

Division of Preservation and Access

Narrative Section of a Successful Application

The attached document contains the grant narrative and selected portions of a previously funded grant application. It is not intended to serve as a model, but to give you a sense of how a successful grant application may be crafted. Every successful application is different, and each applicant is urged to prepare a proposal that reflects its unique project and aspirations. Prospective applicants should consult with the NEH Division of Preservation and Access application guidelines at <https://www.neh.gov/grants/preservation/sustaining-cultural-heritage-collections> for instructions. Applicants are also strongly encouraged to consult with the NEH Division of Preservation and Access staff well before the grant deadline by emailing preservation@neh.gov.

Note: The Attachment only contains the grant narrative and selected portions, not the entire funded application. In addition, certain portions have been redacted to protect the privacy interests of an individual and/or protect confidential commercial and financial information and/or to protect copyrighted materials.

Project Title: In the Interest of Fine Art: A Shelburne Museum Planning Project

Institution: Shelburne Museum

Project Director: Chip Stulen

Grant Program: Sustaining Cultural Heritage Collections

Funding Level: Planning

NARRATIVE

A. Introduction

Project overview

The Shelburne Museum respectfully requests a National Endowment for the Humanities Sustaining Cultural Heritage planning grant in the amount of \$48,634 to convene an interdisciplinary team to evaluate deteriorating environmental conditions in two Museum buildings that house fine arts collections and develop schematic plans to implement improvements to the buildings' infrastructures considering climate change. The team will undertake studies to identify improvements that could be made to the buildings' envelopes and mechanical air handling systems to create more sustainable preservation environments for the collections the buildings house. The mechanical systems are near the end of life, and environmental conditions within the structures – the Webb Gallery of American Art and the Electra Havemeyer Webb Memorial Building (**Appendix A**) – can be quite uneven, especially during periods of unusual weather for the region. In recent years, both structures have had short episodes when the temperatures or relative humidity within have jumped well beyond their targets. It is time to step back and think critically about these structures, their environments, and how they are maintained before the Museum invests in new equipment. This project will last two years.

How the project relates to the Museum's strategic plan and preservation priorities

This project supports the Museum's guiding principle of preserving its collections and making them broadly accessible. It also promises to advance the Museum's strategic theme of improving stewardship and continuing its commitment to collections care. To improve stewardship, the Museum strives for greater efficiency and sustainability.

We consider efficiency and sustainability to mean energy expenditure and the life cycle and impact of our collections care procedures and systems. For instance, exhibition construction and signage materials from installations get reconfigured and re-purposed for event props and office renovations. Temporary walls in gallery spaces are designed so that they can be reused for future exhibitions. In 2021, the Museum partnered with two local, green organizations to install a pair of solar fields with pollinator-friendly plants on underutilized parcels on its grounds. Part of the energy generated serves the Museum's electrical needs. At the same time, the associated gardens support birds and insects critical to food security.

Since 1988, Shelburne Museum has used practical climate control principles to guide how we manage collections environments. In this approach, we evaluate the needs of the collections and the structures that house them while also considering the outdoor environment. When that work commenced, climate change had not been factored into the systems' designs. In this project, we will consider future climate change in our planning process for updating air handling and climate control in the two structures that contain fine arts collections. By following recommendations in the 2019 revision of Chapter 24 of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Handbook, staff and outside collaborators will evaluate options for that improvement, and compile documentation that will communicate the data and rationale behind decisions to future staff. Because we may find that improvements will need to be made to the buildings' envelopes before a construction-ready design for new HVAC systems can be produced, this project will end with a review of options and selection of an option to pursue.

Founded in 1947 by Electra Havemeyer Webb (1888-1960), Shelburne Museum is the largest art and history museum in northern New England and Vermont's foremost public resource for visual art and material culture. Few, if any, American museums have the extraordinarily wide range of collections that

Mrs. Webb gathered. Unlike many museums contained in a single structure, Shelburne owns 39 buildings, including the 1906 steamboat *Ticonderoga*, spread over its campus, each of which has its own distinctive appeal to visitors. The Museum draws approximately 90,000 visitors per year and employs 115 workers, including 59 seasonal and 56 year-round. Prior to the COVID-19 pandemic, the Museum's operating budget ranged between \$6 million and \$7.2 million per year.

