



NATIONAL ENDOWMENT FOR THE

Humanities

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 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 the Preservation and Access Programs application guidelines at <http://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 Programs staff well before a grant deadline.

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

Project Title: Sustaining Georgia's Historical Records

Institution: State of Georgia, Office of Secretary of State

Project Director: Christine Wiseman

Grant Program: Preservation and Access Sustaining Cultural Heritage Collections

Description of Project and its Significance

The Georgia Archives seeks a Sustaining Cultural Heritage Collections Implementation Grant of \$122,147 from the National Endowment for the Humanities to expand upon energy saving measures initiated over the past two years by updating and further automating the heating ventilation air conditioning system (HVAC), updating lighting in the research library and original documents reading room, and recommissioning the HVAC system. The fundamental goals of the project are to increase energy saving efforts established by the Archives' environmental management team, continue to maintain a preservation environment that provides for the best possible conditions for the permanent storage of nearly three centuries of historical records with the least possible consumption of energy, while gathering data that will be of use to other cultural organizations who undertake similar projects. Because we initiated these efforts more than two years ago, the Georgia Archives is in a unique position to serve as a model for other organizations striving for sustainable stewardship while balancing pressure to reduce energy usage in their facilities.

Plans outlined in this proposal are based upon the results of several years of testing energy reduction measures, and results demonstrate that the Georgia Archives has been able to significantly reduce energy usage while continuing to maintain records storage vaults set points of 65 °F (+/- 5 °F) and 35% RH (+/- 3%) to ensure the preservation of the collections. We tested procedures including adjusting set points, raising chilled water temperatures, and controlled shut downs; and we documented the tests through careful monitoring using PEM's and Climate Notebook. We consulted with experts, conducted research, and participated in training. Unfortunately, during this time period energy costs have climbed about 41 percent, making it necessary to find further energy reductions. Through this grant program, we have an opportunity to be responsible stewards of our collections, and reduce our impact on the natural environment, by implementing sustainable and permanent energy savings measures. With funding from NEH, we could further automate our HVAC and control system and continue the energy savings measures begun by the environmental management team, while at the same time provide documentation that would be useful to other cultural institutions.

The Georgia Archives is fortunate to be housed in a modern (2003), state-of-the-art building designed with a complex, constant air volume (CAV) mechanical system intended to provide conditions that meet standards for the long term preservation of archival collections. However, in the past ten years constant air volume systems have fallen out of favor due to their energy consumption. It has proven to be extremely difficult to economize the functioning of the system, resulting in substantial energy consumption and excessive costs, both monetarily and environmentally. This is compounded by an out of date control system that necessitates many of the energy savings measures having to be implemented manually. For these reasons, the Georgia Archives is proposing to update the HVAC system by installing variable frequency drives (VFD) which will allow for adjusting fan speeds and automating controlled shut downs, and should result in further energy savings. In addition, we propose to upgrade the computer control system, replace the inefficient lighting system in the reading rooms, and install point of use humidification in the conservation lab and exhibit rooms. Finally, recommissioning will ensure that the HVAC system is balanced and functioning properly.

Many institutions face similar circumstances, balancing the seemingly conflicting pressures of reducing operating costs while continuing to protect their collections. Although we have a complex HVAC system and a state-of-the-art facility, the measures we propose to implement are not out of reach for organizations with smaller and less sophisticated systems. Many cultural organizations are likely to have older CAV systems that would benefit from being upgraded with VFDs, for example. And, we believe others would benefit from seeing an organization demonstrate that energy saving measures can be employed incrementally by taking a systematic approach. Through social media, the internet, articles, and presentations, Georgia Archives staff will widely disseminate the results of this project, both statewide and nationally, through Web 2.0 applications, publishing, teaching, and presentations. Progress on the project will be documented through a website and blog. With this data in hand, other repositories will be able to plan for and justify their own implementations of similar strategies.

Narrative

INTRODUCTION

The Georgia Archives seeks a Sustaining Cultural Heritage Collections Implementation Grant of \$122,147 from the National Endowment for the Humanities to expand on energy saving measures initiated over the past two years by updating and further automating the heating ventilation air conditioning system (HVAC), updating lighting in the research library and original documents reading room, and recommissioning the HVAC system. The fundamental goals of the project are to expand upon energy saving efforts established by the Archives' environmental management team, continue to maintain a preservation environment that provides for the best possible conditions for the permanent storage of the State's historical records with the least possible consumption of energy, while gathering data that will be of use to other cultural organizations who undertake similar projects. Because we initiated these efforts more than two years ago, the Georgia Archives is in the unique position to serve as a model for other organizations striving for sustainable stewardship while balancing pressure to reduce energy usage in their facilities. Through social media, the internet, articles, and presentations, Georgia Archives staff will widely disseminate the results of this project, both statewide and nationally, to help other organizations create sustainable environments for their collections.

SIGNIFICANCE OF COLLECTIONS

As the state archives of Georgia, one of the original thirteen colonies, the Georgia Archives holds a rich collection of colonial and state records covering nearly three centuries. Holdings include local government records, maps, photographs, and private collections that complement the official records. Of the 85,000 cubic feet of records in the Georgia Archives, approximately 70,000 are official state records, 6,000 are local government records, and 9,000 are non-governmental. The vast majority of these are unpublished, original source materials in their original format.

The Georgia Archives supports significant historical research on the colonial period, a unique slice of American history, since Georgia was the only colony to be governed first by Trustees and then as a royal colony. Records from the period include the 1732 Royal Charter, the Transactions of the Trustees of Georgia, and lists of original colonists/grantees (1733). The Transactions of the Trustees, in particular, are useful for documenting Georgia's unique colonial experiment; they include "Egmont's Journals," the private record of a leading Trustee. The colonial records provide unique insight into the world of the Wesleys and George Whitfield, conflicts with Spain and the Native Americans, and even into the machinations of England's Parliament, as the Georgia Trustees attempt to secure increasing aid for their fledgling colony. The Trustees attempted to control the behavior of the colonists by, among other things, forbidding the manufacturing or importing of rum and by prohibiting slavery. Both efforts ultimately failed, and the conflicts that arose from the Trustees' efforts at social control, along with the challenges of governing a colony so distant from London, led to Georgia eventually becoming a royal colony with a governor appointed by the king. Harold E. Davis, *The Fledgling Province* (1976) is based in part on the Trustee's records. Surviving records from Georgia's Royal government are acts, proclamations, governor and council minutes as well as records concerning individuals: wills, estates, and land grants. Two works dealing with slavery and labor in the years after Georgia became a royal colony are Julia Floyd Smith, *Slavery and Rice Culture in Low Country Georgia* (1985) and Betty Wood, *Women's Work, Men's Work* (1995).

It should not be surprising that records of Georgia's oldest state offices are among the most heavily used by researchers. Georgia's governors left a large quantity of records documenting the state's affairs: correspondence of governors, executive minutes, proclamations, and treaties. House and Senate Journals and Acts and Resolutions are other important resources, single series that run unbroken, for centuries, down to the present day. The development of political parties in Georgia is covered by George R. Lamplugh in *Politics on the Periphery* (1986), who used the archives' records. Military records are heavily used. The War of 1812, Creek wars, Civil War, Spanish American War, and both world wars are extensively documented in the records of the Adjutant General and the Georgia State Guard. One recent study looked at the impact of the

Civil War on parts of South Georgia: Mark V. Wetherington, *Plain Folk's Fight* (2005). The Guard was frequently called out for disasters and for local unrest. See for example, Gregory Mixon's *The Atlanta Riot* (2005) about the 1906 race riots.

Among the oldest and most comprehensive records maintained by the Georgia Archives are the land records once compiled by the office of Surveyor General. These go back to the colonial period and document headright and bounty land grants and plats covering the eastern part of Georgia, reflecting the earliest settlement of Georgia. Later, in the west, land lotteries distributed Georgia's western land from 1805 through 1832. Surveyors laid out the lots into districts and prepared plats before the lotteries took place. The lotteries have left us an extraordinary collection of plats, grants, and warrants which have been used in many different ways, from documenting weather events to planning large reforestation projects. Biologists from the Georgia Department of Natural Resources have used the lottery plats to plan reforestation projects by determining the composition of forests before European settlement. In addition to its 1.5 million land grants and plats, the Georgia Archives has a large collection of historical maps and county maps used today to research place name changes, previous location of communities, and county and state boundary disputes. Authors who relied on records of the Surveyor General and other official state records include Louis DeVorse, Jr., *The Georgia—South Carolina Boundary* (1982), and Farris W. Cadle, *Georgia Land Survey History and Law* (1991).

