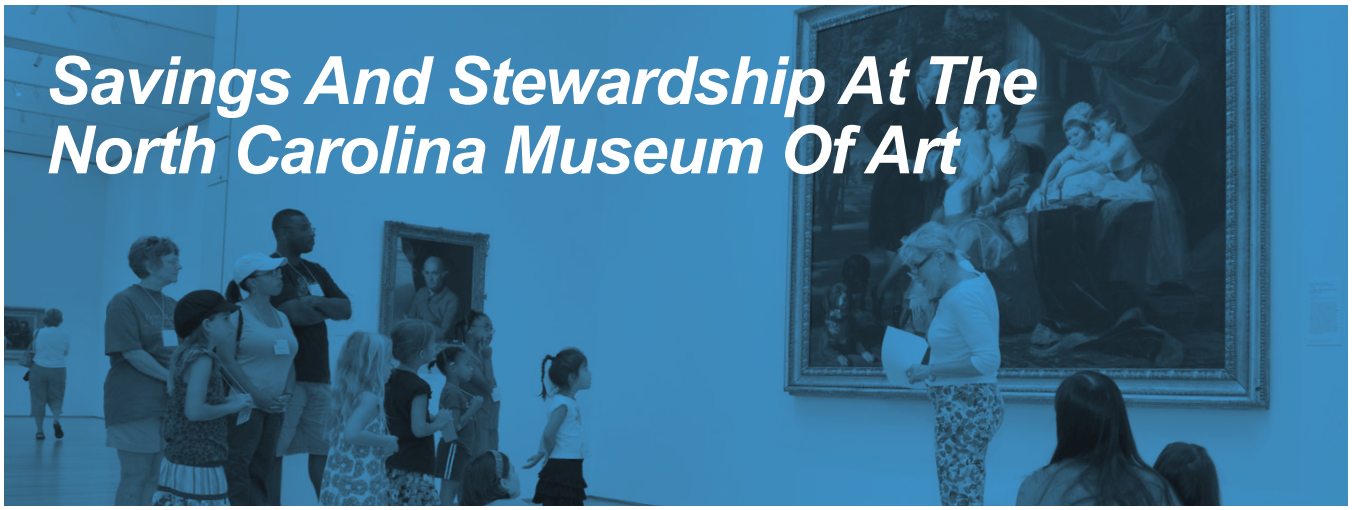
Savings And Stewardship At The North Carolina Museum Of Art



Challenge

The North Carolina Museum of Art is home to a spectacular collection of treasures worth more than $1 billion. The Museum maintains a permanent collection spanning more than 5,000 years, from ancient Egypt to the present, and hosts national touring exhibitions, classes, lectures, family activities, films, and concerts. This impressive array of exhibits and programs makes NCMA one of the premier art museums in the South—one which has over 23,000 members and welcomes more than 500,000 visitors each year.

NCMA Executive Director Dr. Larry Wheeler relies on the Museum's conservation experts and facilities team to work together to manage the environmental system to ensure the collection is protected and visitors are comfortable. In 2005, the facilities team discovered that the Museum was experiencing wide fluctuations in temperature and humidity, with swings of 30% to 60%. Director Wheeler and the Museum conservators knew immediately that what might be a mere annoyance for another type of facility is a very serious problem for an art Museum. Such extreme variations in temperature and humidity cause canvases to expand and contract and lead to their premature aging, and allow other art forms and artifacts to deteriorate. Without corrective action on the Museum's environmental system, it would

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The NCMA project has received accolades from across the State of North Carolina and beyond. The State Department of Administration and Energy Office have recognized this first guaranteed energy savings project as a complete success.

continue to act as an “artificial aging chamber” for its permanent collections and touring exhibits.

Dr. Wheeler and his team began to research current technologies for Museum environmental systems, as well as viable means of funding the needed improvements. What they found was a state-of-the-art HVAC approach that would pay for itself in reduced energy use and costs.

Solution

The Museum pursued and was granted the North Carolina Department of Administration’s first capital improvement project funded by guaranteed energy savings. The work was awarded to Brady Services based on their expertise in the HVAC industry and their proven track record for providing the highest quality service and products.

Brady designed and installed a technologically advanced environmental system that provides the specific indoor climate conditions required for the Museum. Brady focused the design to provide dynamic control capabilities, control accuracy and precision, energy efficiency, and system longevity. A few of the key components of the upgraded system include:

- Direct digital controls upgrade
- Adjustable constant volume airflow
- Addition of a dedicated outside air unit
- Cold fog humidification
- Variable speed chillers with free-cooling
- Variable primary pumping system

Brady worked closely with Museum staff to ensure each phase of the installation minimized disruptions to operations and visitors. Close coordination between the Brady team and Museum staff also ensured the system was custom-designed and installed to meet Museum expectations.

The project budget was $5 million. The guaranteed energy cost savings was $572,483 per year for a total of $6.9 million over the first 12 years of system operation.

Results

The Museum’s new environmental system has delivered excellent indoor climate control. Humidity levels now fluctuate by less than 5% throughout all seasons of the year, providing a protective environment for the Museum’s art and artifacts. Director Wheeler and the Museum conservators could not be more pleased with these amazing improvements. “This tightly controlled environment is now protecting priceless collections for generations to come,” says Dr. Wheeler. “We could not have had the Monet or Egyptian exhibits without these improvements.”

The new system has also drastically improved the Museum’s energy efficiency. The Museum now uses 60% less energy, which translates to a monthly savings of $40,000, meaning the $5 million cost of the project was paid for through the energy savings realized during the first nine years of operation. “The energy efficiency work performed by Brady is saving the Museum nearly $600,000 per year in energy costs,” reports Dr. Wheeler, “plus the Museum is able to replace other outdated equipment with the money saved.” The improved energy efficiency also means reduction of the Museum’s carbon footprint. Director Wheeler and his staff are proud to have avoided CO2 emission during the first nine years post-installation equivalent to 5,520,458 gallons of gasoline consumed.

The Museum will continue to enjoy all of these benefits far beyond the initial 12-year performance period of the project. Of course, Director Wheeler and his team realize the ultimate value realized: “What matters even more is that our visitors are more comfortable and our valuable collection is better protected.”