



Shaping Tomorrow's
Built Environment Today

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Michael R. Vaughn, P.E.
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TO: Luke Leung, Chair TC 9.12, luke.leung@som.com

FROM: Michael Vaughn, MORTS, mvaughn@ASHRAE.org

CC: Jeff Gatlin, Research Liaison 9.0, jeff.gatlin.pe@gmail.com or RL9@ashrae.net
Lynn Werman, Research Subcommittee Chair TC 9.12, lynnwerman@yahoo.com

DATE: February 15, 2016

SUBJECT: Research Topic Acceptance Request (1788-RTAR), "Ambient Outdoor Climatic Conditions at Various Heights near Tall / High-rise buildings"

During their winter meeting, the Research Administration Committee (RAC) reviewed the subject Research Topic Acceptance Request (RTAR) and voted to reject it. The following list summarizes the consensus comments and questions:

1. This research should be co-funded by other organizations involved with tall buildings.
2. Why cannot the research for RTAR 1787 be combined with this RTAR?
3. A much better case must be made to demonstrate the value of this research to ASHRAE.

An RTAR evaluation sheet is attached as additional information and it provides a breakdown of comments and questions from individual RAC members based upon a specific review criteria. This should give you an idea of how your RTAR is being interpreted and understood by others and may suggest the need for clarification and additional revisions to the RTAR.

By rejecting this RTAR, RAC is strongly suggesting to the TC that this particular topic be dropped from the TC research plan based on the information that has been provided.

If the TC wishes to pursue this topic further, we recommend that you first review RAC's comments and then discuss with your RL (Jeff Gatlin, jeff.gatlin.pe@gmail.com or RL9@ashrae.net) the scope and topic of the project before submitting a new RTAR.

The next submission deadline for RTARs and WSs is **May 15, 2016** for consideration at the Society's 2016 Annual meeting. The submission deadline after that is **August 15, 2016**, for consideration at RAC's 2016 fall meeting.

Project ID	1788 - Carry-over to Orlando; RL had not reviewed before submission. RAC need to vote to close out	
Project Title	Ambient Outdoor Climatic Conditions at Various Heights Near Tall/ High rise buildings	
Sponsoring TC	TC 9.12 (Tall Buildings)	
Cost / Duration	\$100,000 / 16M	
Submission History	1st Submission	
Classification: Research or Technology Transfer	Technology Transfer	
RAC 2016 Winter Meeting Review		
Essential Criteria	Voted NO	Comments & Suggestions
Background: 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.	#8, #15	#8 - Authors need to provide convincing support through literature search that such data is not available. #15 - Not clear how this data would be used in design. #3 - Fine background though there must be data showing stratification of air pollution with elevation: the Authors should carefully look into literature regarding ambient air pollution and examine the evidence regarding stratification of pollutants
Research Need: Based on the background provided is the need for additional research clearly identified? If not, then the RTAR should be rejected.	#8, #15	#8- There are several variables that can affect wind speed, wind direction, wet bulb temperature, etc. How can this be generalized. #3 - The project will only be applicable for high rise buildings and in case air intakes are located high. The projects is needed only if no information on stratification of ambient air pollution is provided. Otherwise it should be rejected
Relevance and Benefits to ASHRAE: 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.	#8, #15, #11	#3 - It may be debatable whether the project should be supported by ASHRAE. More justification is needed. #7 - Yes the information will also be important for natural ventilation strategies. #11 - Contaminant source strengths and concentrations are incredibly site-specific, and strongly influenced by local meteorology. It is possible that the "typical" very tall building will stand alone (at least not be surrounded by others at similar height), I have a gut feel that conditions will vary strongly with weather, time of day, and season. On the other hand, HVAC will necessarily require design to 99% conditions, so information on (for example) particulate total loads would only affect expected service life of the filter. Beyond that, every Very Tall Building is an iconic or capstone project and should have the expectation of a design budget that supports site-specific investigations.
IF ABOVE THREE CRITERION ARE NOT ALL SATISFIED - MARK "REJECT" BELOW & CONTINUE REVIEW BELOW		
Other Criteria	Voted NO	Comments & Suggestions
Project Objectives: 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.	#2	#2 - The RTAR does not mention about pollutant dispersion in the urban city. There are lots of works on the properties of pollutant dispersion in urban are. Lots of information can be obtained from such the research work. The RTAR should refer such the works. #3 - Clear though the Authors may focus more on the impact of different factors on stratification of pollution such as density of buildings, location (urban/rural) etc.
Expected Approach and Budget: 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:	#2	#2 - Expected Approach only show the preliminary stage. #3 - Only 3 buildings selected. It seems too few. Also no info on climate zone that may determine the stratification. Budget too high for this type of work. #7 - Sensor requirement and quality assurance of contaminant measurement should be specified when developing the WS. How will the three cities be selected? Will include highly polluted outdoor condition?
References: Are the references provided?		
Decision Options	Initial Decision?	Final Approval Conditions
ACCEPT AS-IS		#8 - This research should be co-funded by other organizations involved with tall buildings. Why the research for RTAR 1787 cannot be combined with this RTAR? #15 - A much better case must be made to demonstrate the value of this research to ASHRAE. #2 - The RTAR only describe the preliminary stage. The RTAR does not mention about pollutant dispersion in the urban city. There are lots of works on the properties of pollutant dispersion in urban are. Lots of information can be obtained from such the research work. The RTAR should refer such the works. #3 - No collaboration with other TCs such as 2.4 or 62.1 it would be vital for them. Also for NV buildings the intakes should be low so what is the purpose of this work?
ACCEPT W/COMMENTS		
REJECT		

