News Release

FOR IMMEDIATE RELEASE

Contact: Anne Taylor Carros
Lord, Aeck & Sargent
404-253-6710
acarros@lasarchitect.com
or
Ann Kohut
Kohut Communications Consulting
770-913-9747
annielk@bellsouth.net

Historic Preservation Approach Characterizes 19th Century Italianate House Restoration at Georgia's Hardman Farm

LEED gold certified project "demonstrates that historic restoration and green building principles go hand in hand"

NACOOCHEE VALLEY, Ga., Dec. 15, 2011 – A beautiful 19th century Italianate farmhouse, once the home of a Georgia governor, has been restored and awarded LEED Gold certification by the U.S. Green Building Council. One of 18 historic structures on 173 acres of land known as Hardman Farm, the property is situated just outside the North Georgia mountain town of Helen.

The team of Garbutt Construction, which served as design-builder, and architecture firm Lord, Aeck & Sargent, partnered with the Georgia Department of Natural Resources (DNR) to restore the farmhouse, which was built around 1870. As the $2.1 million restoration took shape, in several ways it became a true historic *preservation* project.

Hardman Farm was owned in the early 20th century by physician, entrepreneur, farmer and former Georgia Governor Lamartine G. Hardman, who used the property as a summer retreat and for experimental farming techniques. Research indicated that the most significant period of occupation was approximately 1915 to 1925, so this was the timeframe selected as the period of interpretation for the house restoration.

- more -

According to Susan Turner of Lord, Aeck & Sargent's Historic Preservation Studio and the project's principal in charge, the house is a unique historic resource that required a unique approach to its preservation. While most historic buildings are modified over time to keep up with changing tastes and technologies, Hardman Farm remained relatively unchanged over its 140-year history. The house still retains its 1870s interior finishes, original gas lighting fixtures (modified only minimally for partial electrification in the early 20th century), and original and early 20th century plumbing fixtures.

"Today," Turner said, "the house stands as a sort of 'time capsule,' providing a rare authentic glimpse into the architecture and technology of the late 1800s and early 1900s. For this reason, the project team used an approach of conservation: gently cleaning and renewing historic materials and features. All efforts were made to minimize the impact of the team's work on the historic materials and spaces. This philosophy of touching gently and leaving no trace applied to every aspect of the project – from the team's approach to sustainable design to materials conservation."

CFD and energy modeling used to incorporate sustainability principles in restoration

The DNR challenged the design/build team to complete a historic restoration project that would incorporate principles of sustainability and retain as much of the existing farmhouse structure as possible.

"Some preservationists don't believe that historic restoration can be accomplished sustainably, but the Hardman Farm house restoration demonstrates that historic restoration and green building principles go hand in hand and actually complement one another," said David Freedman, who served as the DNR's project manager on the restoration. Freedman, who is now retired from the DNR and puts his expertise to use providing green building strategies and

training to A/E/C professionals and building owners, also noted that most historic structures were built sustainably to begin with. The house at Hardman Farm, he said, is no exception.

For example, the house is oriented on the site so as to minimize solar gain, and its wraparound porch, deep overhangs and operable shutters help keep it cool in the summer. The house itself features stack effect ventilation, a form of natural ventilation in which air is drawn up vertically through the two-story house, its attic and out through the cupola on the roof.

“We were originally looking at this project as we would the restoration of a historic home into a house museum. As such, our intent was to add a mechanical system for air conditioning and heating,” Turner said.

“We worked with EMC Engineers, which constructed a computational fluid dynamics (CFD) model to study the influence of outside temperature on the interior of the house,” Turner continued. “We were surprised to learn from the model that there were very few hours where the temperature inside the house exceeded 80 degrees, and then only late in the day, when the sun strikes the west walls.

“As a result the DNR decided to condition the house with its original natural ventilation strategies, as their primary concern was for the house to remain as true as possible to the historic character of the selected period of interpretation,” Turner said. “The house was designed to function in those conditions, and the furniture, which was given to the DNR by Dr. Hardman’s descendants, had already adapted to the thermal conditions. So we switched our approach from one of restoration and adaptive re-use to one of preserving the original thermal environment.”