The Museum's collections are integral to its mission. The Museum bases its educational and public programs on its collections, which encompass everything from French Impressionist paintings to world-renowned collections of American folk art, wildfowl decoys, and textiles. By integrating its collections with its programming, the Museum provides an experiential learning environment that welcomes all visitors and brings art and history to life, as Mrs. Webb intended.

Electra Havemeyer Webb was the daughter of H.O. and Louisine Havemeyer, influential collectors of European paintings and Asian art. Inspired by early American ingenuity, Mrs. Webb became one of the earliest and most prominent collectors of American folk art and artifacts of everyday life. She founded Shelburne Museum to share her personal collection with others, and because of her passion for collecting Americana, Shelburne Museum was among the first of a generation of museums that focused on early American art, history, and material culture. In addition to preserving and relocating 25 historic buildings to the Museum's grounds, Mrs. Webb commissioned the construction of purpose-built structures to house the collections. Today, there are more than 100,000 items in the Museum's collections with exhibition space in 39 buildings. Collection development is guided by a policy entitled *The Promise of the Collection*, attached in **Appendix B**.

B. Significance of Collections

Webb Gallery of American Art

Webb Gallery houses the Museum's collection of more than 600 American paintings on two floors in a total of five galleries and five storerooms. The collection includes works by John Singleton Copley, William Matthew Prior, Fitz Henry Lane, Andrew Wyeth, and Anna Mary "Grandma Moses" Robertson. The core of this collection was amassed for Mrs. Webb by art patron Maxim Karolik (1893-1963). In the essay "Outdoor Painting: Shelburne Museum in Context" in *Painting a Nation: American Art at Shelburne Museum*, art historian John Wilmerding notes similarities in the collection Karolik created for Shelburne and the one he presented to the Museum of Fine Arts, Boston, in 1949. Both contain similar artists represented and subject matter. In addition to the personalities and stories presented in these portraits, landscapes, and genre paintings, taken as a whole, Shelburne Museum's collection also speaks to collecting in the middle of the 20th century. While the collection's early history is important, the Museum continues to develop this collection. In 2021, the Museum purchased John Singleton Copley's portrait of Mercy Greenleaf Scollay (1763) at auction to accompany the portrait of her husband, John Scollay (c. 1760), which has been part of the collection since 1959. In the same year, two mixed media paintings by contemporary artist Stephen Hannock (b. 1951) were also acquired.

Works from the American paintings collection are loaned to other institutions and are moved to the Museum's Pizzagalli Center for Art and Education (PCAE), constructed in 2013, for display in temporary exhibitions. The temporary exhibitions serve a multi-generational audience of approximately 50,000 to 60,000 visitors per year. Some of the temporary exhibitions hosted in PCAE included *Creature Comfort: Animals in the House* (2020) which explored themes related to animal and human bonds including domestication and ethical treatment; *In the Garden* (2018) which investigated how flowers and insects have captivated artists' imaginations; and *Grandma Moses: American Modern* (2016; co-organized with the Bennington Museum) which examined the artist and her paintings within the context of mid-century

American culture and modernist art. An accompanying catalog for the Grandma Moses exhibition, published by Skira Rizzoli, featured essays from Shelburne Museum Director Thomas Denenberg; Bennington Museum Curator Jamie Franklin; author, educator, and artist Diana Korzenik; and Stanford University Carl and Marilyn Thoma Provostial Professor in the Arts and Humanities Alex Nemerov. Recent loans include William Matthew Prior's portrait of Mrs. Nancy Lawson (1843) for the exhibition *There is a Woman in Every Color: Black Women in Art* at the Bowdoin College Museum of Art (2021) and Thomas Cole's *View on the Arno* (1838) to the Fenimore Art Museum in Cooperstown, NY for their exhibition *Thomas Cole and The Garden of Eden* (2018).

