

NATIONAL ENDOWMENT FOR THE HUMANITIES



SAMPLE APPLICATION NARRATIVE

Preservation and Access: Sustaining Cultural Heritage Collections
Institution: Folger Shakespeare Library

Folger Shakespeare Library
Application to the National Endowment for the Humanities
Preservation and Access: Sustaining Cultural Heritage Collections
Planning and Evaluation Grant

Folger Sustainable Preservation Environment Project
Narrative

Introduction

The Folger Shakespeare Library requests a planning grant of \$40,000 from the National Endowment for the Humanities to fund Phase 1 of the *Folger Sustainable Preservation Environment Project* (FSPEP), the development of an overall plan for creating and maintaining a sustainable preservation environment for the Folger’s unparalleled collection of Shakespeare and early modern European resources.

Preserving the collection is a critical priority of the Folger Shakespeare Library; “to preserve and enhance its collections” is the opening clause of our mission statement. The Folger’s collections are actively used by nearly 1,000 on-site researchers each year and made accessible online through a digital image database of more than 30,000 images as well as through an ongoing series of public exhibitions. Folger Education pairs primary source material from the collections with web-accessible lesson plans to bring the best in Shakespeare education to K-12 teachers nationwide. Further, the collections serve as the springboard for the Folger’s award-winning publications, theater, music, and poetry programs.

While preservation planning often focuses on the risk of catastrophic destruction, a sustainable preservation environment is an equally important factor in long-term collection preservation. Managing collection environments over time requires an understanding of the forms of deterioration, how those forms of deterioration relate to each other, and how institutional best practices can reduce the overall decay rate of various kinds of collection materials.

Phase 1 of FSPEP will provide a solid understanding of the Folger’s current preservation environment and its systems, plus practical suggestions for next steps for maintenance and enhancement of the environment (which will comprise Phase 2, the full implementation phase). Thus, we will be able to integrate a sustainable preservation environment into our long-range planning in a systematic way. Specifically, Phase 1 of FSPEP will conduct a detailed analysis of observed environmental conditions in areas where collections are stored, displayed, and used by researchers, and provide detailed documentation, analysis, and preliminary optimization of three key air handler units, which can then be applied to other similar air handlers. This project will be a collaborative effort of Folger facilities staff, curators, and conservators, guided by the expertise of preservation technology and energy consultants with the Image Permanence Institute (IPI) and Herzog/Wheeler & Associates.

Organizational Profile

The Folger Shakespeare Library is a world-class center for scholarship, learning, culture, and the arts. It is home to the world’s largest Shakespeare collection and a primary repository for rare materials from the early modern period (1500–1750). The Folger is an internationally recognized research library offering advanced scholarly programs in the humanities; an innovator in the preservation of rare materials; a national leader in how Shakespeare is taught in grades K–12; and an award-winning producer of cultural and arts programs— theater, music, poetry, exhibitions, lectures, and family

programs. By promoting understanding of Shakespeare and his world, the Folger reminds us of the enduring influence of his works, the formative effects of the Renaissance on our own time, and the power of the written and spoken word. The mission of the Folger Shakespeare Library is to preserve and enhance its collections; to render the collections, in appropriate formats, accessible to scholars; and to advance understanding and appreciation of Shakespeare's writings and of the culture of early modern Europe more generally through various programs designed for all students and for the general public.

The Folger opened in 1932 as a gift to the American people from Henry Clay Folger and Emily Jordan Folger, husband and wife. The original physical facilities consisted of a large reading room, book stacks, secure vaults for rare books, a theater, an exhibition hall, a small garden, and an administrative wing. Major renovations to the original building between 1979 and 1982 created an additional reading room—the New Reading Room—and extensive below-ground vaults. In 2000, the library expanded to include a renovated building across the street, the Wyatt R. and Susan N. Haskell Center for Education and Public Programs.

