

# Greening Historic Properties

## Some Cost-Effective Strategies

BY T. DAVID BELL, AIA, LEED AP

Is it possible to be green in a historic district? Can a balance between the financial, historic and energy resources be managed and measured? I would say, yes, but it takes foresight, fortitude and follow-through. I write this story from the perspective of an owner and an architect. Does it make sense to certify a small rehabilitation project through the US Green Building Council's Leadership in Energy and Environmental Design (LEED®) program? The answer is an unequivocal MAYBE.

We bought a vacant, deteriorated, two-story shell, located in the Shaw Historic District, in 2006. The building was about 4,500 square feet. A tree was growing inside one of the brick walls. Large sections of roof and even the front doors were missing. Not an auspicious beginning for saving money and creating a comfortable work environment. Add to this the requirements of a National Register Historic District, and it seemed that LEED documentation might be too ambitious. We knew that we wanted to and needed to rehabilitate the exterior following Secretary of the Interior Standards

for the Treatment of Historic Properties, in consultation with the DC Historic Preservation Office, meeting the requirements for contributing structures in a historic district. But we balked at the goal of making the project LEED certified. We didn't want to ignore sustainability, we just thought we could forgo the formal documentation.

We assessed the building's condition and evaluated the historic features. The late 19th-century rowhouse had a pressed brick and stone façade, original wood windows and metal ornamentation. The interior had wood floors and a deteriorated ornamental wood stair. These were the features we chose to retain in an approach that respected the property's past, while allowing for new uses. Partway through the design, we changed our approach and decided to target LEED Silver. Recommendation #1: establish your goals early and stick to them.

Roles and responsibilities for LEED-NC documentation are distributed among the owner, design professionals and contractor. We had hired a contractor with some experi-

ence with rehabilitating historic properties, but no experience with LEED. He failed to understand the need for documenting things, such as construction waste diverted from landfills and the type of adhesives used on the project. As a result, we were not able to achieve some very easy points toward LEED Silver rating. We were forced to take over the construction ourselves and hire qualified subcontractors to complete the construction. Recommendation #2: ensure each responsible party is qualified, understands its role and is held accountable.

The approach took two tracks, repairs and upgrades. The roof structure was rebuilt, the tree growing inside one of the masonry walls was removed, and the wall rebuilt. We restored the exterior by removing paint and repointing/rebuilding the stone and brick masonry. We repaired and painted ornamental metal window hoods and wood windows, trim and entablature. We had craftspeople fabricate and install new custom wood doors. We covered a narrow outdoor area, often called a 'dog run', with a continuous skylight, which gave us a space to display art and an

interior stair to the basement.

We restored the original ornamental wood stair because its relationship to the vestibule and front stair hall was important to the preservation effort. Approximately 40 percent of the balusters, 30 percent of the treads and 30 percent of the handrail were missing. This required dismantling, replacing and rebuilding the entire stair using the remaining original treads, risers, beadboard paneling, handrail, balusters and newel augmented with replicated components in matching species.

Existing windows and trim were restored at 50 percent of the openings and replicated to match where severely deteriorated or missing. All the interior plaster, recycled-content drywall, wood trim and door work including low and no VOC painting was completed by qualified craftspeople.

Upgrades were focused on energy and water efficiency, renewable materials and natural light. Energy Star high-albedo membrane roofing; soy-based foam insulation; energy star equipment, appliances and lighting; and other new elements were used to take advantage of energy efficiency tax



▼ A former outdoor 'dog run' space, leading to the basement is enclosed with a new skylight and has salvaged brick steps.

✿ Main entry/stair hall with restored wood flooring and ornamental wood stair with new recycled gypsum drywall.

☞ Galley kitchen has energy star appliances, Paperstone and stainless steel counters, linoleum flooring and LED lighting.  
All Photos: Anice Hoachlander of Hoachlander/Davis Photography.

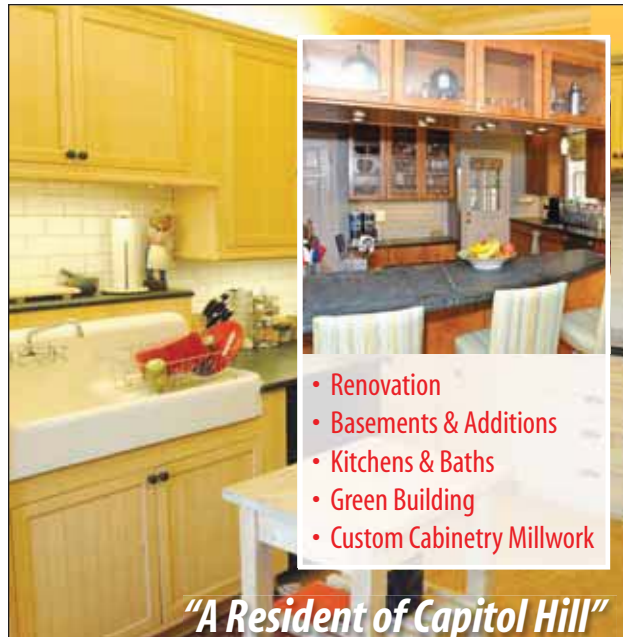
credits. Other sustainable features include; low-flow dual-flush toilets; automatic, metered plumbing fittings; and other resource-stingy devices. Of particular note are skylights, with pivoting mirrors that use GPS to track the sun, powered by a small photovoltaic panel. Other innovative products include the hands-free metered faucets. These are powered by the flow of water, like a small hydro-electric plant.

Matthew Falls, CAOS, fabricated and installed custom wood furniture and Kirei-board paneling. Some of the rapidly renewable and environmentally responsible materials include low-VOC paints and coatings, Kirei-board, formaldehyde-free plywood, paper stone counters, linoleum flooring and recycled-content carpet tile. Natural daylighting with integrated controls, low and no VOC cleaning products help maintain a user-friendly and healthy indoor environment.

A balanced approach was taken with regards to conservation of financial, historic, natural and energy resources. The project was LEED certified by the US Green Building Council in November 2009.

As architects, we now approach projects in a more deliberate way with respect to budget, goals and defining roles and responsibility. We begin projects helping owners define budget and schedule constraints, quantify goals and evaluate priorities. Later, during design, we assist with evaluating and selecting qualified contractors. What would we do differently? We would integrate the art and architecture even more, to reduce the visibility of green features. We would focus on even higher targets for energy efficiency. Sustainable design is not something you complete, get your certification and then ignore. It requires ongoing monitoring and adjustment to achieve ongoing energy savings. LEED is not for everyone, but with the right team it can be an effective way to establish and track environmental and energy goals.

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