Electra Havemeyer Webb Memorial Building

The Electra Havemeyer Webb Memorial Building (EHW Memorial) exhibits the Museum's collections of Impressionist art (the only such public collection in Vermont and one of only two in northern New England), Asian art, and exceptional English and American decorative arts in an extraordinary context. EHW Memorial is not a traditional gallery, but a recreation of six rooms from Mrs. Webb's Park Avenue apartment. The rooms on two floors are modeled on the apartment's design as it appeared in the 1930s.

Throughout the rooms of EHW Memorial hang 21 Impressionist and pre-Impressionist works of art, many of which were left to Mrs. Webb following her mother's death in 1929. Louisine Havemeyer amassed one of the earliest and most important American collections of modern French paintings, most of which she bequeathed to the Metropolitan Museum of Art in 1929. The pictures Mrs. Webb chose to keep and hang in her home are some of the most historically pivotal examples from the Havemeyer holdings. These include Monet's *Le Pont, Amsterdam (1870-71)*, widely believed to be the first Impressionist painting brought to America, and Manet's *Le Saumon (c. 1864-65)*, purchased in 1886 at the first Impressionist exhibition in this country.

Mrs. Webb's apartment not only reflects a remarkable chapter of American collecting history but also offers a rare view into the realm of wealthy New York society in the 1930s. Author Michael Gross documented the work of interior designers, George and Charles Schmitt, with Mrs. Webb in designing these interiors in his book *740 Park: The Story of the World's Richest Apartment Building* (2005). The rooms offer a striking juxtaposition to the ensembles of 18th- and 19th-century material culture forms that Mrs. Webb displayed at Shelburne Museum. Also on view in EHW Memorial are pieces from a suite of furniture designed by Louis Comfort Tiffany and Samuel Coleman from 1890-1892 for the Music Room in the Havemeyers' New York City apartment. Other examples of furnishings from the Havemeyer apartment are in the collections of the University of Michigan's Museum of Art and the Metropolitan Museum of Art, New York. The basement level gallery in EHW Memorial displays 19th-century bronze sculptures depicting images of the American West, including works by Frederic Remington, Charles Russell, and noted taxidermist James L. Clark. Two of these sculptures were temporarily moved to PCAE for the exhibition *Playing Cowboy* (2018). In this exhibition, Shelburne Museum Senior Curator Kory Rogers investigated the ways that turn-of-the-century performing and visual arts mythologized cowboys and villainized Indians.

Visitors and audiences served

The Museum develops exhibitions, publications, and educational programs targeted to general audiences, families, adult audiences, and school groups. The Museum's core audience is families, including youth under the age of 10 and adults over the age of 50. Half of the Museum's visitors are Vermont residents who represent a similar ethnic profile as described by the U.S. Census: 94.5% white, 1.4% African American, 1.8% Asian, 1.9% Hispanic, and 1.9% two or more races. However, the Museum continually attracts regional, national, and international visitors, contributing greater diversity in

attendance. About 8,000 students from 100 Vermont school districts visit annually, representing 10% of the state's student population. The Museum offers reduced admission for Vermont residents to encourage local attendance, as well as a free admission program for low-income residents that is administered through social service agencies. The Museum's educational programs are designed to allow visitors of all ages to experience the delight, whimsy, and pleasure of art, history, and design.

C. Current conditions and preservation challenges

Each of these buildings contains exhibition and storage spaces serviced by full heating and air conditioning systems. Each of these systems is controlled by a computerized building automation system (BAS) that responds to set points based on seasonal environmental targets for each structure. These targets were established in keeping with the methods and standards described in **section E**. They consider the needs of the collection items and the buildings and, given the seasonality of attendance, whether the buildings are occupied. In general, the buildings and mechanical systems do a good job of staying within those target ranges, with some exceptions.