The Georgia Archives holds an extensive collection of railroad records, including the records of the railroad built by the state in 1837, the Western and Atlantic. The state also began regulating railroads in 1879. That regulatory agency later became the Public Service Commission, and the record group contains information about public utilities throughout the twentieth century. Other transportation records include MARTA (the Metropolitan Atlanta Transportation Authority from the 1960s) and earlier Atlanta transportation-related records, such as those of the Atlanta Transit Company owned by Georgia Power Company from the 1920s until the 1960s. The Georgia Department of Transportation and its predecessor, the Highway Department, are also of interest because of the comprehensiveness of their documentation from the planning process, to purchasing rights of way, to construction files and photographs.

Other functions assumed by the state government that resulted in extensive records were incarcerating prisoners and housing the mentally ill. Georgia's prison system records date from 1817, and the state's mental hospital records date from 1842. The State Supreme Court was established in 1846, and the Archives has records from the beginning. Georgia began paying pensions to Confederate soldiers after 1879, and the Archives has case files that continued well into the 20th century. Education records go back to 1870. Thomas G. Dyer used official records to prepare his history of the University of Georgia published in 1985. Of special interest to modern researchers are the Negro Education Division files from the 1920s into the early 1960s. Ann Short Chirhart relied on these records in her *Torches of Light* (2005). A large group of Public Health Department records document the state's efforts to control epidemics and promote nutrition. The state officially began keeping vital records in 1919 and the Archives makes available death certificates after 75 years.

Georgia's government slowly expanded after the Civil War and increasingly took on the role of promoting business development and trade. Georgia established the nation's first state Department of Agriculture in 1874. The department gathered statistics and published reports encouraging better practices and marketed state products. The State Geologist and later Department of Mines, Mining, and Geology did extensive surveys and also promoted use of state products. Records starting in the 1890s include photographs, field notes, correspondence, and numerous publications. The Archives has over 90 years of records of the state's efforts to promote and encourage forestry and the sale of forest products such as timber and naval stores. The WPA had up to 25 workers at the Archives in the late 1930s abstracting and indexing records. The Archives has those abstracts and transcriptions as well as many files resulting from the Historical Records Survey that inventoried County Courthouses.

The explosion of government functions in the 1960s, later accompanied by the development of a records management section at the Archives and the construction of an archives building in the 1960s, resulted in a huge increase in the amount and variety of records in the Archives. Some of the more heavily used records today come from the modern function of approving certificates of need for hospital construction and the regulation of air and water quality in Georgia. Georgia continued to promote business and tourism in the modern era, and tens of thousands of slides, photographs, and films prepared to promote the state are now housed at the Archives.

For many years, and especially after constructing its first separate building in 1965, the Archives accessioned county and municipal records in cases where the local governments could no longer maintain them. Georgia began microfilming state and local records in the 1940s, and by the time the program ended in the 1990s, the Archives had acquired over one hundred thousand rolls of master negatives and over 30 thousand rolls of reference microfilm. The Archives also retains security microfilm for local governments, an active program that protects the essential records of all 159 Georgia counties.

Since the founding of the Archives in 1918, the State Archivist has acquired private collections that supplement and complement the government records. Like all states that had citizens fight in the Civil War, Georgia's soldiers and their families wrote and kept many letters about their experiences. The Archives has a large collection of these letters which are frequently used in unit and regimental histories such as *Lee and Jackson's Bloody Twelfth* by Johnnie Perry Pearson (2010). Business records are the largest group of private records, ranging from small account books from crossroads stores, blacksmiths, plantations, stagecoach companies, physicians, and dentists, to accounts of large businesses. In addition to being essential for documenting business activity, account books have been used to study lifestyles of former slaves and poor whites, business practices, and even weather events. Local official records and private accounts have been used in many studies covering a variety of topics. Accounts and estate inventories and appraisements provided corroboration for the anecdotal histories of many furniture items in *Neat Pieces*, an exhibit and catalog of nineteenth century plain-style furniture at the Atlanta Historical Society in 1983. Similar evidence appears in two works on freed black women: Kent Anderson Leslie's biography of Amanda America Dickson (1995) and Adele Logan Alexander's *Ambiguous Lives* (1991). Dickson's life also inspired a recent movie. Local records and private accounts also provided much of the evidence in Steven Hahn's study of white yeoman farmers, *The Roots of Southern Populism*, and Douglas A. Blackmon's *Slavery by Another Name* (2009) which is also an upcoming Public Broadcasting program. W. Fitzhugh Brundage also used records from the Georgia Archives in his *Lynching in the New South* (1993). Larger collections of business records include the Carnegie Estate Records of Cumberland Island that document the business ventures of the Carnegies in Georgia for well over one hundred years. The Carnegie Collection contains two rare large manuscript maps of Cumberland Island from 1798 and 1802 when the heirs of General Nathanael Greene sought the partitioning of the island. Mary R. Bullard's *Robert Stafford of Cumberland Island* (1986) and her *Cumberland Island: A History* (2003) are based on materials from the Carnegie Estate Records. Other business records include collections of naval stores companies and of iron smelters and mining companies. The Archives has acquired several large architectural collections of important architects and firms. Henry Toombs designed homes for Franklin Roosevelt, including the Little White House in Warm Springs; and Robert and Company, whose records are now at the Archives, was the second largest architectural/engineering firm in the United States after WWII. Robert and Company architects designed mills throughout the southeastern United States, many public buildings, blimp hangars for the military, and thousands of other projects, including significant work on the United States Capitol. Private organizational records in the Archives include several large collections of Georgia women's organizations such as the League of Women Voters and the Pilot Club. The Archives also has the papers of many prominent individuals from governors and state agency heads to musicians and artists. Frequently cited are the papers of Archibald Butt, aide to Presidents Roosevelt and Taft before dying in the sinking of the Titanic, and the papers of William Few, signer of the United States Constitution. Betty Wood's compilation of letters from Mary Telfair to Mary Few (2007) uses letters from the William Few Collection.

Although records are appraised and collected for certain reasons, the uses made of them are often quite different. The Archives cannot predict all possible uses of records, but strives to protect the rights of citizens and the government by documenting the activities of citizens and their government. Legal and property rights are protected by preserving the laws, land records, and tax records. Preserving evidence of transactions between individuals and with the government also ensures accountability. The Georgia Archives collects other records for their historical value because they explain and document activities of Georgians and the richness of their lives and experience. It is because the Georgia Archives collects such records and shares them widely that the Archives received the Governor's Award in the Humanities in 2009.

Use of the Collections

Users of the Georgia Archives range from attorneys and surveyors using the land records and court cases to professors and students studying historical topics. Recent examples of historical topics explored by users of the Archives are early Georgia trade, British liberation of slaves during the War of 1812, slavery and its aftermath, Native American removal, the Leo Frank case, prisons and convict lease, dam construction, segregation, the Civil Rights Movement, and the development of modern political parties. Interest in the Leo Frank case is still high almost a century later: Steve Oney researched the case for his, *And the Dead Shall Rise* (2003), and served as advisor to Ben Loeterman who prepared a documentary, *The People v. Leo Frank* (2009). Election returns by county and/or precinct are also being pulled for those studying party affiliation, constitutional amendments, and local referenda. Other frequent users of the Georgia Archives are local history writers, genealogists, and journalists who are looking for the historical background of current events. Firms and individuals involved in preservation of historical structures rely on the Archives' records, including maps, aerial photos, and architectural plans. (See *Appendix A* for full citations of publications citing sources from the Georgia Archives.)

The Archives has a small exhibit gallery on the first floor off the main lobby with three cases designed to display original documents. Exhibits are mounted two to three times per year; topics of recent exhibits include the WPA in Georgia, Cumberland Island, and Architectural Records from the Georgia Archives. On occasion, the Archives loans documents for exhibits to local institutions, and once each year on Georgia Day exhibits the Royal Charter and Georgia's recorded copy of the Declaration of Independence at the State Capitol.