The Folger Shakespeare Library is governed by an independent Board of Governors and administered by the Trustees of Amherst College, Henry Folger's alma mater, in accordance with Mr. Folger's bequest. The current annual operating budget is \$14.3 million. Last year, visitors to the Folger included 760 readers; approximately 8,000 exhibition attendees; and nearly 47,000 attendees to the Folger's theater, music, poetry, and lectures programs. More than 12,000 elementary, middle, and high school students and teachers participated in the Folger's education programs, which were held at the Folger, in local schools, and at conferences and workshops across the country. Reference inquiries topped 1,500, and the Folger's website, www.folger.edu, logged millions of visitors. The Folger's staff (including Divisions of Central Library, Education, Public Programs, Research, and Administrative Services as well as Offices of the Director and Development) includes 100 regular full-time, six grant-funded full-time, and thirty-four part-time employees.

The Folger Shakespeare Library's collections include rare printed books, manuscripts, works of art, audiovisual materials, and modern scholarship. These materials extend beyond Shakespeare to include a wide range of disciplines—history and politics, theology and exploration, law, and the arts—from the early modern period. New acquisitions of rare and modern materials are made regularly through purchases and the generosity of donors. Collection development policy focuses on building existing strengths in order to enhance the collection's value for in-depth research. It is guided by a team consisting of the Folger's Librarian, Head of Acquisitions, Curator of Books, Curator of Manuscripts, Curator of Art & Special Collections, and Head of Reference. The current acquisitions budget is \$783,648, and includes funds generated by the Folger's endowment as a whole, funds generated by 27 restricted endowments for acquisitions, and other private gifts supporting current acquisitions initiatives.

Significance of collections

FSPEP focuses on the preservation environment of all areas of the building where collections are used, exhibited, and stored, with special attention to the vaults and the New Reading Room. The Library has a peerless collection of over 256,000 books; more than 56,000 manuscripts; 250,000 playbills; 50,000 prints, photographs, and drawings; plus audio and video recordings, and other special collections.

Printed Books

The Folger's large collection of printed books includes about 116,000 rare books. Although the Folger is renowned for the size and scope of its Shakespeare collections, its rare holdings encompass all aspects of British and European literary, cultural, political, religious, and social history from the fifteenth through the eighteenth centuries, with particular strength in the sixteenth and seventeenth centuries. The collection also includes 250,000 printed playbills, primarily from the nineteenth century, offering an invaluable resource for research into British and American stage history.

The Folger has one of the largest collections of early English printed books in the world. It houses some 85,000 such volumes, including about 55,000 printed before 1700 and about 30,000 from between 1701 and 1800. Librarians generally divide English books from before 1700 into two categories, STC and Wing, after the titles of important catalogs. STC books take their name from the Short-Title Catalogue, a reference work listing all books (including broadsides) printed in England or in the English language between 1475 and 1640. The Folger has the world's third largest collection of these very early volumes, after the British Library and the Bodleian Library at Oxford University. It holds copies of almost half of the volumes listed in the STC. Early English books printed between 1641 and 1700 are known as Wing volumes, for Donald Wing's Short-Title Catalogue of works from the period. The Folger has about 25,600 Wing titles, a figure that includes almost 34,000 separate volumes including multiple copies. The Folger's Wing holdings place it among the top four of such collections in the United States.

Manuscripts

Manuscripts form a critical part of the Folger's holdings. The Folger collection of ca. 56,000 manuscripts ranges in date from the late thirteenth century to the present day and includes a vast range of handwritten documents, including original literary, poetic, and dramatic works, correspondence, diaries, commonplace books, musical manuscripts, books of heraldry, religious works (devotional writings, sermons, polemical pieces), account books, political writings, warrants, and deeds. Research interest in these unique holdings has grown significantly as cataloging initiatives have expanded access to them. In 2010 the Folger will complete a three-year Mellon-funded project to provide online catalog records for the entire manuscript collection, which should only increase its use among scholars.