Most collections storage areas in Webb Gallery and the EHW Memorial were originally designed to be exhibition or library spaces, without doors separating the individual rooms. The introduction of doors to close off storage areas has changed the way air moves through the buildings, leading to higher-than-desired relative humidity (RH) in some rooms and the introduction of room dehumidifiers. These dehumidifiers are not plumbed into the buildings; instead, they are monitored and emptied by Protection Services officers on their rounds. While the dehumidifiers reduce the risk of mold growth, they introduce potential risks of water spills and electrical fire.

A changing local climate load

Over the last five years, it has become apparent that outdoor seasonal conditions are changing. The State of Vermont's website indicates that our winters will be less snowy and rainier in the coming decades. The number of days reaching above 87 degrees Fahrenheit (F) will increase from about six per year to more than 20, and precipitation events of more than three inches will increase from once every seven years to once every two to three years. In June 2021, the largest city in Vermont, Burlington (located 7 miles north of Shelburne), had eight days in June where the temperature reached 90 degrees or higher. The city typically experiences about 10 days over the entire summer when the temperature gets that high. In August 2021, Burlington set a record with five days when temperatures stayed above 70 degrees F.

EHW Memorial

In August 2021, the temperature on the second floor of EHW Memorial climbed above 75 degrees for more than half of the month. This coincided with outdoor conditions in which the nighttime temperature did not fall below 65 degrees. Attempts to discern a cause for the high indoor temperatures related to control, mechanical, or building envelope issues were unsuccessful. The elevated indoor temperatures disappeared once nighttime temperatures returned to normal, and so it stands to reason that EHW Memorial may not be as resilient to heat as it may need to be in the future.

While typically we are more concerned about incorrect relative humidity than incorrect temperature, most of the Impressionist paintings in EHW Memorial were lined onto supplemental supports using either wax or wax-resin as an adhesive in the 1960s. Higher temperatures increase the risk of the lining adhesives softening, possibly creating areas of structural instability.

Webb Gallery

Three high-humidity events between 2013 and 2018 in the north and south lower-level storage areas resulted in mold remediation in north storage and placement of a room dehumidifier in south storage. Following the January 2018 remediation, a data logger was placed in this storage area and an exterior door was insulated by the Buildings Preservation team. In March 2019, the RH in the southwest gallery and northwest storage room jumped to 80%, while the RH in the other parts of the building remained at around 50%. This issue was mitigated by increasing the airflow in these spaces by making some changes to ductwork. However, the RH in these rooms still averages about 58%, with maximums reaching 70-77%, a level ripe for mold-growth potential. This is 10% higher than the average RH observed in the central gallery on the same building level. During times of high humidity, room humidifiers have been temporarily installed in the southwest gallery and the northwest storage area, adding to Protection Services' workload and further risking water spills and electrical fire.

If the collection were static, one might assume that the paintings were assimilated to the slightly higher than traditionally acceptable RH conditions in the building. However, the Museum continues to develop the collection and some more recent additions are early acrylic paintings on canvas or contemporary paintings executed with mixed media and paper collage. These would benefit from a less variable environmental target than we are currently achieving, about 3-5% daily RH variation and 5-12% over seven days. While we do apply glazing to works of high monetary value as an added security measure and to reduce the influence of potential rapid environmental changes, glazing is not applied to all paintings, and may not be in keeping with the intent of contemporary artists. These works are actively monitored for condition changes. Environmental conditions for each of these buildings and their year-round targets are charted in **Appendix C**.