Intellectual and Administrative Control

Because records are filed according to their original creators, researchers often have to search many different types of records to find the documents they need for particular topics. For example, those researching the Leo Frank Case will find records under the Governor's Office, because he was responsible for Clemency, as well as in the case files of the Georgia Supreme Court. Governor Slaton's private papers provide additional information. Fortunately, the Georgia Archives has several ways for researchers to locate appropriate records. There is a link on the website (www.GeorgiaArchives.org) for "Finding Aids at Georgia Archives." The link takes the user to the online finding aids for government records. Based on Archon, it contains descriptions of state records in the Archives and is updated whenever new records are accessioned. It also has links to legacy finding aids. There is box-level control for almost all series and folder-level control for series where appropriate. The website also has a link to the online catalog for publications and manuscript collections and some pre-1900 county records on microfilm. This online catalog, GIL, consists of MARC records and is based on Voyager. Archives staff use TRIM software as an in-house records management and space management system to find locations of all of the archival items. The Georgia Archives is rapidly expanding access to popular collections by scanning items and placing them online in the Virtual Vault, <http://cdm.sos.state.ga.us/index.php>. The Virtual Vault, based on CONTENTdm, has entire collections and also contains individual items and small collections in its Ad Hoc section. The Virtual Vault now contains over 1,400,000 images.

CURRENT CONDITIONS AND PRESERVATION CHALLENGES

Preservation of the permanent records of Georgia's government is integral to the mission of the Georgia Archives, and preservation and conservation activities at this institution date back to the 1940s. In the 1940s the Georgia Archives began microfilming records held by the Archives and from counties around the state. It was one of the earlier microfilming initiatives in the U.S., which thrived long before standards for preservation filming were developed, and continued up until the late 1990s. About the same time, the Archives acquired its first Barrow Lamination Machine in 1942. William J. Barrow himself traveled to the Archives, then located in Rhodes Memorial Hall, to set up the machine and train the staff. An article in the Atlanta Constitution from September 29, 1946 commended the Archives for having "a bright and shiny laminator, a highly modern machine that restores life to the antique records of Georgia and one of just four machines in the world." (The others were in Maryland, Delaware, and Virginia.) Lamination was performed on many state documents and was provided as a service to the general public and other institutions.

By 1950 the Archives had a full time "document restorer" and one assistant; together they laminated 8,741 pages that year in the basement of Rhodes Hall. In 1965 the Archives moved into its Capitol Avenue building which featured a state of the art conservation lab designed around lamination. Lamination was now in full production and in fiscal year 1967 alone, the staff laminated 40,000 pages and cleaned and repaired another 36,000. Changes in preservation practices and budget cuts led to the demise of laminating by the late 1970s. While the technique may have stabilized thousands of deteriorating documents, it is now recognized by the conservation community as chemically damaging to paper, difficult to reverse, and therefore no longer recommended. In retrospect, the Archives has many laminated documents that might not have survived otherwise. Since they were deacidified prior to lamination, and are stored in excellent environmental conditions, problems due to the lamination have been minimal.

The new (2003) Georgia Archives building in Morrow, Georgia is equipped with a large, 3,000 square foot conservation laboratory designed for more contemporary treatments with large washing sinks, ample table and counter space for oversize materials, a fume hood, an elephant trunk exhaust system, two Lunaire humidification chambers, a Minter ultrasonic welder, a suction table, and microscope. In addition, there is a large supply storage room, an exhibit preparation area, and isolation and dirty rooms for handling items infested with mold or pests. (*See Appendix B for a photograph of the conservation lab.*)

The Archives currently has a professionally trained preservation services manager and a conservator who are responsible for the overall preservation of the records. These responsibilities include planning and management, disaster preparedness, pest management, environmental monitoring, exhibit preparation, and conservation treatment. Conservation activities range from complex treatments, such as the recent delamination, repair, and re-lining of an 1802 manuscript map, to routine repairs and housing. In 2010 the conservator hosted a conservation intern from the University of Texas at Austin, and she periodically trains interns and volunteers to help supplement the limited permanent staffing in the conservation lab. The preservation services manager also oversees digital imaging activities for the Archives, which includes supervising a full-time technician and five part-time interns. Because digital imaging is a major priority, much of conservation treatment is centered on preparing and stabilizing items prior to imaging. These activities include basic to extensive mending, humidification and flattening, separating adhered leaves, re-housing, and the stabilizing and repair of damaged bindings. In the past eight years, since moving into the Morrow building, more than 1.4 million digital images of documents have been made accessible online through the Virtual Vault. (see <http://cdm.sos.state.ga.us/index.php>).

Preservation staff from the Georgia Archives participate in state, regional, and national preservation initiatives. The preservation services manager and the conservator have been heavily involved in statewide disaster planning. They teach and lecture regularly on the topic, were instrumental in forming HERA, an Atlanta area disaster network, helped bring two Heritage Preservation-sponsored Alliance for Response

Forums to Georgia, and (with the Archives director) are trainers for the Intergovernmental Preparedness for Essential Records (IPER) project, which has been hosted and supported by the Georgia Archives. In addition, the Georgia Archives served as the lead organization for Georgia's IMLS-funded statewide preservation planning project, the Healthy Collections Initiative. The preservation services manager and conservator regularly conduct presentations and informal consultations with organizations around the state on a variety of preservation issues and topics, and they work closely with the state's emergency management agency, GEMA, to respond statewide to disasters that affect records.

Preservation and facilities staff began monitoring the environmental conditions in the new Archives building upon its opening, first with analog hygrothermographs. In addition, a Honeywell control system collects and displays data from numerous temperature and relative humidity sensors throughout the building and HVAC system. However, it is necessary for preservation staff to conduct additional monitoring independent of the control system. There are numerous instances when problems were discovered with the system due to independent monitoring, such as when preservation staff detected increases in humidity that was later attributed to moisture penetrating the brick façade. In 2006 the Archives incorporated two PEM dataloggers into its monitoring program; and in 2007 six more PEMs were purchased and the older dataloggers were relegated to backups for extended spot monitoring. Data is gathered and downloaded biweekly from the four storage vaults, the high security vault, the reference library, and the scanning and conservation labs. Occasionally, staff download data as frequently as weekly when the HVAC system is malfunctioning or if a problem is suspected. Currently, we have five years of continuous data in the Image Permanence Institute's (IPI) Climate Notebook software. In February of 2011, all data collected by dataloggers since 2005 was migrated to IPI's online data analysis application, www.PEMdata.org. In May, 2011 IPI used Georgia Archives' environmental data in a webinar entitled *Managing the Storage Environment in the Southeast Region*. The recording of the webinar is available online (http://ipisustainability.org/?page_id=227).

New Building and Description of HVAC System

On May 6, 2003, the Georgia Archives opened its doors to the public in what is the organization's fourth facility since its inception in 1918. The building is located in Morrow, Georgia about twelve miles south of Atlanta next to the National Archives at Atlanta and adjacent to Clayton State University. Construction of the state-of-the art, 171,000 square foot building formed a unique partnership with state and federal government officials, one county, two cities, a university, and a foundation. Design of the building began in 2000 with the highest priority placed on building an archival facility that met current standards for providing a high level of security and environmental protection of the records. In addition to protecting the records, staff insisted the building be inviting and friendly to the public. A large reference room that looks out onto a landscaped garden, a two story glass atrium that can be used for events, exhibit space, classrooms, and tour windows into vaults and laboratory spaces were incorporated into the design.