After the CFD model was completed, the Lord, Aeck & Sargent design team conducted energy modeling and life cycle costing to determine the best option for achieving thermal comfort in the chilly North Georgia mountain winters.

The National Center for Preservation Technology and Training, a research division of the National Park Service, in July awarded the DNR an $11,000 grant to collect data at Hardman Farm in order to monitor building energy performance in comparison to the energy model.

"Our goals were to minimize the impact of installing a heating system on the historic character of the house without sacrificing operating efficiency," said Julie Arnold, project architect at Lord, Aeck & Sargent. "We achieved both goals by selecting an under-floor hydronic radiant heating system to heat only the first floor, allowing heat from the system to maintain an acceptable second-floor temperature, even in the coldest weather."

In keeping with the history of early adoption of technologies like indoor plumbing and electricity by the first owners, the team selected an unobtrusive but sunny area near the farmhouse for the installation of 22 solar panels surrounded by a picket fence. The renewable energy solution is a 3.2 kilowatt grid-tied system in which the power generated will offset much of the electricity used by the main house.

Interior finishes also restored with a minimalist approach

Just as the design team used a minimalist approach for achieving thermal comfort, finishes analyst Frank Welsh Color & Conservation and a team of paint and plaster conservators from The Magic Brush and Architectural Conservation Services, respectively, devised a conservation approach for the interior finishes.

The finishes team determined that the house's interior wood trim, covered with layers of dirt, still retained the original white painted finish. Concerned about cleaning the painted surfaces while also leaving some patina appropriate for the age of the structure and without damaging the finish, the team tested various products and combinations of products. Through a process of elimination and application testing, it was decided to use a diluted citrus cleaning solution.

The plaster wall and ceiling surfaces were not originally painted but were coated during the early years of the house with calcimine, a glue-based paint commonly used in the late 1800s and early 1900s. The team found remnants of calcimine on the walls behind large pieces of furniture and believes that the previous occupants had cleaned off the calcimine without moving the furniture. It was decided to maintain the uncoated state of the plaster walls and ceilings, leaving the remnants of calcimine untouched.

The plaster contained numerous cracks that needed repair, and this process was complicated since the repairs would not be covered by a new paint finish. “While the standard technique for repairing plaster involves widening and then filling the cracks, the team elected a minimalist process in which the cracks were delicately infilled,” Turner said. She added, however, that there were some portions of the cast plaster cornices that required replacement due to water damage.

Electricity replaces gas lighting – an example of early technological advancements

According to Turner, the restoration began with a conditions assessment of the farmhouse, kitchen and a breezeway that attaches the two.

“We believe that the house was used by Dr. Hardman and one of its two previous owners primarily as a summer retreat, and because, throughout most of its history, it wasn’t used year-round we found it to be amazingly intact and in reasonably good condition,” Turner said.

Nevertheless, much work was required to restore the 5,160-square-foot house to its period of interpretation and make it code-compliant.

For example, although the house was built with gas lighting, Hardman introduced minimal electricity in the early 20th century. Some of the original gaslight fixtures had been

electrified, and while electrical outlets were installed in the baseboards there were no wall switches. Since these components of early electrical systems were present in the house during the period of interpretation, the design/build team determined that it was appropriate to retain the visible portions of these systems. The team sent the original gasoliers to a specialty lighting restoration company for rewiring to bring them up to code and also had their original metallic gold paint finish conserved.

A small viewing panel was installed in one of the second-story bedroom floors to help visitors visualize the evolution of the three generations of lighting systems. Here, visitors can see 1870s gas piping, an early 1900s knob and tube system to electrify and modify the gas lights, and the current code-compliant wiring.

