

7. UNSOLICITED RESEARCH PROPOSALS

An unsolicited research proposal (URP) is a research proposal initiated by a proposer seeking funding from ASHRAE. In order to be considered for funding, URPs should fall within the general research goals of the Society but not overlap significantly with ongoing or planned research activities of individual TC (or TG, MTG w/research authority, SSPC or other committees authorized to sponsor research projects). Unique and innovative projects that cut across research activities within different TCs are especially welcomed.

Unsolicited proposals should be submitted in electronic format to the Manager of Research and Technical Services (MORTS) at MORTS@ashrae.net, who assigns the URP a number and logs it into the project control system. Included with the unsolicited research proposal (URP) submission should be copies of three ASHRAE forms, Application for Grant of Funds, Procedure Statement Regarding Unsolicited Research Proposals (URPs) and Additional Information for Potential Contractors. These forms must be completed and signed by an individual having the authority to commit the institution contractually. Electronic signature is enough. Since the ASHRAE review process cannot guarantee the confidentiality of any material contained in a URP and since ideas, processes and/or techniques described may already be under consideration by a TC, the author of any URP is requested to sign the Procedure Statement Regarding Unsolicited Research Proposals (URPs) form releasing ASHRAE from responsibility for proprietary or confidential material in the URP. (See Guidelines for Unsolicited Research Proposals)

7.1 Evaluation of Unsolicited Research Proposal (URP)

The MORTS will work with the Chair of Research Activities Subcommittee (RAS) of Research Administration Committee (RAC) to identify an appropriate liaison from RAC, who will have responsibility for guiding the URP through the evaluation process. In most cases, the URP liaison will be the Research Liaison for the section of TCs that best aligns with the focus of the URP. However, in some cases, the MORTS and RAS Chair may choose a URP liaison from RAC who has unique expertise for evaluating the URP. The following process will be followed in evaluating URPs:

- 1) The URP liaison shall form a review committee of 3-5 additional RAC reviewers and will perform an initial evaluation of the URP **using the URP review form from Section 7.2** of this manual to determine whether it should be considered for funding by ASHRAE as a URP:
 - a. **Innovation**: Is the proposed research innovative in concept and application?
 - b. **Distinctiveness**: Does the proposed research involve unique approach, skills, equipment which otherwise are not available to any other researchers?
 - c. **New Research Topic**: Is this a new subject of research which TCs have not proposed yet?
 - d. **Timeliness**: Would a significant opportunity be lost if the project had to go through ASHRAE Research process?
 - e. **Co-Funding**: Is significant co-funding or cost sharing available for the proposed research?

AT LEAST ONE QUESTION ABOVE MUST BE ANSWERED "YES" IN ORDER TO QUALIFY THE PROPOSAL AS A URP.

IF THE PROPOSED RESEARCH DOES NOT QUALIFY FOR URP FUNDING IN OPINION OF THE RAC REVIEWER(S) - MARK "REJECT" AND NOTIFY MORTS SO PROPOSER CAN BE NOTIFIED THAT THEIR PROPOSAL HAS BEEN REJECTED FOR FUNDING BY RAC AS A URP, AND IF APPROPRIATE, THE PROPOSER WILL INSTEAD BE ENCOURAGED TO HELP DEVELOP THE PROJECT TOPIC AS A WORK STATEMENT WITH A TC FOR AN OPEN BID SOLICITATION PROCESS, ON WHICH URP PROPOSER CAN ALSO BID.

If URP passes the initial RAC evaluation, URP next goes to subject matter expert (SME) TC(s) for technical review and possible approval as described below for funding using the same URP review form from Section 7.2.

- 2) If the URP liaison determines that the URP should be considered for funding, then the liaison should identify an appropriate lead TC and ask the TC chair to form a Proposal Evaluation Subcommittee (PES) headed by the TC's Research Subcommittee Chair to evaluate the URP. If a PES is appointed, the URP liaison will next follow-up with the TC Chair and Research Subcommittee Chair to monitor the timeliness of their evaluation.
- 3) The TC's PES should use the same URP review form from Section 7.2, but must also consider whether the unsolicited work is of equal or greater importance than that already planned by the TC. The TC must consider the cost and benefit of the URP to the TC, the Society and the public to establish the advisability of recommending funding.
- 4) Should the PES recommend that the project be funded, the subsequent approval steps are identical to those of a solicited proposal. If the TC rejects the URP, it shall provide a brief explanation to the MORTS. In some cases, the PES may be empowered by the TC to work with the author of the URP proposal to make modifications to the scope and deliverables to better meet the TC needs. The proposed budget can also be adjusted to accommodate these changes. The TC must vote to authorize the PES to negotiate with the proposal author and then must approve any revised URP.
- 5) If disapproved at any level, the MORTS will return the URP to the proposer with a brief explanation for the reason for the rejection. A copy of this communication is sent to the TC.