The award winning building was designed by Hellmuth, Obata + Kassabaum, Inc. (HOK), and the mechanical systems were designed by Newcomb & Boyd, Inc., an Atlanta-area consulting and engineering group, in consultation with Garrison Lull, Inc. The records storage vaults are a four story poured concrete structure, with the three-story office and work areas wrapping around the vaults in an L-shaped manner. Two of the four storage vaults are equipped with compact mobile shelving; the other two floors have tracks built into the flooring for future expansion. On the fourth floor there is a separate high security vault that houses treasures of the collection protected by extra security measures and a separate FM-200 fire suppression system. The first floor vault was designed to house maps and other oversize materials in flat files, as well as rare books and other non-standard items. It has doors that open automatically making it easier to move large items to the reading rooms or laboratory work areas for digitization or conservation while minimizing the risk of damage to the materials. The storage vaults encompass 60% of the building's floor space, and if fully built out with compact shelving, the maximum storage capacity would be 257,000 cubic feet. Presently, there are about 85,000 cubic feet of records housed in the building, leaving space for many years of growth to come. (*See Appendix B for photographs of the building and Appendix C for floor plans.*)

Protection from fire is provided by a wet pipe sprinkler system that is activated by heat. The high security vault on the fourth floor is equipped with a gaseous fire protection system, FM-200. A sensitive smoke alarm system is wired into a signaling system that is alarmed directly to the Morrow fire department. Security for the records is high priority and was designed into the facility. All of the interior doors are accessed using either electronic key cards or keys. Access to the vaults is limited to those staff members who need regular access to the records, and the key card system tracks entry and exit. Access to the high security vault is further restricted. The vaults are protected by an IRMA (inverted roof membrane assembly) roof, the highest quality roof structure available at the time of construction.

Illumination in the vaults is provided by overhead fluorescent fixtures; each fixture contains two lamps and one ballast. The lamps used are GE F32T8 tubes with cover guards selected for their low ultraviolet radiation levels and for shatter containment. The lights are tied into the card access system and are illuminated only when someone enters or exits a vault, which minimizes electricity usage and replacing lamps. There is a combination of lighting in the reading rooms; compact fluorescent canned lighting and neon lights recessed into ceiling soffits. The neon lights were selected because of their low UV output, but they have proven to be extremely inefficient to run and expensive to replace.

The building's mechanical system is a complex multi-zoned constant air and variable volume HVAC system with eight air handlers, two chillers, and a desiccant dehumidification system to combat the high humidity prevalent in the Southeast. With the preservation of the collections as the top design priority, specifications required that the four vaults be able to provide conditions of 60 °F (+/- 5°) and a relative humidity of 35% (+/- 3%). The constant air volume (CAV) systems for the vaults are designed to take in 100% outside air and run at full fan speed 24-hours per day, 365 days per year. There are two 240 ton Trane Chillers designed to run at 38 °F in order to maintain constant low temperatures in the vaults. The system is, in fact, able to meet these strict design specifications even during Atlanta summers when outdoor air temperatures can average well over 90 °F, relative humidity levels consistently reach above 80%, and the dew point regularly reaches 70 °F (*See Charts 1 and 2.*)

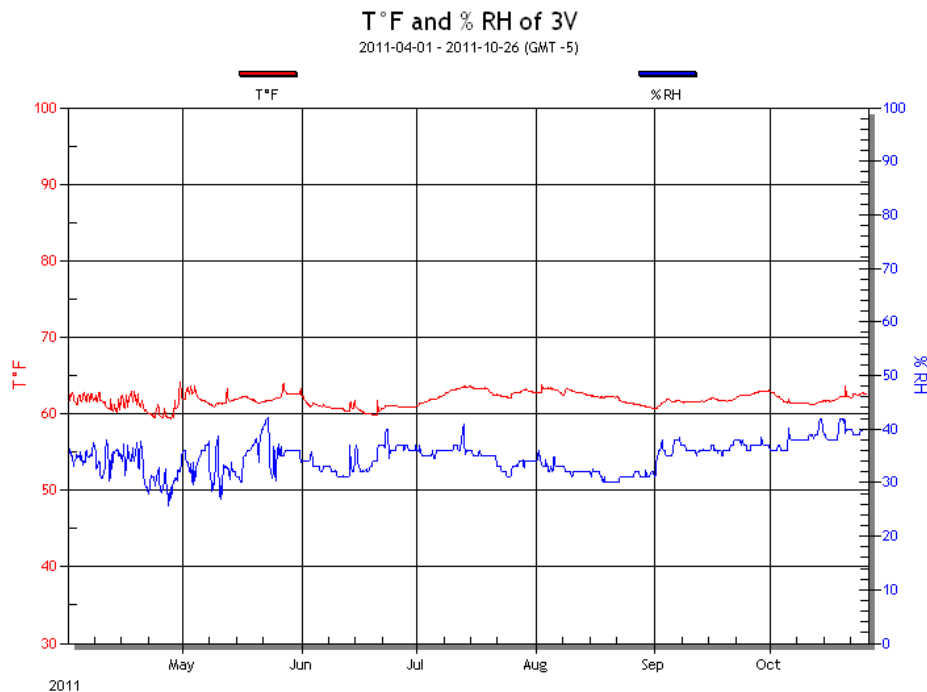


Chart 1: Temp and RH Levels in 3rd Floor Vault, Apr – Sept 2011

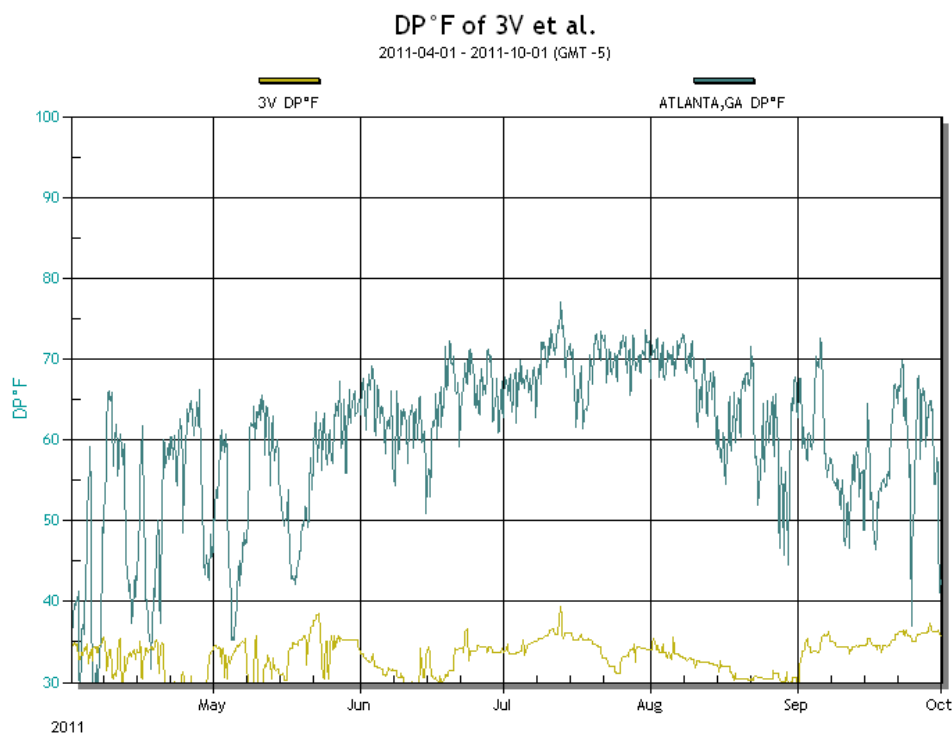


Chart 2: Indoor/Outdoor Dew Point Comparison: Apr – Sept 2011

Each of the four storage vaults has a dedicated air handling unit (AHU) serving the space that processes between 15,000 and 22,000 cubic feet of air per minute (cfm). These systems have chilled and hot water coils, desiccant wheels, a reactivation fan, and two gas burner drying units. Some dehumidification is achieved through re-heat; however, it is supplemented by two stand-alone desiccant dehumidifiers. They run on constant volume, and their design specifications are based on very humid conditions. However, in Atlanta the relative humidity actually varies significantly, making it difficult to control the amount of dehumidification when outdoor conditions are dry. Ironically, the Georgia Archives often has problems with over-dehumidification, which impacts conservation work (i.e. dry conditions make it difficult to work with adhesives) and results in unnecessary utility expenses. During the winter, the operation of the steam boiler for humidification is controlled by sensors in the vaults. The lower RH set points for the vaults shut off the steam boiler causing the relative humidity levels to drop to below acceptable levels in other collection work areas, such as the conservation lab, the scanning labs, and the exhibit room.