Works of Art and Visual Materials

The Folger Shakespeare Library's collection of prints, drawings, and photographs consists of approximately 50,000 items. Unlike an art museum, where collections are aesthetics-driven and artist-driven, the Folger's mission as a research library mandates a subject-driven visual materials collection. The Folger's prints and drawings collection focuses exclusively on Shakespeare, Shakespeare's era, and the theater. The Library has portraits of actors and actresses ranging from the likes of David Garrick, Edwin Booth, and Ellen Terry—still famous today—to character actors who were barely noticed in their own time periods. We have thousands of depictions of Shakespeare's plays—some representing actual stage performances, others purely imaginary. We provide images not typically found in other repositories, since the subject matter is not of interest to art museums, and since libraries often exclude visual material. Humanities and other subject strengths in the Folger's art collection include:

- allegorical imagery (e.g. Ages of Man, Five Senses, Nine Muses)
- architecture
- city views (especially London and places mentioned in Shakespeare)
- costume illustrations

- current events of the early modern period (e.g. festivals, Protestant Reformation, English Civil War, Glorious Revolution, French and Dutch politics)
- daily life (especially trades and occupations, and including visual representations of the “good woman,” the “happy husband,” and other complements to social conduct literature)
- Memento mori
- military
- performances (including masques)
- portraits (especially theatrical)

Paintings from the Folger are routinely requested for major exhibitions in the United States and abroad. Indeed, the recent exhibition of the Folger’s Janssen Portrait of Shakespeare at the National Portrait Gallery in London led to world-wide headlines.

Acquisitions continue for all parts of the collection, which complements rather than competes with the Library of Congress, the National Gallery of Art, the Smithsonian Institution, and the National Library of Medicine, all easily accessible in the area. The only comparable collections for studying Shakespeare and Early Modern England are the British Library, the Bodleian Library, and the Birmingham Shakespeare Library, all in Britain.

Use of the Collections

As a national and international resource, the Folger shares the wealth of its collection with everyone from Shakespearean scholars to actors, conservators, and K-12 students and teachers. Scholars from more than 20 countries and 242 colleges and universities come to study and take part in a diverse array of conferences, seminars, and symposia. Researchers from across the globe can access the Library’s bibliographic information through our online database, Hamnet (<http://shakespeare.folger.edu>). Almost 30,000 images of collection materials are available online in the Folger’s digital image database (<http://www.folger.edu/Content/Collection/Digital-Image-Collection>). Additional content is provided through the Library’s website (<http://www.folger.edu>), which includes online exhibitions, lesson plans, and subject-themed resources. The Library also offers over thirty fellowships annually in support of advanced research; and the Folger Institute, a consortium of over forty member universities from the United States, Canada, and Great Britain, provides conferences and seminars in advanced studies in the humanities. The New Folger Library Shakespeare, co-edited by Barbara Mowat (Emerita Folger Director of Research) and Paul Werstine (University of Western Ontario), is the authoritative school edition of Shakespeare’s work. These editions are standard in high school classrooms nationwide, with more than 2 million copies sold since 1992. The Folger collection also stimulates an active schedule of public and educational programs designed to bring the text and time period alive for diverse audiences. Programs include exhibitions, theater productions, poetry readings, music performance by the Folger Consort, and educational programs for K-12 students and teachers. The Library publishes award-winning catalogs and publications including the journal *Shakespeare Quarterly*. All of these scholarly and outreach activities depend in large part on the Folger’s rare and historic collections.

Current conditions

All collection material at the Folger is permanently housed on-site. Reference works are located in the Old Reading Room and in underground bookstacks that run the length of a city block. Most rare material is located in a limited-access underground vault. The vault is divided into three rooms, on two levels, and protected by a halon gas fire suppression system. Ongoing re-housing projects are

providing acid-free folders, inert polyester sleeves, protective boxes, and similar preservation covers to all appropriate material.

When researchers request vault material, it is sent up on a secure book lift and placed in the Service Vault, a room within the staff-only area between the Old and New Reading Rooms. When not being used in the reading rooms, material stays in the Service Vault for the duration of a researcher's project. The Exhibition Hall, Conservation Lab, Photography and Digital Imaging Department, and the processing areas where Acquisitions, Cataloging, and Curatorial staff work also temporarily house collection material.