Brief description of preservation policies and the level of administrative and intellectual control of the collections

Policies detailing preventive conservation practices are articulated in section VII, *Collections Care*, of the Collections Management Policy (**Appendix D**). Staff members of the Collections and Curatorial departments collaborate closely on the care of the collection, adhering to established professional standards for handling, packing, storage, preservation, protection, and conservation treatment. Shelburne Museum's storage plan (**Appendix E**) was written and is managed by the Director of Collections. Preventive conservation efforts include monitoring of all collection exhibition and storage environments by the conservator, systems maintenance technician, and Protection Services. The Museum's Environmental Systems Manual, written in 2017 by former Director of Preservation and Conservation Richard L. Kerschner, includes recommended seasonal temperature and humidity levels for the Museum's exhibition and storage spaces according to the structure type and collections contained within. The Environmental Monitoring Procedure document, reviewed annually, clarifies the roles and responsibilities of the systems maintenance technician, conservator, and Protection Services officers in monitoring collections spaces. Pertinent sections of these documents are found in **Appendix F**. Systems maintenance is undertaken by the systems maintenance technician who collaborates with the Museum's remote monitoring technician to address BAS issues caused by a lightning strike or equipment fatigue failure.

Integrated pest management is implemented by several departments in a coordinated fashion. The lead art handler places and monitors insect blunder and pheromone traps to identify and pinpoint possible infestations and propose treatment of infested artifacts, usually by freezing or heating per established protocol. Art handlers monitor the collections daily for insect and rodent activity while they maintain collections spaces, and Protection Services officers monitor the structures. Protection Services officers

also set rodent traps and, in consultation with the conservator and/or Buildings Preservation staff, notify a contracted pest control company when those services are required.

The Director of Protection Services manages the Emergency Response Plan. The Buildings Preservation team and Collections Department assist with yearly emergency response training and stay current with emergency response best practices.

D. History of the project

Previous preservation actions and findings of research

Investigation into the preservation environments of the buildings at Shelburne Museum has been ongoing since 1988 when engineer Ernest Conrad of Landmark Facilities Group was contracted to undertake an assessment of the structures and their environments. Between 2006 and 2009, Shelburne Museum undertook a project, funded by the NEH, to improve the environmental conditions, fire protection, and lighting in three structures, one of them being EHW Memorial. In this effort, EHW Memorial was insulated with densely packed cellulose, outdated wiring was replaced, and very early smoke detection alarms were installed. At the conclusion, Kerschner noted that the added insulation helped reduce temperature and humidity fluctuations throughout the building, and interior walls were appreciably warmer in winter, eliminating the possibility of moisture forming behind paintings (as had occurred in the past). Insulating the building also reduced the number of ground-source heat pumps needed to cool and dehumidify the building. After the insulation was completed, the exterior siding was replaced with a rain shield material, serving as a thermal break and creating channels for drainage, followed by masonry/cellulose cladding recommended by the building envelope consultant. Interior storm windows of ½ inch thick bronze-tinted polycarbonate sheet were installed on ground floor windows. Not only do these serve to insulate the windows, but they also reduce the amount of ultraviolet light entering the building.

In 2010, a Save America's Treasures project further updated the Museum's infrastructure by adding fiber connections to Museum buildings and improving connectivity to computerized environmental controls. Selected data feeds from the BAS were linked directly into the Museum's eClimateNotebook account. With this upgrade, selected trends for room temperature and RH in EHW Memorial and Webb Gallery collected by the BAS could be accessed in eClimateNotebook and viewed side-by-side with data from stand-alone loggers.

Between 2013 and 2014, Webb Gallery was insulated using densely packed cellulose, and the windows in the north and south galleries were walled over on the interior for more flexibility and better light control. Ultraviolet-filtering storm windows and weather stripping were installed on the windows in the front entry hall. The building's humidifier was also replaced at this time.

Related sustainability initiatives

When PCAE was commissioned in 2013, the Museum used Efficiency Vermont's Core Performance Guide, a framework for energy sustainability, and the Museum received a significant incentive rebate at the end of the project. Efficiency Vermont (EVT) is a program that facilitates and promotes energy efficiency, run by the nonprofit Vermont Energy Investment Corporation at the behest of the State's Public Service Board. Since then, the Museum has consulted with EVT on a number of projects including building envelope improvements to Webb Gallery (2013-2014), the renovation project in the Museum's Dorset House (2014-2017, funded in part by an NEH Sustaining Cultural Heritage Grant), and the ongoing renovation project in the Museum's Stagecoach Inn building (2020-2022, funded in part by an

NEH Sustaining Cultural Heritage Grant). It is likely that EVT would be interested in the results of this planning project, and that they would be part of the next phase in planning or implementation.