A constant air volume (CAV) AHU serves the conservation and reformatting laboratories, processing rooms, and the reference library. It's important to note that the fan speeds of the five CAV air handlers cannot be adjusted; they are either on or off, which results in tremendous energy usage and high maintenance costs. There are three additional AHU's with variable frequency drives that are on a PIU (primary induction unit) that serve the perimeter areas and office spaces in the building. Since these units have variable frequency drives, the fan speed can be adjusted and regulated in order to meet the varying indoor climate preferences of staff. The air supplying the building is extremely well-filtered, protecting the records from outdoor pollutants and filtering out dust, mold, and volatile organic chemicals released from the collections themselves. Outside air is treated by a four stage filtration system -- pre-filter, HEPA electrostatic, gas phase (Purafil), and a post filter. While providing excellent air quality for the protection of the collections, the process of monitoring, changing, and maintaining filters is labor intensive and expensive.

While the mechanical system provides environmental conditions for the collections that meet recommended standards for the long term preservation of archival collections, it is extremely difficult to economize the

While the mechanical system provides environmental conditions for the collections that meet recommended standards for the long term preservation of archival collections, it is extremely difficult to economize the functioning of this system, resulting in substantial, and often unnecessary, energy consumption and excessive costs, both monetarily and environmentally. For example, the original design was intended to run the dehumidifier and the steam boiler simultaneously which is extremely costly in terms of energy usage. Sometimes this is needed, but often it is unnecessary. In the past several years, largely in response to budget cuts, we have been able through manual manipulation of the HVAC system, to reduce monthly electricity usage 21% and gas usage by 44%. The lack of automation is compounded by the fact that the computer control system is now nearly ten years old and runs on an old Microsoft Windows 2000 platform, making these manipulations slow and difficult from remote locations. At the time the building was constructed, sustainability was not a primary concern; dehumidification and constant volume were the principal design objectives of the system.

The ongoing recession that began in 2007-2008 is having a particularly severe impact on the Georgia Archives. Since 2007 the budget has been reduced by 29% percent and staffing by more than 50%. In 2007 the archives (not including records center staff) had 26 full time staff, and as of October of 2011 there are eleven full time staff. The reduction in funds has impacted all services and programs from preservation to reference to records management and has forced staff to focus on the core mission. The Archives' greatest challenge is to continue to identify, preserve, and provide access to the permanent records of the state with limited resources and staffing. When the building was designed and constructed in the early 2000s operating costs were considered secondary to optimal environmental conditions. Although the facility is able to provide optimal conditions for the preservation of the collections, the operating costs are exceedingly high and electric and gas rates continue to climb. Today and into the future, our challenge is to reduce energy usage, while continuing to be responsible stewards of the permanent records of the State of Georgia.

HISTORY OF THE PROJECT

Even before the recession hit in 2007-2008 Archives administrators saw the need to reduce building operating costs. The cost per kilowatt hour (kWh) for electricity had increased by nearly 30% since 2005. The need became critical in 2009 after another large budget cut. A group of staff members was already meeting monthly to review environmental monitoring data, but as the budget tightened and pressure increased to further reduce costs, the environmental management team expanded to include four staff members: the Assistant Director for Operations, Conservator, Preservation Services Manager, and Assistant Director for Archival Services. Meetings were held more frequently as members reviewed biweekly environmental data. The Assistant Director for Operations (AD for Operations) reported on repairs and maintenance issues that affect the functioning of the system, and the team began to strategize on ways to maximize energy savings. Early measures of reducing overall energy costs included lowering the amount of outside air coming into the building, shutting down/reducing the use of the air handlers supplying the non-collection storage areas, and raising overall set points on temperature and humidity levels in the vaults. Temperature set points were adjusted during the summer from 60 to 65 °F (+/- 5 °F) and relative humidity level targets were raised from 35% to 40% (+/- 3%). During the winter we could revert back to the original, more stringent set points due to milder weather. Moreover, staff initiated a project to reduce the number of fluorescent lamps in light fixtures throughout the entire building by 60 percent.

During the late summer of 2010, the Archives started considering and testing controlled mechanical shut downs of the air handlers in the vaults on weekends and nights, especially leading into the fall and winter months to take advantage of lower outdoor temperatures. Taking such a radical step—that was contrary to what we had studied and learned in this profession for the past 20 years—was quite worrisome to preservation staff, so we began. The environmental management team drafted minimum and maximum temperature and relative humidity tolerance levels to alert key staff when the system had to be turned back on. These parameters are outlined in the *Archives Building Energy Savings Plan*, August 2010 in Appendix D. We started testing shutting down the air handlers serving the four vaults from Saturdays at 5:00 pm, when the

reference room closed to the public, until Tuesday morning when the building re-opened. During these early tests, the AD for Operations would drive to the building to manually turn on the air handlers when conditions exceeded minimum or maximum set points established by the environmental management team. The conservator performed weekly monitoring downloads; analysis tools in Climate Notebook revealed that shutting off equipment in the vaults on most of these 50 hour periods led to only a slight increase in temperature, less than 3 degrees (see Chart 3). The lack of fluctuation in temperature in the vaults is a direct result of having such a tight building envelope and a poured concrete structure. Changes in humidity levels in the vaults during shut downs were more dependent on outdoor conditions. When it was not raining, humidity generally held between 30 and 40%. If rain was anticipated during shut downs, the AHUs would be turned back on to maintain RH set points. The Time Weighted Preservation Index (TWPI) calculated in climate notebook, provided staff with proof that shut offs were not causing damage to the collections.

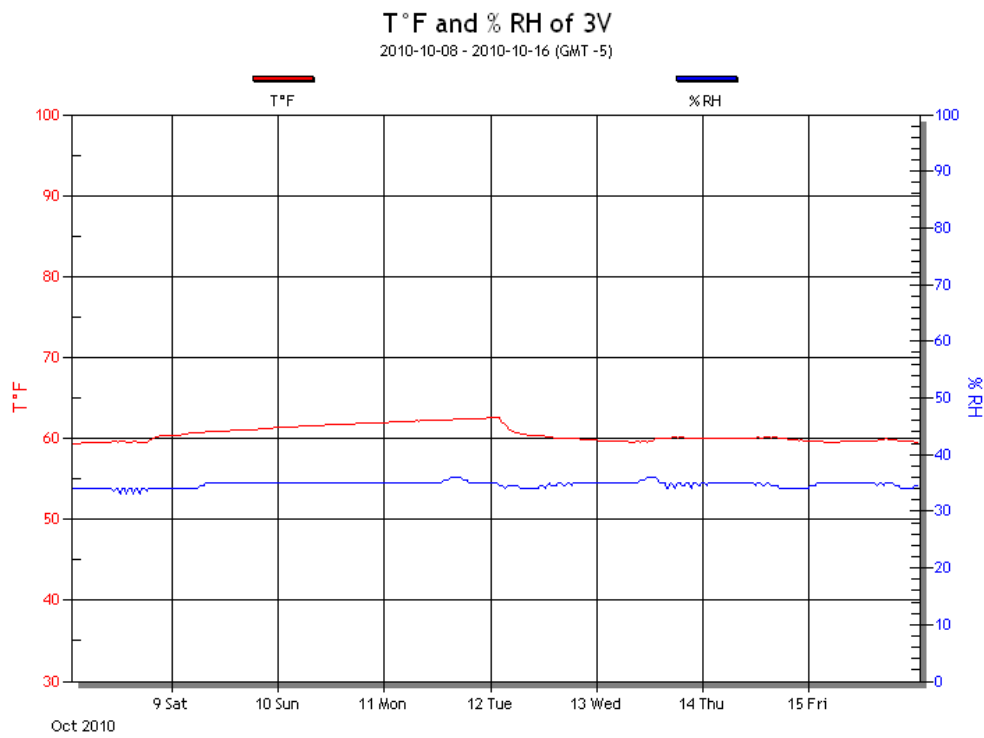


Chart 3: Temp and RH changes during a typical shutdown period of 3 nights

Following several months of successful energy reduction measures Archives staff began to consider testing additional shutdowns. We wanted to shut down whenever the outdoor temperature drops below 80 °F for more than an hour thereby saving energy during the cooler months. We also wanted to test overnight shutdowns when kilowatt rates are at their peak. However, performing additional shut downs was not possible without automation some controls. In the spring of 2010, the Archives administration approved the installation of controls that would allow the AD for Operations to log into the building’s control system remotely and turn on or off the vault AHUs using a computer and modem. This system, while outdated because it runs on an old windows platform and a modem, at least saved staff from having to drive to the building. However, it does require an operator to be on call all the time and have access to a computer and the internet. IPI uses a Time Weighted Preservation Index (TWPI) as a metric for comparing the quality of storage conditions over time. As controlled shut downs continued during 2010 calendar year, the TWPI in the collection storage areas only decreased by 1 or 2 points. Chart 4 shows that the mean TWPI for all floors has stayed above 100 from January 2007 through December 2010. IPI considers the environmental risk level of storage spaces with a TWPI above 100 to be “excellent” or low risk for “rapid aging”. (See Chart 4.)