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

ACCEPT W/COMMENTS Vote - Minor Revision Required - RL can approve RTAR for development into WS without going back to RAC once TC satisfies RAC's approval condition(s)

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



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TO: Luke Leung, Chair TC 9.12, luke.leung@som.com
Lynn Werman, Research Subcommittee Chair TC 9.12, lynnwerman@yahoo.com

FROM: Michael Vaughn, MORTS, mvaughn@ashrae.org

CC: Jeff Gatlin, Research Liaison 9.0, jeff@gatlin.pe@gmail.com

DATE: November 20, 2015

SUBJECT: Research Topic Acceptance Request (1788-RTAR), Ambient Outdoor Climatic
Conditions at Various Heights near Tall/High-rise Buildings

We apologize, but the Research Administration Committee (RAC) was not able to review as a group the subject Research Topic Acceptance Request (RTAR) due to the high number of RTARs that were submitted this year for our fall meeting.

Your RTAR is now scheduled to be one of the first two RTARs reviewed at RAC's next meeting, which will be held at the ASHRAE Winter Meeting Conference in Orlando, Florida.

An RTAR evaluation sheet is attached as additional information and it provides a breakdown of comments and questions from individual RAC members prior to a group discussion of your RTAR based upon a specific review criteria used for review. This should give you an idea of how your RTAR is being interpreted and understood by others. Some of these comments may indicate areas of the RTAR and subsequent WS where readers require additional information or rewording for clarification.

All RTAR submissions require the approval of your Research Liaison, Jeff Gatlin, RL9@ashrae.net, prior to submitting it to the Manager of Research and Technical Services for consideration by RAC.

If you wish to update your RTAR submission to some degree prior to the Orlando meeting, the submission deadline for this updated RTAR or a response letter is **December 15, 2015**.

