applied Product Development

A. ASHRAE must deliver its technology to its members in effective and meaningful ways. ASHRAE will develop software tools and mobile apps focused on applications of its technology to assist its members in their daily professional activities.

B. True building performance is heavily influenced by owners and operators. ASHRAE can assist in these groups achieving the performance they desire. ASHRAE will meet with owners and operators to ascertain how ASHRAE can best assist in achieving optimal building operation. ASHRAE will focus on developing and delivering operator training that achieves optimal building performance.

INITIATIVE 3: Applied Product Development - Continued

C. The world of prescriptive and performance-based standards is changing. ASHRAE will work with other standards development organizations (SDOs) to map a course through this changing environment that will deliver the most positive impact to the market place.

D. Professional development is a keystone of ASHRAE that can be delivered through our grassroots organization. ASHRAE will develop a comprehensive portfolio of practical applications courses intended to be delivered through our grassroots organization.

INITIATIVE 4: ASHRAE's Role in the Global Community

A. ASHRAE has already had significant impact in many countries around the world, but there is more that can be done. ASHRAE will conduct a detailed analysis of the needs of its global members and opportunities to work with organizations outside North America. ASHRAE will develop a strategy to serve its international members and participate in international markets. These strategies will be added to this strategic plan once approved by the Board of Directors.

B. ASHRAE can learn from others about how to be effective in the global community. ASHRAE will work with consultants and other organizations to discover best practices and develop an approach to serve its members in the global community.

**INITIATIVE 5: ASHRAE's
Role in the Residential
Sector**

A. The residential building sector represents a significant portion of the built environment, and ASHRAE has a role to play in the continued success of residential buildings. ASHRAE will create partnerships and collaboration with key organizations in the residential sector. ASHRAE will work with its new partners to develop technology, perform research, and educate owners, builders, and designers to improve the residential built environment.