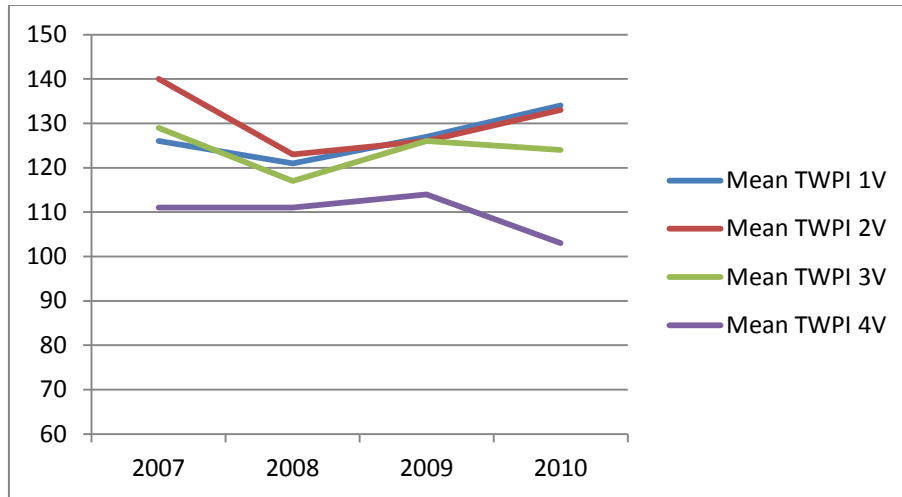


Chart 4: Mean Time Weighted Preservation Index (TWPI) Jan 2007 – Dec 2010

In February of 2011 the Georgia Archives and the National Archives at Atlanta served as hosts for a two day workshop, *Sustainable Preservation Practices for Managing Storage Environments*, sponsored by the Image Permanence Institute and funded by the National Endowment for the Humanities. Over ninety attendees from around the southeast participated in this seminar which focused on new and slightly relaxed parameters, for preserving collections while lowering energy and operating costs. As soon as the workshop began, Georgia Archives staff realized that they were already implementing and testing some of the techniques discussed in the workshop. The workshop helped to sanction our concerns and validate our testing of controlled shut downs in order to reduce energy usage. It also provided for more relaxed temperature and RH set points as goals, and helped us to realize we were further along than many organizations and could serve as a model.

Following the seminar, Peter Herzog and James Reilly took an extensive tour of the Archives mechanical systems along with Adam Parnell, Assistant Director for Operations, where they informally discussed our current activities and made suggestions for further adjustments. In fact, Peter Herzog was generous enough to review the Archives mechanical systems manual after the session and informally consulted with Adam Parnell about our plan to automate further. According to Peter Herzog’s presentation during the seminar, running the AHU fans makes up 19% of an institution’s annual energy costs. By installing variable frequency drives, the speed of the constant volume AHUs will be adjusted automatically and we anticipate increased savings because of reduced energy required to power the fans.

With a reduction of facilities staff, and without further automation and mechanical changes, sustaining these changes is a challenge. The Georgia Archives is fortunate to have a well-constructed and tight building envelope, and during winter and fall months we don’t have to turn the system back on very often during planned shutdown periods. However, during rainy periods or the heat of the summer we are unable to shut down the vaults very often, or they can only be shut down for a few hours at a time. Manual adjustments are labor intensive and neither practical nor sustainable.

Raising the temperature of the chilled water is another cost savings measure implemented. The electric chillers make up a large portion of the Archives’ consumption of electricity. The system is designed to run both 240-ton chillers, especially when the outside air temperature is above 80°F. One chiller runs all year long, but we raised the set point of the second chiller to come on only when the temperature gets above 92°F to minimize utility costs. We also raised the set point of the chillers from 38°F to between 42 and 50°F. This is cold enough to provide 60-65°F air in the vaults, and further reducing kilowatt usage. In addition, we

increased the condenser water temperature set points in the cooling towers from 75 °F to 85 °F to save electricity with no adverse effect to the collections storage areas.

As a result of these cost saving measures, the Archives has been able to reduce monthly electric bills an average of 21% over a period of five years. Since electric rates fluctuate, it's most useful to look at the trend in usage. Chart 5 demonstrates that energy saving measures have been successful in lowering kWh usage between 2005 and 2011. For example, in September 2005 the usage was 296,700 kWh, and in September 2011 it was 169,500 kWh, a reduction of 43% over six years. Similar reductions occurred in other months as well. In July of 2011 usage jumped up, but it should be noted that the summer of 2011 was the second hottest on record with 90 days over 90 °F between May and September. (See <http://www.srh.noaa.gov/ffc?n=summer2010>).

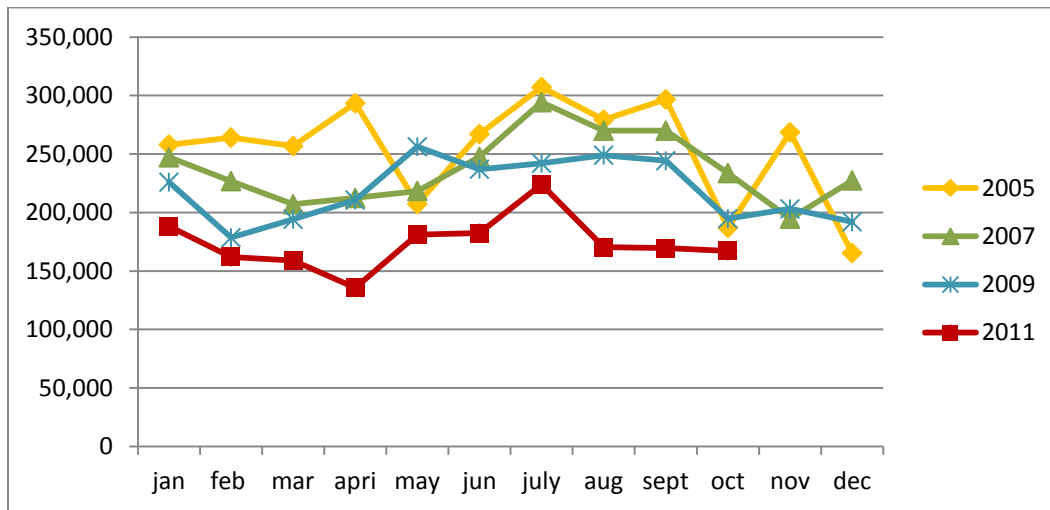


Chart 5: Kilowatt hours per month by year

METHODS AND STANDARDS

What the Georgia Archives has experienced suggests the future for many cultural institutions; the challenge of providing a stable storage environment while controlling operating cost and increasing sustainability. Current research on collections storage environments by IPI, the Getty Conservation Institute, and other preservation scientists determined that collections can tolerate wider swings in temperature and relative humidity than previously believed. Large organizations such as the Library of Congress and the National Archives are testing cost saving measures such as reducing fan speeds, installing variable frequency drives (VFDs), replacing lighting, and conducting controlled shut downs as reported at the 2011 NARA Preservation Conference in Washington, DC. (<http://www.archives.gov/preservation/conferences/2011/>). However, these measures are still in the testing phase and are not being implemented widely as of yet.

In fact these trends are so recent as Brenda Banks notes in her 2010 book review of Pacifico and Wilsted's *Archival and Special Collections Facilities: A Guide for Archivists, Librarians, and Architects and Engineers* published in 2009, "The one trend that is not included in this book is that of sustainable buildings and balancing green technology with efficient environmental controls. Efficient use of energy, water, and other resources speaks to our stewardship for the overall environment. For years archivists and librarians have struggled to ensure that difficult environmental measures were met within narrow parameters with less emphasis on costs or environmental impact. With the diminishing availability and surging cost of energy resources, the profession will have to explore more efficient methods of achieving the best environment for collections while balancing

concern for costs and the current energy crisis.” Her comment that sustainability is not included in this book is significant because each chapter was written by a different expert and as Banks says, this book “captures recent trends and practices and moves a step closer to developing nationally accepted standards”. (Review by Brenda S. Banks, *American Archivist*, v.73, no.2, Fall/Winter 2010, pp. 701-703.)

