IBPSA-USA ASHRAE Standard 140 Acceptance Criteria Web Portal

Request for Proposals

7/28/2023

Overview:

The IBPSA-USA Certification Committee has overall goals of providing certifications for modelers, reviewers, and software. These activities are currently in the initial planning stages. For software certification, ASHRAE Standard 140 already provides a series of software modeling tests and a procedure for determining if software meets an acceptance criteria based on those test results. A software certification program will likely include the ASHRAE 140 acceptance criteria as, at least, a portion of the overall certification process. As an initial step in the certification process, IBPSA-USA plans to develop an on-line portal for software developers to upload their ASHRAE Standard 140 results and for a list of software that meets the acceptance criteria to be publicly posted.

While this portal will only deal with ASHRAE 140 results and the acceptance criteria, the design and operation of the portal must consider the overall goals of an IBPSA-USA software certification program:

- Provide support for IBPSA-USA Software Certification efforts
    - Provide a portal to upload required documentation
    - Automate requirement checks
    - Provide public posting of the list of certified software
- Allow software users to
    - Check if a software and version are certified
    - Check if a software and version meet the 140 acceptance criteria
    - Compare software versus other software and different version of the same software
- Allow software developers to
    - Have a private account to upload required documentation
    - Compare their 140 results versus acceptance criteria
    - Compare their results versus other versions of their software
    - Compare their results versus other software
    - Provide a public venue to post required reports
    - Preview posts before being made public

Funding is provided by the Department of Energy's Building Technology Office, and the total budget for this scope of work is $35,000.

Scope of Work:

Phase I of the project will deal with ASHRAE 140 reporting and acceptance criteria with the specific goals to:

- Provide a portal with private accounts for software developers to upload ASHRAE 140 results (and potentially all other 140 documentation). The upload could be provided as individual files, a zip file with all files, and possibly a link to existing posted files (or a repository) or an API for automated uploads.
- Read the 140 standard output spreadsheets and process the results - Python code to process the output spreadsheets will be provided by the 140 project team. Plan for future change from spreadsheet files to CSV or JSON files (or single file).
- Compare the results versus the 140 acceptance criteria - Python code to compare submitted results to the 140 acceptance criteria will be provided by the 140 project team
- Allow software developers to compare their results versus other versions of their software
- Allow preview of public posts for approval by the software developer
- Provide a public page summarizing which software meets the 140 acceptance criteria
- Provide a public posting of all required 140 documentation for a software (if budget allows)

The web portal will need to include various webpages serving the various functions:

Webpage: Software Developer Login:
- Allow the software developer to login or create an account
- Need a process to determine who is allowed to access the portal for a specific software (Maybe IBPSA-USA create a master account for each software by request that can be used for both the BEST directory and this portal. The software vendors would then control who has access to the master accounts.)

Webpage: 140 Results Upload (Developer is logged in)
- Allow the software developer to upload results for a version of their software for a specific version year of the standard
- Files to upload
  - Sec5-2Aout.xlsx
  - Sec5-2Bout.xls
  - Sec5-3Aout.xls
  - Sec5-3Bout.xls
  - Sec5-4out.xls

○   Sec5-5out.xlsx
○   Sec5-6out.xlsx (? - not used in acceptance criteria and very large files)
○   Modeler Reports for each section (current text or future JSON formats) (?)
○   Input files for each section (?)

Webpage: Software Results(Developer is logged in)
●   Provide a record of all results that have been submitted for that software
●   Detailed comparison of the software version results versus the 140 acceptance criteria (either on the webpage or PDF download or both) including:
○   Comparison of results versus the acceptance range for each test case in both tabular and graphical formats
○   How many test cases are within the range for a test group
○   Overall pass/fail for each test group
●   Ability to compare to other versions of the same software
●   Ability to delete any submission that has not been made public
●   Preview of the public report
●   Ability to approve when the report is made public