Following approval and contract finalization, the sponsoring TC will establish a Project Monitoring Subcommittee (PMS) to oversee the progress of the project and to approve the final report.

7.2 URP Review form used by RAC and PES Reviewers

Project ID		
Project Title		
Principal Investigator (PI)		
Cost / Duration		
Classification: Research or Technology Transfer		
	URP Criteria	
Check List Criteria	VOTED NO	Comments & Suggestions
Innovation: Is the proposed research innovative in concept and application?		
Distinctiveness: Does the proposed research involve unique approach, skills equipment which otherwise are not available to any other researchers?		
New Research Topic: In this a new subject of research which TCs have not yet proposed?		
Timeliness: Would a significant opportunity be lost if the project had to go through ASHRAE Research open bid process?		
Co-funding: Is significant co-funding or cost sharing available for the proposed research?		
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		
State-of-the-Art (Background): The proposal should include some level of literature review that documents the importance / magnitude of a problem.		
Advancement to the State-of-the-Art: 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?		
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.		
IF ABOVE THREE RTAR REVIEW CRITERION ARE NOT ALL SATISFIED – MARK "REJECT" BELOW		
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, then reject the proposal		
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 reject the proposal.		
Adequate Intermediate Deliverables & Critical Project Milestones Identified? 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.		
Proposed Project Doable? 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		
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 proposal.		
PI Qualifications: Is PI adequately qualified to successfully complete the proposed research? Does PI has enough resources and access to suitable laboratory and equipment to perform the research? If not, then reject the proposal.		
THE ABOVE CRITERIA ARE SIMILAR TO THOSE FOR WORK STATEMENT EVALUATIONS. PLEASE EVALUATE SIMILAR TO WORK STATEMENT		
Decision Options	Decision	Approval Conditions
ACCEPT		
REJECT		

7.3 Guidelines for Unsolicited Research Proposals

One of the ways in which ASHRAE research projects are initiated is through the Unsolicited Research Proposal (URP). These are proposals, which are developed and planned by a researcher and then presented to ASHRAE with a request for full or partial funding. The URP should include the following information.

1. Title

2. Executive Summary

(100 word statement that could be used at the BOD level to succinctly summarize the current state-of-the-art, the advancement this project is expected to accomplish, and its value to ASHRAE and society in general.)

3. Applicability to ASHRAE Research Strategic Plan

(List specific goals of the current ASHRAE Research Strategic Plan this project will support by name and number (e.g., Goal 3 - To reduce significantly the energy consumption for HVAC&R, water heating and lighting in existing homes). State how the proposed project will help achieve the goals. If the project does not contribute to any of the goals in the ASHRAE Research Strategic Plan, a strong justification of the need for the research must be provided, and the proposal will have a lower likelihood of success. The current ASHRAE Research Strategic Plan can be found on the ASHRAE.org Web site under the Research page.)

4. Application of Results

(List handbook chapters/special publications etc. to be affected by results of this project, if known. Explain how the results of the proposed project will be disseminated to HVAC&R industry and society in general. What are the practical benefits expected from this research?)

5. State-of-the-Art (Background)

(Description of the amount and quality of past research, and quantify existing gaps.)

6. Advancement of the State-of-the-Art

(Quantitative estimate of the improvement expected from this research [i.e. x% energy reduction in product y or building type z, x% increase in heat transfer coefficient between y and z, or x% reduction in design time to do y, etc.], and explain why this information is needed by the public or by industry.)

7. Justification and Value to ASHRAE

(Identification by number, profession, or industry the ASHRAE members who will benefit. State the likelihood and how the improvement would be adopted by industry.)

8. Objectives - A paragraph describing what this URP intends to accomplish.

(Explanation of project's goals and how this project will accomplish its intended advancement to the state-of-the-art [i.e. a computer simulation will be used to do x, a computer simulation will be developed for x and verified using laboratory data from tests y and z, field test data will be obtained from x and used to do y].)

9. Scope/Technical Approach

(Provide a complete description of technical approach and task statement. Describe the parameters of the research project, including such items as: subject matter to be explored; materials, equipment, literature or other variables to be researched; materials, equipment, etc to be excluded from the project; outline the research methods to be used; description of the standards to be followed; discussion of how the data is to be reduced, analyzed and presented; description of the format for the reported results; if appropriate, describe project phases.