Unlike the rare books, manuscripts, and works of art on paper, much of the Folger's collection of paintings is permanently stored outside the vault area, where it can be seen and appreciated for its artistic and historic value. The largest group—forty-two oil paintings—hangs in the New Reading Room, a space created during the 1979 to 1982 renovation.

Temperatures and relative humidity levels in these areas have been documented by placing recording hygrothermographs alongside the materials, and monitored by Johnson Controls' Metasys sensors within the ductwork. In addition, since December 2008 we have been collecting temperature and relative humidity data with PEM2 dataloggers from the Image Permanence Institute in order to have a machine-readable dataset that covers all four seasons of the year ready for analysis during the grant period (see Appendix A).

Metrics from the PEM2 dataloggers collected to-date supports the conclusion that current environmental conditions are not optimal for long-term collection preservation. The metrics are quantitative numerical estimates of the rate of environmentally-induced decay in collections, broken down into specific numbers for the risk of natural aging, metal corrosion, mechanical damage, and mold growth (see Appendix B and C). In terms of damage to collection material from natural aging and from metal corrosion, most areas are in the "risk" zone (the worst of the three possible ratings: Good, OK, and Risk). The entire lower level of the vault, and the upstairs Service Vault are in the "risk" zone for mechanical damage, and the upper level of the underground vault and modern stacks only rank as "OK". In addition, the east end of the lower level of the underground vault earns a "risk" ranking for mold growth.

Natural aging is quantified by Time Weighted Preservation Index (TWPI) values. These single figures represent the rate of spontaneous chemical change in organic materials (the paper, textiles, leather, etc. that make up the collection) as estimated from the cumulative effect of temperature and relative humidity as they change over time. Nineteen of the twenty dataloggers report values in the "risk" bracket for natural aging. Their TWPI values range from 30 to 45 on a scale where higher numbers are better (TWPI numbers can be thought of as the number of years a theoretical very-sensitive object could be stored before sustaining permanent damage. A TWPI of 45 or lower ranks as "risk," 45 to 75 as "OK" and 75 or higher as "Good"). The only datalogger reporting a "good" Time Weighted Preservation Index Value is the cold storage locker, where film is kept, with a TWPI of 356.

Metal corrosion risk is determined by the Maximum Equilibrium Moisture Content (EMC Max), a representation of how much moisture is present in the air. The lower the number, the better. Sixteen of the twenty dataloggers report EMC Max in the "risk" zone for metal corrosion. The others only rank "OK". In addition to obvious examples of metal in the collection (e.g., steel swords used by famous 19th-century Shakespearian actors, Renaissance bindings with metal clasps) the high iron

content of writing and drawing ink in the early modern period puts large sections of the manuscript and art collections at risk from corrosion.

The risk of mechanical damage is determined by three different aspects of moisture content: Maximum Equilibrium Moisture Content (i.e., Is it too damp? Will paper curl? Will emulsions soften? Will wood warp?), Minimum Equilibrium Moisture Content (Is it too dry? Will paper become brittle? Will emulsions crack? Will wood chip?), and Dimensional Change (How great are the fluctuations between the most damp and the most dry? Has expansion and contraction from absorption/desorption of water put physical stress on the collection materials?). Four of the twenty dataloggers document mechanical damage at “risk” level: all three loggers in the lower level of the underground vault, and the logger in the Service Vault. Eight show “OK” for mechanical damage risk. Six show a “Good” rating.

One area earns a “Risk” rating for Mold Growth: the east end of the lower vault shows a Mold Risk Factor of 0.69. Mold spores exist everywhere, but only under certain temperature and humidity conditions will the spores be able to germinate. The Mold Risk Factor of 0.69 indicates that mold spores were more than half way to germination (a Mold Risk Factor greater than 1.0 would indicate mold spores have germinated, and visible mold could be actively growing).