Available Environmental and Energy Consumption Data

We have data back to 2014 from the BAS feeds saved in eClimateNotebook, and each building is monitored with stand-alone sensors. The current arrangement is indicated on the floor plans, **Appendix G**. Presently, Webb Gallery has good coverage. EHW Memorial would benefit from six more data loggers to properly assess environmental conditions throughout the structure. The Museum's conservator collects data from the stand-alone sensors and reviews that data along with that from the BAS, monthly or as needed by the Buildings Preservation team. She then discusses the results with the team at least seasonally. To monitor energy consumption, EHW Memorial has its own electric meter, and an electric submeter is installed in Webb Gallery. Infrared scanning of EHW Memorial was conducted in 2006 by Building Envelope Solutions, North Thetford, VT, in preparation for the insulation project, but was not undertaken after the project was completed in 2010. Infrared scanning of Webb Gallery has not been undertaken in the past.

Previous Conservation Assessments

An item-by-item condition survey of the paintings collection in Webb Gallery and EHW Memorial was undertaken by Conservator Katherine Hird from 1990 to 1992 with funding from a grant from the Institute for Museum and Library Services. The results of that survey have been entered into the Museum's collections management database, Mimsy XG. The paintings' condition is monitored on an ongoing basis by the staff conservator, and the database is updated with any changes noted. Following the 2018 mold outbreaks in Webb Gallery north storage, the curator charged with the paintings collection and the staff conservator selected 10 large paintings and their frames to be assessed for condition by a paintings conservator and a frame conservator from the Williamstown Art Conservation Center. Their work was funded by an NEH Preservation Assistance Grant. At the time of that assessment, the Williamstown conservators made simple suggestions for improving the way the large paintings are stored, mostly regarding how the paintings were spaced within their storage bins. These suggestions were implemented by the Museum's art handlers later that year. All the paintings are outfitted with backboards. High-value American paintings and the Impressionist paintings are glazed with Optium acrylic as an added security measure as well as to mitigate the effects of unwanted environmental changes. The condition of the decorative arts objects and furniture in EHW Memorial was assessed by a collections management intern when these items were entered into the Museum's Mimsy XG database in 2006. These assessments are in the process of being updated by the staff conservator.

E. Methods and standards

What standards are being employed?

We rely on the standards outlined in the performance target specifications for cultural heritage collections as articulated in the ASHRAE Handbook, the guidelines espoused in 2012 by the AIC Environmental Guidelines Task Force, and the principles articulated in the New Orleans Charter ([https://www.conservation-us.org/docs/default-source/governance/new-orleans-charter-for-joint-preservation-of-historic-structures-and-artifacts-\(1992\).pdf?sfvrsn=8](https://www.conservation-us.org/docs/default-source/governance/new-orleans-charter-for-joint-preservation-of-historic-structures-and-artifacts-(1992).pdf?sfvrsn=8)).

A collection and campus as extensive and diverse as Shelburne's require more than a "one-size-fits-all" approach to environmental control. Over 30 years of study and experience with the effects of temperature and humidity changes on collection artifacts has led to the conclusion that stringent, narrow environmental standards (50% RH \pm 3%, 68 degrees F \pm 5 degrees) are not required for long-term preservation of most of the artifacts in Shelburne's collection. However, more stringent

environmental standards are appropriate for some items, especially some of those housed within EHW Memorial and Webb Gallery. The challenge is to determine how much control is possible within the structures and how we can best mitigate risks for those items that require more stringent targets.