It is important for the scope of a research project to be broken down into tasks or phases, where a task will yield results of interest to the TC/TG/MTG/SSPC and the Project Monitoring Subcommittee (PMS), or where the results of a task will significantly define how subsequent tasks will be carried out. Make sure that the project objectives

are reflected in the tasks. The URP should specify deliverables corresponding to these tasks in the "Deliverables" section to facilitate project monitoring by the PMS.)

10. Deliverables

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

Progress, Financial and Final Reports, Research 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 copies; one in PDF format and one in Microsoft Word.

c. Research

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 for publication in the *Science and Technology for the Built Environment* (STBE). The paper(s) shall conform to the instructions posted in "Manuscript Central" for 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.

d. 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.

e. Project Synopsis

In addition to the approximately 800 word summary in the final report, Contractor will prepare a written synopsis totaling approximately 100 words in length and written for a broad technical audience. The synopsis shall document 1. Main findings of research project, 2. Why findings are significant, and 3. How the findings benefit ASHRAE membership and/or society in general. The synopsis shall be submitted to the MORTS by the end of the Agreement term for publication in ASHRAE Insights and on the Research Page of the ASHRAE Website (for keyword searches but Internet users) .

The Society may also 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.

(The above deliverables are necessary, but not sufficient, to monitor a research project. The PMS and the sponsoring TC have the responsibility to review the contractor's on-going activities and intermediate results, to ensure that the methods used and results obtained will be valid and well-enough substantiated to be labeled as "ASHRAE-approved findings." Proper oversight cannot wait until the final report, when most of the budget has already been expended.

Therefore, each major task or phase of the research method outlined in the Scope should also be linked to a deliverable report, memorandum, or summary. These in-progress deliverables should not add to the cost of the project, as they will most likely become chapters of the final report. However, they should help the TC avoid unpleasant surprises due to the research not being conducted according to the TC's expectations. Examples of deliverables that could be required during the project include:

- If one task is a literature review, then the deliverable could be an annotated list of references and conclusions/summary of the current state of the art.
- If the contractor must propose specific sites (e.g., buildings), experiment topologies (e.g., duct configurations), materials (e.g., refrigerants, appliances, insulation or building materials), experiment protocols, and/or instrumentation, then short memos describing those proposed methods, materials, etc. should be deliverables to be reviewed and approved by the PMS before moving on to the next research task.
- If analysis of preliminary data or results will decide how to proceed (e.g., CFD models of 12 duct configurations will be used to select 2 duct configurations to be built and subjected to wind tunnel tests), then the contractor should write up the results of the initial analysis, recommend the areas for further more detailed investigation, and justify those recommendations.
- If data from the research are expected to modify or update a Handbook table, then the procedure for developing the updated table from the data should be specified and provided to the PMS as a deliverable. (The final report may also require the contractor to prepare a proposed updated table based on the observed data.)

In short, the technical approach for a research project should be broken down into tasks or phases, and where a task will yield results of interest to the TC and the PMS, or where the results of a task will significantly define how subsequent tasks will be carried out. The URP should specify such intermediate deliverables for the PMS to review. This approach will make it easier for the PMS and MORTS to gauge progress and technical merit of on-going ASHRAE research projects and will provide a framework for the cognizant TCs to provide technical oversight and assistance to identify and correct problems as they occur.)

11. Schedule

Provide a description of Critical Project Milestones and the likely month of completion based upon project's duration. List for example major project intermediate deliverables such as a completed literature review or the availability of initial test results or major project events such as the completion of the test fixture or access granted to field site as a critical project milestone that could have a significant negative impact on the overall project if missed or significantly increase the risk that the project will fail and in what month it is likely to expect completion of the critical project milestone based upon the contractor's estimated duration of the project

12. Costs

Detail breakdown of expenses into categories and itemized list of equipment, travel, subcontracts, and other direct expenses; Timing of expenditures; Description of cost sharing of proposing organization or others.

13. Personnel

Education, experience and expertise of researchers that qualifies them to perform the work.

14. References

List references cited in the proposal.

A copy of the URP, containing a completed "Application for Grant of Funds" form, should be submitted to the Manager of Research & Technical Services (MORTS), who will then distribute it to the appropriate research liaison for review and evaluation.

The Research Administration Committee (RAC) normally meets in late June and late January of each year, so URP's should be submitted by mid-May or by mid-December to be considered for the next meeting. The results of the reviewing committees' actions will be made known to the proposer by mid-February or mid-July.

Proposals should be submitted to:

MANAGER OF RESEARCH & TECHNICAL SERVICES
ASHRAE
180 Technology Parkway NW
Peachtree Corners, GA 30092
MORTS@ashrae.net