History of the project

Preservation actions undertaken since 2005 laid the foundation for FSPEP by stabilizing the building envelope. In August 2002, water seeped through the walls of the underground vaults, and the New Reading Room experienced leaks in the flashing around the skylights. After a thorough analysis of the building envelope by Hoffman Architects, the faulty drainage field around the underground vaults was replaced and a new waterproof membrane installed. The New Reading Room roof was replaced at a cost of \$500,000, and the exterior wall was repainted.

Now that the acute issues with the leaking building envelope have been resolved, one of the major variables in our preservation environment has been eliminated. We are ready for the next step: moving away from responses to emergencies towards an understanding of existing mechanical systems in the context of an overall preservation quality and risk assessment, to create a sustainable preservation environment, the *Folger Sustainable Preservation Environment Project* (FSPEP).

At the time most of our air handlers were installed in the early 1980s, it was hoped that they would meet the then-standard year-round preservation targets of 68°F temperature and 50% relative humidity, with minimal daily fluctuations. In practice, this has not been possible, and more recent research shows that the old conventional wisdom is not so wise after all (see Appendix C). Preservation metrics derived from complex data analysis not possible earlier show that these fixed, narrow targets are overly strict, not necessarily appropriate for library materials, and thus needlessly wasteful of energy and resources. Accordingly, we want to develop new recommendations appropriate to our collection, its environment, and the mechanical systems servicing that environment. Instead of aiming for a year-round fixed temperature and humidity target, as was done in the past, we want to gain a more sophisticated understanding of how the changing relationship between temperature and humidity over the course of the seasons can be incorporated into a sustainable preservation environment using preservation metrics.

Understanding the capabilities of the Folger’s mechanical systems will be key to creating a sustainable preservation environment. Over the years, institutional memory of alterations made to the mechanical systems has been lost. The preventive maintenance needs of the air handlers is only

partially known, and minimally documented. We also need to understand which performance aspects of the mechanical systems are under our institutional control, and which depend on services we purchase from the Architect of the Capitol (AOC), the federal agency responsible for maintenance, operation, development, and preservation the Capitol complex. Although the Folger is a private institution, our location on Capitol Hill means that the building is served by the same chilled water and electrical system as the Supreme Court, Library of Congress, US Capitol, and other near-by federal buildings.

We have identified three air handler units (AHUs) for in-depth study, preferring to analyze and document fewer in depth than all superficially. These three were chosen because they serve core areas where rare material is permanently stored, and because they have “twins” serving other areas, so the information learned can be applied elsewhere. Air Handler Unit 1 serves the lower level of the underground vault, a single large room extending almost a full city block, between Second and Third Streets, SE. Air Handler Unit 5 serves the upper level of the underground vault, which is made up of two smaller rooms. Air Handler Unit 14 (and its twin) serves the New Reading Room and adjoining Service Vault.

We expect that Phase 1 of the *Folger Sustainable Preservation Environment Project* (FSPEP) will:

- provide a thorough understanding of three key mechanical systems, revealing not just what they are currently doing, but what they are capable of doing and under what conditions in order to achieve optimal performance
- provide a thorough understanding of how the climate relates to the long-term preservation needs of the different materials in the collection, allowing us to see where seasonal adjustments and other changes from strict focus on the old 68°F and 50% RH guidelines can reduce energy consumption with little or no effect on the collection
- lead to a decrease in energy consumption, without additional expenses, by optimizing current equipment and practices
- provide practical suggestions for next steps, laying the foundation for Phase 2: capital improvements, and extension of review and optimization into other areas of the building where collections are displayed and used

Methods and standards

The Image Permanence Institute (IPI), a nonprofit, university-based laboratory devoted to preservation research led by James Reilly, is well-known among conservators and curators as a leader in preservation research. We at the Folger became better aware of how this research is being applied to sustainable practices for the preservation of images and cultural property during the summer of 2008, when we made site visits to various local institutions to learn about their climate monitoring systems. Climate Notebook, IPI's Windows-based environmental analysis software, was unanimously praised. Moreover, we learned that IPI, in collaboration with energy cost management consulting firm Herzog/Wheeler & Associates, has been working with the Library of Congress, across the street from us, to monitor and improve its preservation environments in a sustainable way. Although the Folger operates on a much smaller scale than the Library of Congress, we have similar materials in our collections, similar varieties of activities, and purchase our electricity and chilled water from the same source, the Architect of the Capitol (AOC). This experience with the Library of Congress, in addition to the respect they command in the field, made working with IPI and Herzog/Wheeler the obvious choice for the *Folger Sustainable Preservation Environment Project* (FSPEP).

