

# White Paper

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Climate Assessment for the Aiken-Rhett House Museum Collection

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Historic Charleston Foundation

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## **I. Introduction**

Historic Charleston Foundation (HCF) received a Sustaining Cultural Heritage Collections Planning Grant in 2013 to develop a comprehensive plan for providing a sustainable means of managing the interior environment of the Aiken-Rhett House Museum for the longevity of the collections and the historic interior finishes. The Aiken-Rhett House Museum is nationally recognized as one of the few remaining examples of an early-nineteenth century urban townhouse complex in the United States with its main house and associated dependencies on its original building lot. With only a few exceptions, the buildings and landscape associated with the Aiken-Rhett House complex have remained largely unchanged since the family vacated the property in 1975. The high degree of historic integrity and state of preservation of the house and the collection, in addition to its current interpretation in a more or less unrestored state, provides visitors with a rare opportunity to experience a place that is preserved, rather than restored, which is an unusual approach for most houses and museums in the United States. An important aspect of the interpretation of the house “as is” is the use of natural ventilation through the opening of windows and doors, allowing the visitor to experience the house and its porches as the occupants did. As a result, only the art gallery and the basement museum shop are environmentally controlled with air conditioning, and a small heating pump system provides minimal warmth in the South Carolina winter.

The Climate Assessment built upon a Feasibility Study completed in 2013, which provided an overview of the conditions of the buildings, collection, landscape, and interpretation of the Aiken-Rhett House complex. The Feasibility Study determined that while the “preserved-as-found” treatment of the house was compelling and appropriate, the historic interior environmental conditions of the house raised long-term conservation issues for the architectural fabric and collections including the management of particulates, high relative humidity, air speed, and light. HCF staff, along with a consulting team consisting of Building Conservation Associates (BCA), Watson and Henry Associates (WHA), and Wendy Jessup and Associates (WJA), sought this NEH grant to develop necessary environmental monitoring protocols and to analyze the exterior and interior environmental data, track the rate of deterioration of architectural fabric and the collection, and establish the impact of seasonal changes on the house museum in order to develop an Environmental Management Operation Plan.

## **II. Project Activities**

The Climate Assessment for the Aiken-Rhett House museum included three phases of project activity: Pre-Grant Activity, Grant Activity, and Post-Grant Activity. During the Pre-Grant period, HCF staff and their consultants determined the necessary environmental monitoring devices and operational protocols for the windows and doors of the house during the monitoring period. HCF staff deployed and managed the monitoring devices prior to the grant period. During the grant period the following monitoring methods were developed and analyzed by the

consulting team specifically for future use by HCF in stewardship and environmental management of the Aiken-Rhett House for:

- Temperature and Relative Humidity monitoring using electronic data loggers.
- Architectural fabric monitoring using digital photography on a monthly basis
- Particulate monitoring using microscope slides with removable clear mounting squares and an adhesive to collect the various particulates each month during the study.
- Light monitoring using ISO Blue Wool Standards to measure light intensity and fading.

In addition to establishing monitoring methods and determining a preliminary rate of change or deterioration, the consultants provided an Environmental Management Operations Plan. HCF has already begun to implement the Plan which includes seasonal recommendations for passive conservation and environmental improvement such as shutter and window schedules. Historic Charleston Foundation has also commenced planning the next phase of collections care and conservation at the Aiken-Rhett House to include the recommendations of this project. In addition to implementation, HCF recently invited its donors on a special “Behind-the-Scenes” tour of the Aiken-Rhett House that highlighted the monitoring process and results of the Climate Assessment.

Over the course of the project, several changes and extensions to the project were necessary for the success of the study. An initial extension was requested in November 2014 due to the delay in project start time and the necessity for additional monitoring and data. A second extension was requested in order to complete project activities including a workshop that required coordination of the consultants’ and HCF’s staff schedule. In addition to these changes in project timeline, a request to change project personnel was submitted due to staff changes at HCF.

