

A bridge linking housing research and practice

Volume 1, number 3

Municipal Green: Santa Monica 'LEEDs' the Way in Sustainable Public Design

Just in time for this April's 34th anniversary of Earth Day, a 'green tide' of sustainable municipal buildings is rising across the nation. At the vanguard of this environmentally conscious approach to architecture and design in public buildings are a number of cities and towns that are remodeling their ordinances and municipal codes to conform to the strict standards established by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system. The LEED system recognizes architects and their clients for incorporating energy- and resource-efficient, 'whole building' design elements in their projects.

The concept of green design in public (or publicly assisted) building construction took a giant step forward in Santa Monica, CA in the late 1990s. Officials from the City of



Although studio units have limited floor area, the units are designed with 10 ft. high ceilings, large windows with plenty of natural light, and abundant cross-ventilation.

Santa Monica Housing Division wanted to construct a demonstration project that could help prove to developers the viability of some of the newer, more promising building technologies that had yet to achieve large-scale market penetration. The California Energy Commission worked with the Community Corporation of Santa Monica to provide primary funding for construction of a low-income, multi-family green building project named Colorado Court.

Colorado Court is the first building of its kind in the U.S. to be 100% energy neutral. This highly visible, 44-unit five-story building is well positioned to serve as a gateway to the City of Santa Monica, as well as a model of sustainable development in an urban setting. The building incorporates a comprehensive array of environmental strategies, including an integrated natural gas powered turbine/heat recovery system and solar electrical panel system with co-generation capabilities. In this application, co-generation means the ability to convert natural gas to electricity when needed, in order to meet the building's power needs. This approach greatly reduces both pollutants and building operating costs.

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Revitalizing Neighborhoods by Redeveloping Brownfields: The HUD Brownfields Economic Development Initiative

The Wheeling Stamping Building had been abandoned and deteriorating for more than a decade in the Historic Warehouse District of Wheeling, West Virginia. Using EPA funds, the City financed a site investigation and developed a remediation plan for the site. Recognizing its 'diamond in the rough' potential, the City and its developer proposed the creation of 88,000 square feet of new commercial space in the Stamping Building. In 1999, Wheeling applied for a \$1,000,000 grant from the HUD Brownfields Economic Development Initiative (BEDI) program and \$2.25 million in Section 108-guaranteed loan assistance to enable redevelopment of the building. The renovation was completed in early 2001, and today serves as home to the high-tech Global Operations Center for the international law firm of Orrick, Herrington and Sutcliffe. Eighty-five employees currently staff the Center, and a total of 250 new jobs are anticipated by 2005.¹

Throughout the United States, new investment activities such as this are impeded by vacant or under-utilized land that is either contaminated or is perceived to be contaminated. Left abandoned, these properties, known as brownfields, slow down a community's economic development. Redeveloping brownfields, on the other hand, can serve as a dynamic catalyst for community revitalization.

Recognizing both the importance of redeveloping brownfields and the fact that one of its biggest impediments is a lack of funding, HUD developed the BEDI grant program. BEDI funds are used to provide a stimulus for local government and the private sector to work together toward initiating or continuing the redevelopment of brownfield sites.

There are a few fairly straightforward criteria to consider. BEDI funding must be received and used in conjunction with HUD Section 108 loan guarantee funding. Section 108 is the loan guarantee provision of the Community Development Block Grant (CDBG) program. Section 108 provides communities with a source of financing for economic development, housing rehabilitation, public facilities, and large-scale physical development projects. BEDI funds may be used for any eligible activities covered under the Section 108 Loan Guarantee program. Any community that is eligible to receive Section 108 loan guarantees - whether they are a CDBG entitlement community or not - is eligible to apply for BEDI funds. Each BEDI application must be accompanied by a request for new Section 108 loan



An old factory building is transformed into a new, usable facility thanks to a BEDI grant from HUD.

guarantee activity, however, and BEDI funding can never exceed Section 108 funding.

In 2003 alone, HUD awarded \$29.4 million in grants through the BEDI program that was expected to stimulate more than 5,000 jobs in 21 communities. HUD also guaranteed more than \$117 million in loans committed by the communities to help restore these areas. Since 1998, HUD has made an investment of \$153 million in BEDI grants. Along with the \$727 million in Section 108-guaranteed loans, BEDI funds have leveraged an additional \$1.1 billion in other public and private funding.

While much progress has been made, there is much that still needs to be done in removing hazards and redeveloping brownfield sites. The U.S. General Accounting Office (GAO) estimates that there are as many as 425,000 brownfields throughout the U.S. Some estimates hold that there are five million acres of abandoned industrial sites in our nation's cities; roughly the same amount of land occupied by 60 of our largest cities.²

Still, for the private sector, brownfield redevelopment can offer new business opportunities and the potential for profit on unused or under-utilized properties. The public sector can benefit from an increased number of employment opportunities, increased local and state tax revenues, and a reduction in urban sprawl. Communities themselves benefit from the improved quality of life that can be realized by eliminating hazards and developing vacant lots. As residents of Wheeling, West Virginia and countless other cities and towns throughout the country will tell you, redeveloping brownfields is well worth the effort.