In the past several years the Georgia Archives has been able to significantly reduce energy usage while continuing to maintain vaults set points of 65 °F (+ /- 5 °F) and 35% RH (+ /- 3%) to ensure the preservation of collections. We have tested procedures of adjusting set points, raising chilled water temperatures, and controlled shut downs, and we have documented our tests through careful monitoring using PEM's and Climate Notebook. We have consulted with experts, conducted research, and participated in training. Unfortunately, during this time energy costs have climbed about 41 percent, making it necessary to find further energy reductions. Through this grant program, we have an opportunity to be responsible stewards of our collections, and reduce our impact on the natural environment, by implementing sustainable and permanent energy savings measures. With funding from NEH, we could further automate our system and continue the energy savings measures begun by the environmental management team, while at the same time providing thorough documentation that would be useful to many cultural institutions, by doing the following:

1.) **Install five variable frequency drives**, one for each of the vault AHU's (IV – 4V) and the AHU that serves the conservation and scanning labs (AHU-2S), to modulate fan speeds, especially during nights and weekends. Presently, the AHU's that serve the four storage vaults are constant volume and are designed to operate at full power, 24 hour per day. The fans speeds are not adjustable, which results in over pressurizing the vaults since the vault doors are only opened to retrieve records. The pressure builds up in the vaults and expends energy. These factors contribute to over-operating, increased maintenance costs, and excess energy usage. To date we have conducted manual shut downs that are labor intensive and difficult to maintain over time with limited staff. It literally requires our AD for Operations to “drive the bus” and monitor the system around the clock. Installing the variable frequency drives will allow for adjusting fan speeds and further automating shut downs so, for example, we can program a setting so that the AHU's power down at night and on weekends when usage or outdoor temperatures are low. This will increase efficiency, reduce wear and tear on equipment from overuse, and thus further save energy. There will be no detriment to the collections because of the tests and the tolerance levels established in consultation with, and monitored by, the Archives preservation staff.

Variable frequency drives cannot operate without static pressure sensors, so these will have to be installed as well. A static pressure sensor will be installed for each of the five variable frequency drives. The sensors will be located in the supply and return duct work and they will monitor and regulate the VFDs depending on the pressure readings, as well as temperature and relative humidity readings. The VFDs and static pressure sensors will be installed by McKenney's, Inc., the mechanical contractor for the construction of the building, at an estimated cost of \$36,862 total including parts and labor. (*See Appendix E for estimates.*)

2.) **Update outdated control system.** The current computer control system was designed by Honeywell in 1998, and it runs on Windows NT, UNIX, or Windows 2000 platforms. Our version of the control system is no longer supported by Honeywell, and it is on a dial-up connection only. The control software needs to be upgraded to the latest version and made internet accessible. Updating the control system requires purchasing new software (likely Honeywell) and contracting with a programmer to link it to the Georgia Archives mechanical system for an estimated cost of \$5,500. The Archives will provide the computer/server needed to run the control system as cost share.

3.) **Recommissioning.** Once all of these updates are implemented, a vendor will recommission the five air handlers (the four that serve the vaults and the one that serves the laboratory areas and processing rooms) as well as the two dehumidifiers, a necessary step to ensure optimal operation. Recommissioning is a thorough

process of checking and balancing design modifications and functionality of a system. It will ensure that all systems are operational and meet design specs and that the specs can be maintained. The vendor will hire a certified recommissioning agent to check environmental conditions and verify that everything is functioning as designed. Work shall be performed by a firm certified by the National Environmental Balancing Bureau (NEBB) or the Associated Air Balance Council (AABC) in testing and balancing disciplines for this type of project. Work will be performed under the direction of an Engineer licensed in the State of Georgia. At the end of the recommissioning, the Archives will receive a report, performance certificate, and warranty for two years. We estimate this process will take four to six weeks at an estimated cost of \$23,518. (*See Appendix E for estimates from contractors.*)

4.) ***Install point of use humidifiers in the conservation lab and exhibit room.*** Controlling the relative humidity in the conservation lab and exhibit room has proven to be difficult in these important areas that frequently house original documents. Maintaining a constant relative humidity in the conservation lab is critical when performing treatments such as those that require adhesives not to dry too quickly. The exhibit room was designed to have very similar environmental conditions to that of the vaults but was never equipped with humidification for use during the winter. Monitoring data indicates that the relative humidity fluctuates in winter well below acceptable levels; it can dip into the low 20% range. IPI research specifies that collections should not be stored in areas with a relative humidity below 30%. By installing two point-of-use humidifiers in the conservation lab and one in the exhibit room on the first floor, staff could tightly regulate the relative humidity in these two critical spaces without having to turn on the steam boiler; and thereby minimizing energy use. Presently, controlling the humidity in these spaces is difficult and the boiler is expensive to run. The cost of the equipment and the installation of these is estimated to be \$22,518 and will be installed in Year 2 of the grant. (*See Appendix E for estimates from contractors.*)

5.) ***Lighting upgrades*** in the reference library and original documents reading rooms. The cold cathode/neon lights installed into the square soffits in the ceiling of these two areas, while excellent for their low UV output, are extremely expensive to maintain and operate. Furthermore, the neon lights use a significant amount of energy, especially upon start up when the ballast converts 120 volts to 990 volts. For this reason, and for security purposes, the lights must be left on continuously. As they burn out and fail, each neon lamp costs nearly \$400 to replace. Replacing the fixtures and lamps with low UV fluorescent lighting would greatly decrease energy costs, maintenance, and replacement bulbs, while also reducing the use of rare earth elements (in the neon lights) which is damaging to the environment. Since the cost of LED lighting is still quite high, fluorescent is still the best option. However, eventually these lamps could be replaced with LED without any additional costs or retrofitting, since they use the same fixtures and ballasts.

The Georgia Archives is asking for \$28,317.00 in grant funding, and contributing \$23,556.00 in cost share, to convert neon fixtures in the reference library and original documents reading room to more energy efficient and lower maintenance low-UV fluorescent fixtures.

The impact on the collections during the work on the five air handling units and lighting upgrades will be minimal. Collections will not have to be relocated or moved at all, since the mechanical systems are located adjacent to, but not inside the storage vaults. The installation of the VFDs is scheduled to take place during the fall and winter months to minimize the impact on the collections since the air handlers will have to be shut down during installation. One VFD will be installed at a time so only one AHU would be off at one time. The AD for Operations anticipates a six hour shut down period for installation and linking the VFD to the existing AHU. Work will be timed to take place during the coolest hours of the day. The lighting upgrades will be scheduled to take place on days when the reading rooms are closed, and any collections in those areas (i.e. reference books) will be protected by plastic sheeting.

WORK PLAN

Before the Grant Period Begins

- Continue manual AHU shutdowns when outdoor temperature is below 80 °F. The Georgia Archives has economized through automation and can only save money by shutting down equipment whenever possible. Assistant Director of Operations (AD for Operations)
- Continue to use PEM2s to monitor conditions in all vaults, reference, processing area, and the conservation lab. Assistant Project Manager (APM)
- Track energy use using utility online accounts. Project Manager (PM)

Throughout 3 Year Grant Period:

- Environmental Management Team will continue to meet biweekly. The team includes Adam Parnell, Assistant Director of Operations (AD for Operations), Steve Engerrand, Assistant Director for Archival Services (AD for Archival Services), Christine Wiseman, Preservation Services Manager and Project Manager (PM), and Tina Seetoo, Conservator and Assistant Project Director (APM).
- Data collection and analysis. Installation of the variable frequency drives and static pressure sensors will require the air handlers to be turned off and adjustments made to the environmental control system. Vigilant monitoring will be required during the upgrades, but no collection materials will need to be moved. All environmental monitoring data will be collected by the APM. The PM will track energy usage.
- Progress on project goals will be disseminated using Web 2.0 tools (Blog, Facebook, Google +, etc.). Biweekly updates (or more frequent when necessary) will highlight preservation issues that surface as staff oversee repairs and retrofits. These duties will be shared by the PM and the APM.