We began preparing for FSPEP by purchasing twenty PEM2 dataloggers from IPI in November, 2008. The PEM2 datalogger is a refinement of the original Preservation Environment Monitor (PEM), a datalogger IPI developed specifically for libraries and museums in the late 1990s, with funding from the National Endowment for the Humanities (NEH).

Twenty PEM2 dataloggers have been in use at the Folger Shakespeare Library since December 2008, monitored through monthly uploads to PEMdata.com, a free online data analysis tool provided by IPI. See Appendix A for summary data from these dataloggers. Environmental monitoring and data gathering with the PEM2 dataloggers will continue to be conducted throughout Phase 1 of the *Folger Sustainable Preservation Environment Project*. In addition to simple analysis with the free PEMdata.com software, data will be analyzed using more sophisticated Climate Notebook software. Climate Notebook uses the same preservation metrics and algorithms as PEMdata.com, but allows for a more detailed understanding of the data, particularly how the metrics relate to specific types of material within the collection.

Phase 1 of FSPEP will add an additional layer of environmental monitoring and data gathering under the auspices of Herzog/Wheeler, who will position fifteen additional dataloggers (five each for three air handler units) directly in the air handler ducts. An environmental conditions analysis will compare data results in collection areas with data results in duct work, and will assess how those conditions change with modifications to management, maintenance, and adjustment of air handlers.

Throughout, IPI and Herzog/Wheeler will be working closely with Folger staff. See Work Plan for further details.

Work plan

July 2010

- First site visit from consultants (three days):
 - gather data on three mechanical systems, in consultation with Folger staff
 - working with Folger staff, place loggers into appropriate locations within each of three Air Handling Units
- Folger staff continue monthly uploads of PEM2 data

August 2010–January 2011

- Folger staff continue monthly uploads of PEM2 data

January or February 2011

- Second site visit from consultants (two days)
 - review and analyze information
 - make suggestions for operational changes intended to improve the preservation quality of the monitored environments
- Folger staff discuss and implement suggested operational changes
- Folger staff continue monthly uploads of PEM2 data

March–June 2011

- Folger staff continue monthly uploads of PEM2 data
- Consultants begin preparation for final review and report

July 2011

- Third site visit from consultants (two days)
 - review any effects the changes had
 - focus on any additional changes required
 - go over review and analysis of data from storage locations with Folger staff, particularly in regard to any changes in preservation quality based on the metrics
- Folger staff continue monthly uploads of PEM2 data

August 2011

- Folger staff receive final report from consultants, including a description of the upgrades to the existing systems that would make better storage environments possible, and suggestions for review of other air handler units in the building

Project team

Stephen Enniss, Eric Weinmann Librarian, will serve as project director, managing the budget and serving as the main point of contact with NEH. Dr. Enniss began his tenure at the Folger Shakespeare Library in January 2009 after serving as the Director of Emory University's Manuscript, Archives, and Rare Book Library, where he led the significant growth of the Library's collections. He earned a Ph.D. in English literature from the University of Georgia and an MLS from Emory University.

Erin Blake, Curator of Art and Special Collections, will be the project manager, facilitating the ongoing tasks, evaluation, and collaborative decision-making needed to make the project a success. Dr. Blake holds a Ph.D. in Art History from Stanford University. Her experience in humanities research and education includes published papers, invited lectures, exhibitions, and an annual teaching engagement at Rare Book School at the University of Virginia.