Shelburne's practical approach to environmental improvements since 1986 has been to eliminate the most damaging extremes to maintain reasonable RH conditions between 35% in the winter and 60% in the summer. These broader humidity and temperature guidelines are being adopted and endorsed nationwide and worldwide. The tables from the ASHRAE Handbook, Chapter 24, "Museums, Archives, and Libraries," define broader Class A standards that are safe for all but a few types of museum artifacts. These standards are used by engineers to design new museum environmental control systems and upgrade existing systems.

Proposed procedures

As part of this planning project, six more Bluetooth-enabled, HOBO data loggers will be placed in EHW Memorial to cover more of the building at the onset of the project. Data from all the stand-alone data loggers will be uploaded into eClimateNotebook so that it can be easily shared. Currently the Museum manages 50 datasets from around the Museum's campus in eClimateNotebook, which is the maximum number permitted on the Professional-level subscription. To facilitate data management and sharing with internal and external participants, we will need to upgrade the Museum's subscription to the Professional Plus level, allowing for an unlimited number of datasets. Further data analysis may be undertaken by the conservator using other Excel-based visualization tools should the participants deem them useful for the discussion. Energy consumption data for the buildings will be collected by the Director of Preservation and Landscape and assembled into an Excel spreadsheet to share with the team in addition to available architectural and mechanical plans from the Buildings Preservation files. Although we will have only collected environmental data from the six new stand-alone sensors for 10 months, we will have documented conditions during all seasons of that first project year.

An infrared assessment using a thermal camera of Webb Gallery and EHW Memorial will be conducted by the outside preservation consultant to provide information about deficiencies in the buildings' envelopes in conjunction with the two-day examination of the building structures and the mechanical equipment. Since the observed temperature issue in EHW Memorial occurred in August, it is our hope that we might be able to capture a similar event in the building at the same time of year. By scheduling the thermal imaging with the onsite meeting, we reduce energy consumption resulting from consultant travel. For this meeting, the Director of Preservation and Landscape, the staff systems technician, and the staff conservator will be joined by the outside preservation consultant, an outside mechanical engineer, and the remote monitoring technician. One day will be spent examining structures, and the second day will be spent on the mechanical equipment. The conservator will serve as scribe during the onsite meeting as well as contribute to the discussion. Other meetings and discussions will be undertaken by email, by phone, and virtual meeting software. Virtual meetings will be recorded to capture the discussion and back up any notes taken.

Because we know that we need to replace the HVAC and air handling systems in the buildings, this proposed project and work plan only includes a mechanical engineer. If, following the initial analysis, we learn that we will need outside expertise to address structural deficiencies, the Museum will add other appropriate experts to the team, as required, under separate funding.

F. Work plan

We intend to follow the pre-design workflow suggested in the 2019 edition of Chapter 24 of the ASHRAE Guidelines. The Museum’s Director, Director of Collections, and Curator responsible for paintings will be consulted and kept informed as the project progresses. Our plan is as follows:

Dates	Action	Who
Oct. 2022	NEH notification; Participants will be notified.	Project Director/Director of Preservation and Landscape Chip Stulen
Oct. 2022	Data loggers will be purchased and placed in EHW Memorial. Environmental data from both buildings will be collected monthly and stored in eClimateNotebook.	Conservator Nancie Ravenel
Oct.2022 – Aug. 2023	Relevant mechanical and structural drawings and environmental data will be assembled and sent to outside participants.	Museum staff in consultation with the Remote Monitoring Technician Rick Gage.
Aug. 2023	Two-day onsite meeting to discuss provided materials, and examination of the buildings and equipment rooms. As part of this visit, preservation consultant Jeremy Linden will perform the infrared assessment on a third day.	All participants
Oct 2023	Virtual meeting will be held to review the assessment of the buildings’ envelopes results, installed HVAC and air delivery systems, and recommendations for improved preservation and energy performance. At this meeting, energy and financial implications and the preservation and human comfort parameters will also be reviewed.	All participants: the Museum’s Director, Director of Collections, and Curator will be invited to this discussion. The virtual meeting will be recorded. Outcomes from the discussion will be documented and shared with all project participants, the Museum’s Director, Director of Collections, and Curator.
Oct. 2023- Feb. 2024	External mechanical engineer develops initial options for new HVAC systems in tandem with any agreement about suggested building envelope improvements.	External mechanical engineer Daniel Dupras
Feb. 2024	Options delivered to Shelburne Museum staff, Rick Gage, and Jeremy Linden.	External mechanical engineer Daniel Dupras
Mar. or Apr. 2024	Virtual meeting will be held to discuss the presented options, weigh pros and cons of each, and select an option for further development.	All participants. The virtual meeting will be recorded. Outcomes from the discussion will be documented and shared with all project participants, the Museum’s Director, Director of Collections, and Curator.
June 2024	A written pre-design brief will be created to concisely communicate the Museum’s requirements before final solutions are designed. The brief will summarize the	Museum staff. The resulting document will be shared with external participants, the

	outcomes from the discussions, the approach, scope, suggested design team, and preliminary timeline.	Museum’s Director and the Director of Collections to inform further planning.
Jul. – Sept. 30, 2024	External mechanical engineer designs schematic solution with estimated costs and delivers it to Museum staff.	External mechanical engineer Daniel Dupras.

Deliverables include the data and thermal images; the data analysis; documentation of the options considered and the rationale behind the decisions made to select a schematic design for updated mechanical systems for the buildings; and the schematic designs, themselves.

G. Project team

This project will be directed by **Director of Preservation and Landscape Chip Stulen**. Stulen oversees all aspects of the care and management of Shelburne Museum’s campus and structures and has in-depth experience managing capital projects. He served as project supervisor for the construction of PCAE, the Save America’s Treasures funded infrastructure project, and the renovations of the Dorset House and Stagecoach Inn. Stulen has served as department director since 2008 and will oversee all aspects of this project. **Systems Maintenance Technician John Rogers** will assist Stulen in the project and will be mentored in this capacity by his predecessor in the position, **Rick Gage, remote monitoring technician**, who still works for the Museum in a freelance capacity. Gage maintained the electrical, plumbing, and HVAC systems at Shelburne Museum for over 20 years and brings a wealth of institutional memory and practical experience to the team. **Conservator Nancie Ravenel** will serve as the collections care liaison to the team. In addition to her understanding of preventive conservation practices, she is tasked with the collection and analysis of data from the BAS and the stand-alone data loggers in the buildings and acting as meeting scribe. The Museum will engage two other outside experts to provide their input. **Preservation Consultant Jeremy Linden** will conduct thermal imaging of the structures, create a review of the results of the imaging and data analysis for the team, and participate in the discussion once options for updating the mechanical systems and enhancements are proposed. Linden brings deep experience with a variety of collections and building types in a range of climatic zones to the project. **Mechanical Engineer Daniel Dupras’** expertise is critical for developing usable options for updating the mechanical systems in both buildings.

H. Project results and dissemination

When we monitor the conditions in more spaces within these buildings, our picture of the actual conditions will be more complete. By conducting an infrared assessment of the structures, we will have a better sense of what we need to address regarding the building envelope so that the presented mechanical options will use the least amount of energy. We will have documented our decisions around the next steps we should take to improve the environments in Webb Gallery and EHW Memorial.

Depending on the results of this planning phase, we will engage with appropriate architectural and engineering consultants to bring these recommendations and schematic designs towards construction-ready plans. With the pre-design brief in hand, we will have a concise description of the scope of the projects, allowing the Director of Collections to determine whether it will be necessary to move the collections out of the buildings prior to implementation, and how we will do that before work begins or how we might protect the collections while environmental conditions are maintained through other means. Following this project, we will engage our colleagues in the Museum’s Development Department to secure funding to support implementation of improvements to the building envelope and the mechanical systems that the project team recommends.