This southern city is home to the nation's first green certified shopping center.

Global warming, rising utility costs, water shortages: One Savannah firm saw these challenges as an opportunity to build an environmentally friendly shopping center while maintaining the spirit of the historic architecture that is associated with this coastal Georgia city.

Abercorn Common, completed last March by Melaver, Inc., is the first retail shopping center in the U.S. to receive LEED (Leadership in Energy and Environmental Design) certification. The 172,000-square-foot center is spread over 20 acres at one of the city's busiest intersections. Construction and rehab costs totaled $30 million.

New vs. newer
The project is the outcome of two visioning efforts. The first effort was to develop a green shopping center; the second was to create a building design that would be compatible with the city's traditional style. Abercorn Common is located about seven miles south of Savannah's National Historic Landmark District.

History plays an important role in Savannah. The city was founded in 1733 with a grid street pattern, public squares, and zero lot lines. Major fires in 1820 and 1898 destroyed many of the original buildings in the downtown, but residents replaced the buildings, maintaining the diverse architectural and artistic details that enriched the cityscape.

As the city expanded after World War II, the south side acquired the usual hallmarks of suburbia: sprawling shopping centers with vast parking lots, scant landscaping, and lighting with little or no character. These shopping centers ignored Savannah's historic architecture and added to the division of the city into segments: the historic area, the new commercial area, and the residential area.

Melaver, Inc., the owner and developer of Abercorn Common, is a third-generation, family-owned Savannah real estate company with a focus on sustainable development.

To achieve a Savannah-like sense of place at Abercorn Common, the firm installed decorative landscaping, fountains with adjacent seating, outdoor gathering areas, and cafe-style restaurants with outdoor seating. Abercorn Common is new, but its references to old Savannah make it feel like a continuation of the traditional Savannah urban fabric.

Pursuing LEED certification for the shopping center posed many challenges for the design team, which included the developer, the general contractor, the architect, engineers, and subcontractors. Because this was the first such project for many of the team members, they took LEED training courses—both to understand the terminology and to achieve a uniform vision for the project.

This effort helped the team to come to a consensus on site management, energy and water use, indoor environmental quality, and
Takes the LEED

materials. Eventually, the training, education, and patience paid off in an integrated design that pleased the developer and met city standards.

As is often true, however, developing a vision for the project was only the first step. Many challenges lay ahead.

Exceeding standards
Randy Peacock, Melaver's project manager, notes that Abercorn Common employed many nontraditional building techniques to minimize its environmental impact. The center used a tighter building envelope—one of numerous green building techniques. Extra insulation was added to walls and the roof, keeping the buildings warmer in winter and reducing the load on the air conditioners during the hot Savannah summers.

Instead of traditional dark roofs, the team selected white ones, which reflect heat. They also picked a type of glass that filters out the sun's rays. These materials, while more expensive than traditional ones, allowed the team to reduce the size of the HVAC units, thus balancing the costs. According to Melaver, the center is about 30 percent more energy efficient than a typical retail complex.

Water use is efficient, too. The Savannah area relies on water from the Upper Floridian aquifer, which is currently stressed from overuse. At Abercorn Common, rainwater is collected in a cistern located at the back of the property. The cistern collects roughly five million gallons of rainwater a year from the roofs of the shopping center's buildings—and meets the development's entire irrigation needs. Three decorative fountains also use rainwater captured by the system. Overall, the development takes five million gallons less from the city's water system than a typical project of its size.

"There were LEED credits available for reducing domestic water use and using rainwater from the site for irrigation purposes," Randy Peacock says. "It seemed like a win-win to be able to harness the water on the site and use it."

The shopping center also makes use of a water-conserving plumbing system that enables the development to use 50 to 60 percent less water than a typical mall.

"We used high-efficiency plumbing fixtures, such as ultra-low flow toilets [one gallon per flush] and waterless urinals," says Tommy Linstroth, head of sustainable initiatives for Melaver. Faucets run for only 15 seconds and have low flow aerators.

Porous pavement in the center's parking lots allows stormwater to drain naturally, thus reducing local flooding. "Whenever you do a development in Savannah, you are required not to increase stormwater runoff. Most developments shoot to maintain runoff at predevelopment level. They're not adding to it, but they're not greatly helping it, either," Peacock says. The
site was designed to actually reduce runoff by 30 percent compared to preexisting conditions.

Much of the material used to build Abercorn Common was either recycled or manufactured within a 500-mile radius. Peacock notes that it was not difficult to locate architectural materials that would help earn credits towards LEED certification. Credits are given both for local materials and materials with recycled content.

The project team also had to figure out how to use environmentally friendly paints, sealants, and adhesives—and how to manage and maintain quality control through contractors and subcontractors.

Another touch: Bicycle racks are available throughout the shopping center, and shower rooms have been installed for employees who ride their bikes to work. Abercorn Common is also well connected to public transit, with three bus lines nearby.

Green in the golden arches
The McDonald's at Abercorn Common, also developed by Melaver, is the first McDonald's in the world to occupy a LEED-certified building, according to the U.S. Green Building Council, which gave it a gold certification.

Knowing that the firm wanted to deviate from the prototypical franchise restaurant design, the project team worked with McDonald's corporate and regional headquarters. Discussions with the company covered materials, design, layout, and other details.