Dr. Enniss and Dr. Blake will be supported by a team of Folger staff members, all of whom have responsibilities and expertise in aspects of the project, including:

Melody Fetske, Director of Finance and Administration. Ms. Fetske is ultimately responsible for overseeing the financial life of the institution, and will provide oversight for this project. She directs all finance and administrative functions of the Library, and is responsible for the day-to-day operation of the buildings and grounds maintenance and security, business office, housekeeping, human resources, information systems and technology, and gift shop. Ms. Fetske has overseen many construction and renovation projects at the Folger over the past fifteen years, including: Fire Suppression and Security Systems Upgrade, Emergency Vault Membrane Repair, Conservation Laboratory Construction, Renovation of West Building Offices, Renovation of 301 East Capitol Street, SE to become the Haskell Center for Education and Public Programs.

Katharine Liu, Research Assistant. Ms. Liu is tasked with collecting and uploading the data from the IPI dataloggers. She joined the Folger staff in November 2008 following completion of her MA in Shakespeare Studies from the University of Birmingham. During her undergraduate work at Amherst College, from which she earned a BA in English, *magna cum laude*, she held a Folger Shakespeare Library fellowship.

Renate Mesmer, Assistant Head of Conservation. Ms. Mesmer and Mr. Mowery are responsible for the conservation and preservation of the Folger's collections and in this capacity will consult with the project team and contractors. Ms. Mesmer is the former Director of the Book and Paper Conservation

Program at the Centro del bel Libro in Ascona, Switzerland. She has a Master's degree in bookbinding from the Chamber of Crafts of Palatinate in Germany and gained experience in conservation during ten years of work as head of the conservation department at the Speyer's State Archives in Germany.

J. Franklin Mowery, Eric Weinmann Head of Conservation. Mr. Mowery oversees the Folger's internationally renowned conservation laboratory, where he has developed many new technologies in paper and binding conservation. He has held this position since 1977, and is co-author of the Folger-published *Fine and Historic Bookbindings*. For nearly 10 years, he was President of the Guild of Book Workers.

Neil Serrian, Building Operations Engineer. Mr. Serrian will accompany IPI and Herzog/Wheeler during their seven days onsite, providing access to the air handlers and other relevant mechanical systems and equipment, and he will be the key contact for any queries related to these systems during the project period. He has 20 years of experience in mechanical and operational building systems. Prior to arriving at the Folger Shakespeare Library in January 2007, Mr. Serrian worked as the Assistant Chief Engineer for Trammell Crow Company, where he was responsible for the overall operation, maintenance, and repair of a 475,000 sq. ft. Class A office building. Prior to that position, he was Chief Engineer for Combustioneer. He holds several relevant boiler, steam, and HVAC licenses.

The Folger will also tap leading experts in preservation technology and energy efficiency to join the project team, as third-party contractors:

Image Permanence Institute (IPI) is a university-based, non-profit research laboratory founded in 1985 as a department of the College of Imaging Arts and Sciences at Rochester Institute of Technology, in Rochester, New York. Devoted to scientific research in preservation technology for library, museum, and archives materials, IPI supports the preservation field through research, publication, educational activities, products, and services. We will work with IPI's Director, Professor James M. Reilly, who is also the co-director of the [Advanced Residency Program in Photograph Conservation](#) at [George Eastman House](#), a consultant to numerous museums and government agencies, and a widely sought-after teacher and seminar speaker. Through IPI, we will also work with Jeremy Linden, Head of Archives and Special Collections at the State University of New York at Fredonia, who is deeply familiar with the use of IPI's research tools in special collections settings.

Herzog/Wheeler & Associates is an energy cost management consulting firm, founded in 1984 by partners Peter H. Herzog and June M. Wheeler, to provide energy-efficiency expertise to facility, property, and plant managers. Peter Herzog will work with Mr. Reilly and Folger staff on this project. Since 1999, Peter has worked with the Image Permanence Institute to analyze the performance of HVAC systems in library and archival spaces while analyzing the impact of the climates they provide to institutional collections. He is a registered architect and author of "Redefining Energy Management" (McGraw-Hill, 1997).