Project ID	1788 - Carry-over to Orlando	
Project Title	Ambient Outdoor Climatic Conditions at Various Heights Near Tall/ High rise buildings	
Sponsoring TC	TC 9.12 (Tall Buildings)	
Cost / Duration	\$100,000 / 16M	
Submission History	1st Submission	
Classification: Research or Technology Transfer	Technology Transfer	
RAC 2015 Fall Meeting Review		
Essential Criteria	Voted NO	Comments & Suggestions
Background: 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.	4, 11	4 - Authors need to provide convincing support through literature search that such data is not available. 11 - Not clear how this data would be used in design. 6 - Fine background though there must be data showing stratification of air pollution with elevation: the Authors should carefully look into literature regarding ambient air pollution and examine the evidence regarding stratification of pollutants
Research Need: Based on the background provided is the need for additional research clearly identified? If not, then the RTAR should be rejected.	4, 11	4 - There are several variables that can affect stratification - wind speed, wind direction, wet bulb temperature, etc. How can this be generalized. 6 - The project will only be applicable for high rise buildings and in cases where air intakes are located high. The project is needed only if no information on stratification of ambient air pollution is provided. Otherwise it should be rejected
Relevance and Benefits to ASHRAE: 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.	4, 11, 9	6 - It may be debatable whether the project should be supported by ASHRAE. More justification is needed. 14 - Yes, the information will also be important for natural ventilation strategies. 9 - Contaminant source strengths and concentrations are incredibly site-specific, and strongly influenced by local meteorology. It is possible that the "typical" very tall building will stand alone (at least not be surrounded by others at similar height), I have a gut feeling that conditions will vary strongly with weather, time of day, and season. On the other hand, HVAC will necessarily require design to 99% conditions, so information on (for example) particulate total loads would only affect expected service life of the filter. Beyond that, every Very Tall Building is an iconic or capstone project and should have the expectation of a design budget that supports site-specific investigations.
IF ABOVE THREE CRITERION ARE NOT <u>ALL</u> SATISFIED - MARK "REJECT" BELOW & CONTINUE REVIEW BELOW		
Other Criteria	Voted NO	Comments & Suggestions
Project Objectives: 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.	5	5 - The RTAR does not mention pollutant dispersion in an urban city. There are lots of works on the properties of pollutant dispersion in urban areas. Lots of information can be obtained from such research work. The RTAR should refer to such the works. 6 - Clear though the Authors may focus more on the impact of different factors on stratification of pollution such as density of buildings, location (urban/rural) etc.
Expected Approach and Budget: 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:	5	5 - Expected Approach only shows the preliminary stage. 6 - Only 3 buildings selected; this seems too few. Also, no information on climate zone that may help determine the stratification. Budget appears to be too high for this type of work. 14 - Sensor requirement and quality assurance of contaminant measurement should be specified when developing the WS. How will the three cities be selected? Will project include a highly polluted outdoor condition?
References: Are the references provided?		
Decision Options	Initial Decision?	Final Approval Conditions
ACCEPT AS-IS	13	4 - This research should be co-funded by other organizations involved with tall buildings. Why cannot the research for RTAR 1787 be combined with this RTAR? 11 - A much better case must be made to demonstrate the value of this research to ASHRAE. 5 - The RTAR only describes the preliminary stage. The RTAR does not mention pollutant dispersion in the urban city. There are lots of works on the properties of pollutant dispersion in urban areas. Lots of information can be obtained from such research work. The RTAR should refer to such works. 6 - No collaboration with other TCs such as 2.4 or 62.1. This research would be vital for them too. Also, for naturally ventilated (NV) buildings, the intakes should be low, so what is the purpose of this work?
ACCEPT W/COMMENTS	14	
REJECT	4, 11, 5, 6, 9	

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

ACCEPT W/COMMENTS Vote - Minor Revision Required - RL can approve RTAR for development into WS without going back to RAC once TC satisfies RAC's approval condition(s)

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

Research Topic Acceptance Request Cover Sheet

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

- A. Title
- B. Applicability to ASHRAE Research Strategic Plan
- C. Application of the Results
- D. State-of-the-Art (background)
- E. Advancement to State-of-the-Art
- F. Justification and Value to ASHRAE
- G. Objective
- H. Estimated Duration
- I. References

Date: _____

Title: _____

RTAR# _____

(To be assigned by MORTS)

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

Responsible TC/TG: _____

Date of Vote: _____

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

Co-sponsoring TC/TG/MTG/SSPCs (give vote and date):

RTAR Lead Author:

Expected Work Statement Lead Author:

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

Research Classification:

Basic/Applied Research

Advanced Concepts

Technology Transfer

Has an electronic copy been furnished to the MORTS?

Has the Research Liaison reviewed the RTAR?

Yes

No

* Reasons for negative vote(s) and abstentions

DRAFT RTAR Template

Title: _____

Summary

Describe in summary form the proposed research topic, including what is proposed, why this research is important, how it will be conducted, and why ASHRAE should fund it (50 words maximum)

Background

Provide the state of the art with key references (at the end of this document) substantiating it (300 words maximum)

Research Need

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

Project Objectives

Based on the identified research need(s), specify the objectives of the solicited effort that will address all or part of these needs (150 words maximum)

Expected Approach

Describe in a manner that may be used for assessment of project viability, cost, and duration, the approach that is expected to achieve the proposed objectives (200 words maximum).

Check all that apply: Lab testing (), Computations (), Surveys (), Field tests (), Analyses and modeling (), Validation efforts (), Other (specify) ()

Relevance and Benefits to ASHRAE

Describe why this effort is of specific interest to ASHRAE, its impact, and how it will benefit ASHRAE and the society. How does it align with ASHRAE Strategic Plans and Initiatives? How does it advance the state of the art in this area in general? Are there other stakeholders that should be approached to obtain relevant information or co-funding? (350 words maximum)

Anticipated Funding Level and Duration

Funding Amount Range: \$ _____

Duration in Months: _____

References

List the key references cited in this RTAR