Webpage: Full 140 results and reports (Developer if logged in) (if budget allows)
●   Create the standard 140 output reports for all values
●   Provide links to the PDFs of the reports
●   Allow comparison of results from different versions of the software
●   Allow comparison of the results to the 140 example results
●   Allow comparison of the results to other software (anonymous)

Webpage: Public display of all software passing at least some of the acceptance criteria
●   A visual summary of whether a software version meets the criteria for each test group
●   Provide links to official software websites

Software	Version	Thermal Fabric Low Mass	Thermal Fabric High Mass	Cooling Equipment	Heating Equipment	Air-side Equipment
Program A	Version 1	Y	N	Y	Y	N
	Version 2	Y	Y	Y	Y	N
	Version 3	Y	Y	N	Y	N
Program B	Version 1	Y	Y	Y	Y	Y

Webpage: Public posting of 140 reports (if budget allows)
- Provide a list of all software and their versions that have submitted files for public display
- For each software version post links to the following documents (document storage is a big concern on hosting all of this information for each software version):
  - 140 results reports for each test suite
  - Modeler reports for each test suite
  - Input files for each test suite

The result of this project is a web portal that is integrated into the existing IBPSA-USA website and could potentially be expanded to add more features in the future. The contractor will work with the IBPSA-USA administrative staff to determine appropriate development tool chain for development with the existing IBPSA-USA website structure. The consultant will have monthly progress review meetings with the Certification Committee Software Certification Working Group.

The contractor will complete the following major tasks in coordination with the Certification Committee Software Certification Working Group:
1. Provide a Website mock-up meeting the objectives of the Scope of Work for approval by the Certification Committee Software Certification Working Group
2. Provide a list of the development tools to be used in creating the website and the file formats for the final website
3. A complete beta version of the website for testing by the Certification Committee Software Certification Working Group and selected BPS developers
4. A final version of the website fully integrated into the existing IBPSA-USA website
5. Documentation of the code and files included in the website
6. Suggested improvements or changes for future expansion of the website

Deliverables and Timeline:
The following timeline identifies key deliverables and milestones:

Deliverable/Milestone	Date
0.1 Issue RFP	July 28, 2023
0.2 Proposal deadline	August 11, 2023
Proposal review / selection/ contract negotiation	Ongoing till project kickoff
0.3 Project Kickoff	August 22, 2023
0.4 Monthly Progress Reports	Monthly

1.0 Task 1 Deliverable	September 15, 2023
2.0 Task 2 Deliverable	September 15, 2023
3.0 Task 3 Deliverable	October 30, 2023
4.0 Task 4 Deliverable	December 15, 2023
5.0 Task 5 Deliverable	December 15, 2023
6.0 Task 6 Deliverable	December 15, 2023

Format for Submittals:

1. **CV and Team Expertise:** Description of general qualifications, specific evidence of relevant experience, and a listing of key personnel that would be available to work on this project.
2. **Cost**: Proposed hourly billing rate for each team member. Also provide a proposed total budget for this project (not-to-exceed), and a description of any match funding or in-kind contributions that would be provided.

3. **Description of Approach:** Provide a description of the contractor's approach to meeting the project objectives and developing the web portal (2 pages max). Consider including the following details:
    a. A sample of the proposed website look and feel (e.g. a mock-up of a single webpage of the portal).
    b. A description of the proposed development tools for creating the website.
    c. Changes to the tasks included in the scope of work given the budget.

4. **Comparable Projects:** Summary of at least 3 past projects that demonstrate the contractor's expertise including links to existing websites created.

Evaluation of Submittals:
IBPSA-USA will evaluate all submittals to determine which Contractors have the experience, and qualifications, and approach that are best suited for this project.

IBPSA-USA may in the course of soliciting proposals:

· modify the timeline
· negotiate with one or more respondents to modify the proposed scope
· solicit contracts with one or more respondents for all or a portion of the work
· opt not to pursue any proposals at the current time

Submission Schedule:

Submit proposals in PDF form via email to Christine Do, christine@ibpsa.us, by 5:00pm Pacific time on August 11, 2023.