Other restoration and adaptive re-use activities

Other work to the farmhouse, kitchen and breezeway included:

- Exterior woodwork restoration, especially of the porch columns and roof overhangs;
- Repainting of the house exterior – which Welsh's analysis showed had been painted many times – to match the original white, along with repainting of the porch floor to a reddish brown and porch ceiling to white. The edge of the porch ceiling included a detailed trim of cast plaster mini crown molding, which was repaired before the repainting. The window shutters and screen frames were repainted to match their respective dark green and black;
- Replacement of four broken sidelights surrounding the main door. The sidelights, ruby red with flower etched details, were copied to look like the originals;
- Complete restoration of the windows, including sash removal/restoration, replacement of the muntins, which had been eaten by squirrels, refurbishment of the original wood, and protection of the interior paint finish;

- Repainting the heart pine floors in two rooms, and removal of floor paint in another room where it was determined that painting had taken place after the period of interpretation;
- Cleaning of the clear finished mahogany interior doors, and inpainting of the grain painted heart pine interior doors and eight marble painted slate mantels;
- Restoration of the historic hardware, including the ornate hardware on the main door, the knob and skeleton key locks on the bedroom and parlor doors, the black cast iron surface mounted rim locks on the doors, and the original door hinges;
- Removal of a 1950s-'60s room addition near the butler's pantry at the back of the house;
- Conversion of the butler's pantry, which had been altered after the period of interpretation, into an ADA-accessible bathroom;
- Addition of an underground, 1,700-gallon cistern to collect rainwater from the farmhouse roof. The water is used for landscape irrigation;
- Cleaning of the 360-square-foot kitchen, which was otherwise in good condition;
- Addition of a wheelchair lift onto the breezeway for ADA code compliance; and
- Redecking the breezeway and bulking up its framing. The breezeway had at some point been replaced with southern yellow pine and was not in good condition.

Award-winning restoration

In addition to its having achieved LEED Gold certification, the farmhouse earlier this year also received two awards from the Georgia Trust for Historic Preservation: the Marguerite Williams Award, which is the Trust's highest award, given annually to the project that has had the greatest impact on preservation in the state of Georgia, and an Excellence in Restoration Award. The project also was chosen an AIA Atlanta COTE (Committee on the Environment) Showcase Winner at the 2011 Greenprints Conference.

Touring the farmhouse

In addition to the farmhouse, an old dairy barn and gazebo already have been restored, and the DNR -- which acquired Hardman Farm from Hardman family members in 2002 -- plans to eventually restore all buildings on the historic property. Hardman Farm will become Georgia's next State Historic Site; however, due to budget restraints, the site is not yet open for public tours.

The project team

The Hardman Farm farmhouse restoration project team included:

- Georgia Department of Natural Resources (Atlanta), owner
- Garbutt Construction Inc. (Dublin, Ga.), design-builder
- Lord, Aeck & Sargent (Atlanta office), architect
- EMC Engineers (Alpharetta, Ga.) – MEP/FP engineering and CFD modeling
- Willett Engineering Co. (Tucker, Ga.), – structural engineering
- Eberly & Associates (Atlanta) – civil engineering
- Frank Welsh Color & Conservation (Bryn Mawr, Penn.) – finishes analyst
- The Magic Brush (Greensboro, NC) – paint conservation consultant
- Architectural Conservation Services (Manchester by the Sea, Mass.) – plaster conservation consultant
- LandAir Surveying Co. (Roswell, Ga.) – surveying services
- Freedman Engineering Group (Marietta, Ga.) – LEED administration

About Lord, Aeck & Sargent

Lord, Aeck & Sargent is an award-winning architectural firm serving clients in scientific, academic, historic preservation, arts and cultural, and multi-family housing and mixed-use markets. The firm's core values are responsive design, technological expertise and exceptional service. In 2003, The Construction Specifications Institute awarded Lord, Aeck & Sargent its Environmental Sensitivity Award for showing exceptional devotion to the use of sustainable and environmentally friendly materials, and for striving to create functional, sensitive and healthy buildings for clients. In 2007, Lord, Aeck & Sargent was one of the first architecture firms to adopt The 2030 Challenge, an initiative whose ultimate goal is the design of carbon-neutral buildings, or buildings that use no fossil-fuel greenhouse gas-emitting energy to operate, by the year 2030. Lord, Aeck & Sargent has offices in Ann Arbor, Michigan; Atlanta, Georgia; Austin, Texas; and Chapel Hill, North Carolina. For more information, visit the firm at www.lordaecksargent.com.

# # #