Year One

1st Half Oct 2012 – Mar 2013

- Seek bids for all outside work on the upgrade to the air handling units (AHUs) and recommissioning – AD for Operations
- Seek bids for computer software to run new and existing equipment (includes custom programming and installation) - AD for Operations
- Installation of variable frequency drives on all five AHUs – Vendor, supervised by AD for Operations
- Installation of static pressure sensors in air handlers – Vendor, supervised by AD for Operations
- Installation of environmental control system (computer and software) – Vendor, supervised by AD for Operations

2nd Half Apr – Oct 2013

- Recommissioning of HVAC system from outside test and balancing firm – Vendor, supervised by AD for Operations
- Upgrade Lighting – Estimated two month installation as work will take place gradually when the archives is closed to the public – Vendor, supervised by AD for Operations
- Monitoring during this period of warmer months will include tracking electricity and gas usage - APM and PM

Year Two

1st Half Oct – Mar 2014

- Monitoring of systems and analysis for estimations of cost saving during cooler months.
- Installation of point-of-use humidification equipment (3 units total) – Vendor, supervised by AD for Operations
- Adjust sequence of operations of drives – Vendor, supervised by AD for Operations

2nd Half Apr – Oct 2014

- First comparison charts for estimating energy savings from AHU upgrades and lighting retrofits – PM & APM
- Begin drafting white paper and PowerPoint presentation for dissemination of the progress of projects goals and lessons learned – PM
- Prepare and give presentation at 2 or 3 regional/national conferences – PM & APM

Year Three

1st Half Oct – Mar 2015

- First comparison charts: estimating effectiveness of point-of-use humidification equipment and analysis energy savings from decreased steam boiler usage – APM
- Continue drafting white paper – PM

2nd Half Apr – Oct 2015

- Second comparison charts: estimating energy savings from ALL upgrades – PM & APM
- Prepare and give presentation at 2 or 3 regional/national conferences – PM & APM

PROJECT TEAM

Christine Wiseman, Preservation Services Manager

Christine holds a B.A. in English from St. Joseph's University and MLIS and certificate of advanced study (CAS) in Preservation Administration from The University of Texas at Austin. She has been Preservation Services Manager at the Georgia Archives since 2002 where she is responsible for managing preservation activities, conservation, and digital reformatting activities. Christine is actively involved in statewide and regional disaster planning; she served as the project manager for Georgia's IMLS statewide preservation planning project, the Healthy Collections Initiative, 2007-2009 and is the 2011 President of the Society of Georgia Archivists. She is an adjunct instructor in the Masters of Archival Studies Program at Clayton State University. For this project she will serve as project manager, ensure that the project stays on schedule, manage the budget, and complete all required reporting. She will work closely with the Assistant Director for Operations to coordinate the work of the contractors, help with tracking data, and dissemination of the results.

Adam Parnell, Assistant Director for Operations

Adam has been the Assistant Director for Operations at the Georgia Archives since 2006. He has been in the Facility Management field for over 30 years. He also worked in the Emory University Facilities Division for 15 years, working in Automation, Energy Management, HVAC, and laboratory fume hood design. Prior to working at the Archives, Mr. Parnell was the Chief Engineer for General Electric Realty Properties, managing properties in the area such as Atlanta Plaza, Resurgens Plaza, Sanctuary Park, and various properties in the Southeast. Other positions include Fulton Co Parks and Recreation, Army Corp of Engineers, U. S. Army, Post Properties, and TAB services, an Atlanta area Test and Balance firm. He holds an Unrestricted Conditioned Air License. Has a Certificate of Authority on boilers and low voltage wiring with the State of Georgia. He is also certified to manage many proprietary systems including Trane, Carrier, York, General Electric, Mitsubishi, Munters, Johnson Controls, Siemens, Automated Logic Corporation, and Honeywell. Mr. Parnell is currently working on his Stationary Engineer's license. Adam will coordinate all of the mechanical work, obtain and evaluate bids, purchase necessary supplies, and oversee the recommissioning.

Tina Mason Seetoo, Conservator

Tina holds a BA in Art History from The University of the South in Sewanee, TN. She received an MLIS and a Certificate of Advanced Study in Conservation from the University of Texas at Austin which included a year-long internship in the Book Conservation Lab of the Smithsonian Institution Libraries. Prior to coming to the Archives in 2007, she worked in the Preservation Services department of the Southeastern Library

Network (SOLINET) and was responsible for preservation education and outreach throughout the Southeast. She began as the Field Services Officer and was promoted to Manager of Preservation Services in October 2005. She is active in the ALA Preservation and Reformatting Section, the American Institute for Conservation, Society of American Archivists, and the Society of Georgia Archivists. As assistant project director for this project, she will track and analyze environmental and energy consumption data and assist with the dissemination of project results.

Steven W. Engerrand, Assistant Director for Archival Services

Dr. Engerrand has a B.A. from University of Wisconsin-Madison, an M.A. from North Texas State University, a PhD in History, University of Georgia, 1981 and a MLn, Emory University. He has extensive experience as an archivist and records manager and has university-level teaching experience. As an archivist, he has accessioned, appraised, processed, and described records and private papers. He has been responsible for preservation, reformatting, and description as well as for selecting and cataloging published materials. He also coordinates Archives purchasing with the Office of the Secretary of State. Steve will assist with contracts and purchasing aspects of the grant, as well as serve on the Environmental Monitoring Team and will help with dissemination of project results.

PROJECT RESULTS AND DISSEMINATION

Archives staff anticipates that the energy saving measures already in place will continue, and increase if the plans outlined in this proposal are implemented. Installing the variable frequency drives and updating the control system will allow for fan speed reductions at times of the day when presently it is not practical for the AD for Operations to manually make adjustments. Thus, the system should work even more efficiently and effectively, further reducing energy usage and equipment wear and tear without detriment to the collections. The lighting upgrades will also have a great impact on energy saving as well as maintenance costs; again without comprising the preservation of the collections. Staff will continue to document savings through continued monitoring of environmental conditions and tracking both electric and gas usage.

The Georgia Archives understands that many institutions face similar circumstances, balancing the seemingly conflicting pressures of reducing operating costs while continuing to protect their collections. Although we have a complex HVAC system and a state-of-the-art facility, the measures we propose to implement are not out of reach for organizations with smaller and less sophisticated systems. Many cultural organizations are likely to have older CAV systems that would benefit from being upgraded with VFDs, for example. And, we believe others would benefit from seeing an organization demonstrate that energy saving measures can be employed incrementally by taking a systematic approach. We will disseminate information about our procedures and outcomes widely through several outlets, including Web 2.0 applications, publishing, teaching, and presentations. Progress on the project will be documented through a website and blog. The blog will be updated frequently, especially while the mechanical repairs are being implemented. Photos will help illustrate the process, which will be helpful to the archives in tracking progress and to other organizations facing similar issues. With this data in hand, other repositories will be able to plan for and justify their own implementations of similar strategies.

The conservator and preservation services administrator teach regularly and will incorporate findings from this project into the courses they teach including the annual Georgia Archives Institute and the graduate level course they teach in the Archival Studies Program at Clayton State University. In addition, project staff will prepare a white paper describing the entire project and its outcomes that will be posted on the NEH website. We will prepare shorter newsletter articles reporting progress and submit at least one article for a peer review journal, such as *Provenance: The Journal of the Society of Georgia Archivists*. We will submit proposals for programs at two state or regional conferences, such as the Society of Georgia Archivists (SGA), the Georgia Association of Museums and Galleries (GAMG), the Southeast Museums Conference (SEMC) and one national conference, such as the Society of American Archivists or the American Association for State and

Local History (AASLH), Most of the dissemination activities will occur during years two and three, after there has been time to make the mechanical upgrades and monitor energy usage as well as environmental conditions. We will publish shorter articles, press releases, and start the blog posting in year one to publicize the program and to provide updates on progress with all sustainability projects. In addition, we will continue to support IPI in their sustainability research and training initiatives by sharing data and offering to host future regional training programs.