

Energy Improvements Protect \$1 Billion Art Collection

Humidity is an enemy of the art world. Fluctuations in temperature and humidity cause canvases to expand or contract, leading to premature aging. The North Carolina Museum of Art (NCMA) was experiencing a fluctuation of 30 percent humidity in the winter and up to 60 percent in the summer. **“What we had here was essentially an ‘artificial aging chamber,’”** said **Bill Brown, chief conservator of NCMA.**

In 2003, the [Industrial Extension Service](#) at [North Carolina State University](#) performed an energy survey for the NCMA. Energy surveys facilitated by the IES energy management program are a service supported by the [North Carolina State Energy Office \(SEO\)](#) as part of their Utility Savings Initiative (USI). The intent of the USI is to reduce energy consumption and costs in state agencies and public universities by 20 percent in five years, saving valuable taxpayer dollars while saving the state’s natural environment.

For almost 20 years, the IES energy management program has supported the comprehensive mission of the SEO as a technical partner with energy assessments, detailed surveys and workshops. The SEO also works closely with NC State University to reach out to industrial, commercial, institutional and government users of energy who want to maintain efficient practices and control operating costs.

NCMA completed installation of a new HVAC (heating, ventilating and air conditioning) system, including, new airflow reductions, equipment replacement and controls upgrades in December of 2006.

In regards to humidity, the recommended specification is 50 percent plus or minus 5 percent. Based on NCMA monitoring systems, they are now within those specifications. Energy savings in *2006 are estimated at 58 percent or what averages **\$40,000 per month** for a system that operates 24 hours a day, 7 days per week.

Benefits:

- On target to save \$480,000 in 2006
- Reduced energy consumption of 58 percent
- Humidity only fluctuates plus or minus 5 percent

Conclusion:

NCMA is now operating a reliable, energy efficient HVAC system with minimum fluctuations in temperature and humidity. The museum’s collection—North Carolina’s art treasures—now reside in an ideal environment so many generations to come may enjoy them.

*2006 measurements are still in the process of being confirmed and tabulated.