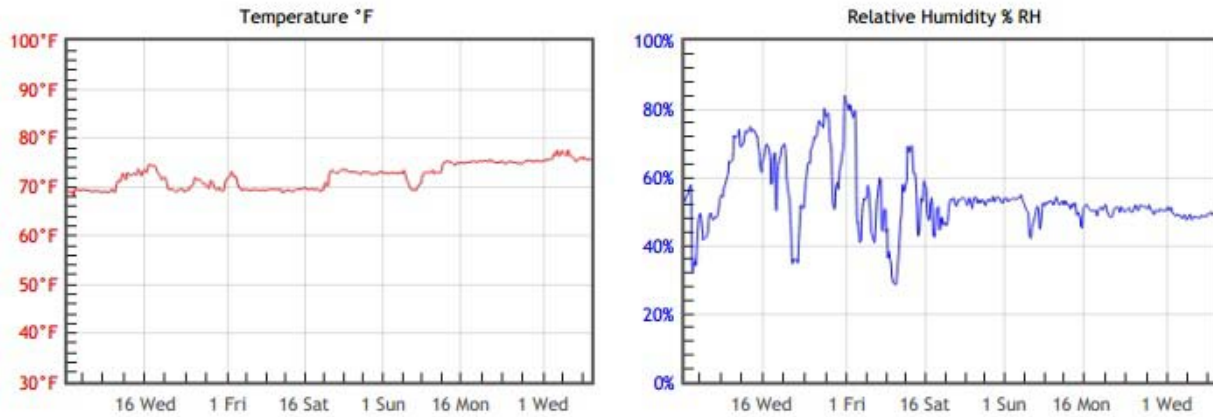
### **III. Accomplishments**

The Climate Assessment for the Aiken-Rhett House Museum accomplished a number of quantitative and qualitative goals. During the year-long data collection period, HCF’s staff and the consultant team observed measurable changes to environmental factors including temperature and relative humidity, particulate build up, deterioration caused by light, and loss of architectural finishes like paint and wallpaper. At the conclusion of the study period, consultants were able to analyze the interior conditions and assess the stability of the collection, and make necessary recommendations for ongoing data collection and implementation of an Environmental Management Operation Plan.

The environmental data that HCF collected over the course of the study not only enables the staff to better understand the interior conditions of the Aiken-Rhett House, but also allows the staff to begin making critical steps toward sustainable improvements that will stabilize the interior. For example, HCF learned that the gallery space, the only climate-controlled space at the Aiken-

Rhett House, is not as air-tight as previously thought. The fluctuations in temperature and relative humidity in this space pointed to envelope issues that were not otherwise apparent. Steps to mitigate this issue have already been taken; new weather-stripping was added to the gallery windows, the HVAC dehumidification system was replaced, and a door closer was added to the entry in order to further seal the envelope. The graph below (from eClimate Notebook) shows the dramatic stabilization in relative humidity levels once those improvements were made:

**Graphs**



**IV. Evaluation**

Over the duration of the project there were a number of communication challenges in addition to a change in project coordinator at Historic Charleston Foundation. Following the start of the project there were additional challenges with the methodology of the particulate monitoring and photography. The consultants created a prototype for a camera enclosure made of foam core board and gaffer tape that proved somewhat difficult to use during the initial phases of the study. The enclosure was implemented to ensure each photo was taken at the same distance from the wall with the same amount of light. After some practice with the camera enclosure, HCF staff developed an effective method for the photography, but it took some time to ensure consistency. In addition, two of the particulate monitoring slides were blown from their fixed locations thanks to strong winds. Both slides were noted and placed back in their respective locations.

The results of the study provided useful information related to the care of the architectural fabric and museum collections to include a shutter and window opening and closing schedule for the house and the use of Eclimate Notebook software that allows HCF to continually monitor the interior and exterior museum environment. As HCF’s staff evaluates the information coming from the Eclimate Notebook it will allow us to make the necessary changes to its operating protocol in order to improve the overall environment in the house.

## **V. Continuation of the Project and Long-term Impact**

One of the most important observations of HCF's staff and consultants was that environmental monitoring will need to continue in order to best understand the changes over a longer period of time. At the same time, HCF has taken the direction of the study results and has taken several steps to implement the Environmental Management Plan. HCF is now better prepared to justify additional preservation projects such as paint and paper consolidation, placement of protective floor covering, and installation of light management systems. Conservator Wendy Jessup also recommended the development of a house keeping and collections care plan to include a maintenance schedule and training for staff. HCF is currently working on preparing several grant applications to implement these recommendations. In addition to seeking grants from both private and government sources, HCF has incorporated the results of the study into educational tours for the public. One such tour produced a number of questions about the future plans for the Aiken-Rhett House that we hope will result in additional support by the public.

## **VI. Conclusion**

The administration, staff, and trustees of the Historic Charleston Foundation are grateful to the National Endowment for the Humanities for awarding the museum a grant from the Sustaining Cultural Heritage Collections program to support this project. The resulting grant product – the Environmental Management Improvement Study – will be used to guide the future course of the museum as it embarks upon implementation of recommendations related to issues that are critical to the preservation of the Foundation's Aiken-Rhett House Museum.