Like the rest of the shopping center, the restaurant offers a number of sustainable features, such as bike racks, preferred parking for low-emission hybrid vehicles, and waterless urinals and other low flow fixtures. Windows allow daylight to reach 75 percent of the restaurant's interior, making this McDonald's almost as bright inside as outside.

In addition, all the wood used in the restaurant comes from sustainably managed forests, which are certified by the Forest Stewardship Council. Other materials are made from recycled content (20 percent, when measured by cost) or are manufactured locally (70 percent).

Although it remained within the shopping center, the restaurant was relocated from Abercorn Street, a main north-south arterial, to White Bluff Road, which intersects with Abercorn but has less traffic. McDonald's conducted a survey and found that the change would not reduce sales, especially since 60 to 70 percent of its customers use the drive-through.

Benefits expand

“We have created tenants' guidelines for the build outs, including suggestions about indoor air quality, paints, and sealants,” Peacock says. He adds that many tenants are willing to go green when they see its practical benefits.

“We'll say: 'Do you want to have cleaner air quality? and tenants will respond that no one's ever asked them that before.' Peacock says. "Or, we'll show them ways to save water. Operations managers love stuff like that."

A 16,000-square-foot green retail building has recently been completed on the site originally occupied by the old McDonald's. More than half the roof area is covered with five inches of soil and planted with sedums. The green roof, in combination with reflective roofing material, will provide insulation, cool the building, mitigate stormwater runoff, and reduce noise from the nearby Hunter Army Air Base.

A rooftop solar panel supports the building's solar-heated hot water system, producing free hot water for the tenants.

Challenges
Discussions about Abercorn Common began when the project team first met with the planning staff of the Chatham County-Savannah Metropolitan Planning Commission. Although the planning staff was receptive, the city's engineering department questioned the nontraditional methods of construction and management. After many meetings and exchanges of technical details, data, and information, the plans were accepted in June 2004.

The department's major concern was whether the sustainable building methods proposed by the developer could meet the city's development standards. Melaver had to convince the city that the project would meet its requirements, and worked with the engineering department to resolve deviations from traditionally accepted methods. Both the building team and city officials were obliged to come up with satisfactory answers and justifications for the design strategies.

Because of the innovative materials and construction methods, the project architect was in constant communication with the city's engineers. In addition, various technical teams kept in touch with the city's engineers and building inspectors to make sure that the selected materials matched Savannah's technical specifications as well as LEED's green building requirements.

Abercorn Common's initial LEED consultants were based in Kansas City. Because this was the first LEED project for many team members, the
consultants were very helpful in meeting the intricacies of the rating system. After all, this was not an everyday construction project, and the design team did not want to take a critical misstep that could affect LEED certification.

Plans changed throughout the process, especially following review by the city. To their credit, city staffers educated themselves about the project and the rating system, which made communication between the project team and staff easier.

For example, the plans called for a cistern to replace traditional detention ponds. Neither the project team nor the city staff had experience with such a system. They had plenty of questions: Who will maintain the cistern? What if it does not work? Will it comply with the city's stormwater management code?

Engineers were also concerned about the cistern overflowing in a heavy rain, as detention ponds sometimes do. To address this issue, the designers increased the depth of the cistern by two feet, thereby increasing its capacity. In addition, the developer noted that even with an overflow, the cistern would divert five million gallons of runoff that could be reused for irrigation.

"The project earned credits for its innovative design," says Ebrahim Nadji, senior civil engineer for Savannah's Stormwater Management Department.

However, the city was concerned about maintenance of the porous surface. As a compromise, Melaver noted that if it were to sell Abercorn Common, the new owners could always pave over the porous surface rather than maintain it. In that case, the city would have to reevaluate the stormwater runoff calculations.

Costs and benefits

In looking at the pros and cons of a project like Abercorn Common, Melaver argues that green buildings of this type don't necessarily cost a lot more than conventional ones (the company typically winds up paying a one to two percent premium), mostly because the operational benefits outweigh the costs. Besides, the team is now better equipped to select and work with the materials and strategies needed to meet green building requirements in a cost-effective way.

Today, more and more developers and builders are choosing to build to LEED standards. And those standards are evolving. The USGBC is working with other organizations (including the Natural Resources Defense Council) to create LEED-ND (for neighborhood design). These standards will be used to certify "smart developments," not just individual buildings. Energy savings will be a key component of the certification.

For local governments interested in sustainable development, the challenge is to adopt incentives or requirements that will encourage developers to meet or exceed the new standards. Cities can institute policies that give priority to LEED projects—and charge them lower review fees. And staff members can seek LEED accreditation to prepare for this exciting new development trend.

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Resources

About LEED. This voluntary rating system for green buildings was established in 1999 by the U.S. Green Building Council. Green buildings are typically healthier than conventional buildings, more environmentally friendly, and potentially more profitable. The LEED rating system now addresses these specific building types: LEED for New Construction (LEED-NC), Core and Shell Development (LEED-CS), Existing Buildings (LEED-EB), Commercial Interiors (LEED-CI), Neighborhood Development (LEED-ND), and Homes (LEED-H).

For more on LEED, visit the U.S. Green Building Council website: www.usgbc.org. Abercorn Common is the first all-retail project in the U.S. to receive a LEED Core and Shell Silver certification for new construction and renovation.