¹ <http://www.hud.gov/offices/cpd/about/local/wv/stamping.cfm>

² www.hud.gov/offices/cpd/economicdevelopment/programs/bedi/bifieldsfaq.cfm

While unchecked development strains infrastructure in cities and suburbs from coast to coast, the City of Gainesville, Florida, is showing that smart growth strategies can pay big dividends. With the help of PATH and the University of Florida Energy Extension Service (FEES), Gainesville is making the connection between low impact development practices, implementation of energy efficient technologies, environmentally friendly materials, and ultimately, sustainable development. It's all coming together in a community called Madera.

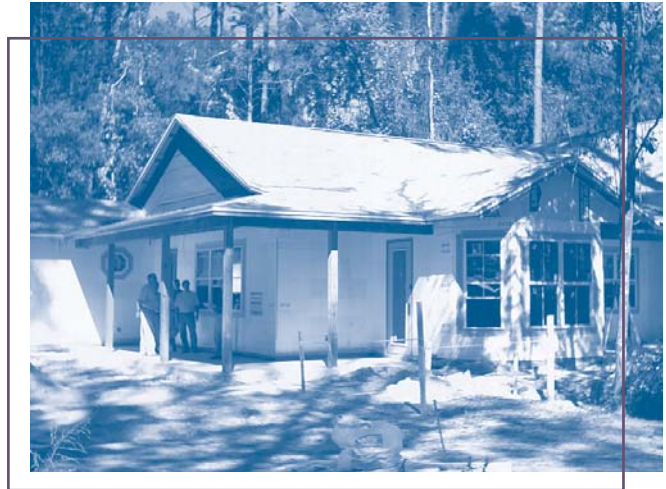
A new Gainesville subdivision located on a 44-acre site adjacent to the University of Florida campus, Madera is also a PATH field evaluation site and a showcase for green building technologies. The Madera project is committed to supporting the use of home designs, construction materials, and products that support energy efficiency, water efficiency, and improved durability. FEES is spearheading the innovative approach to housing design and providing technology specifications to the builders and developer of the first eight homes of this energy and resource-efficient 88-home community. The homes will meet the ENERGY STAR® requirement of 30% energy savings when compared to standard (Model Energy Code-compliant) construction. FEES relies on PATH technologies to meet their ambitious low-impact development goals.

Green Technologies

The Florida Energy Extension Service's design of the model home incorporates innovative technologies and materials, enabling the overall impact of the development to be greatly reduced. They have developed innovative approaches to minimizing any detrimental environmental effects, while crafting comfortable homes that save the purchaser money, both up front and throughout the life of the house.

Pierce Jones of FEES was the driving force behind the integration of several cutting edge products into the design and construction process. Among them were four PATH-profiled technologies:

- Fly ash concrete;
- Light gauge steel framing;
- Recycled gypsum; and
- Tankless water heaters.



In this Gainesville, Florida, low impact development (LID) project, old growth trees are preserved wherever possible.

"I'm thrilled to be working with PATH," notes Jones, who sees the PATH program's evaluation of these technologies as a persuasive validation of the value and effectiveness these technologies can offer to both the building partners and the homebuyer.

Low Impact Development in Practice

Low impact development (LID), an approach to land development that helps conserve and protect an area's water and natural resources while reducing infrastructure costs through various land planning and design practices, has increasingly come to be seen as a cost-effective approach to growth. Because it offers something for everyone — the interests of developers, community planners, and conservation groups are taken into account — LID is seen as an approach with increasingly broad appeal.

Madera's LID design clusters houses in a manner that enables open space to be set aside for use as a natural stormwater management system. The open space enhances the natural habitat, serves to prevent drought impact, and provides for greater open spaces that might otherwise be cleared and paved. Homebuyers also immediately recognize the aesthetic benefits.

Whether it's energy savings from shading provided by old-growth trees, land preservation of open space, or water savings, the environmentally friendly measures of LID can reduce the impact on land as well as infrastructure costs.

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Regulatory Barriers Clearinghouse: Clearing the Way for Regulatory Reform



As some of our readers may know, HUD's Office of Policy Development & Research created the Regulatory Barriers Clearinghouse (RBC) about 20 months ago in response to a congressional mandate. In the Housing Affordability Barriers Removal Act of 2000,

Congress directed HUD to create a national repository to receive, collect, and disseminate information on laws, regulations, and policies affecting the development, maintenance, improvement, availability, and cost of affordable housing. The idea was to pay particular attention to state and local activities that are proving effective at removing or at least lessening the barriers to affordable housing, and to share these strategies with decision makers who can then either adopt or adapt the regulatory reform language to meet their own community's needs.

In responding to these legislative marching orders, the RBC has been collecting information on the ten broad regulatory categories outlined in the enabling legislation, including tax policies, administrative streamlining, building codes, impact fees, and growth controls. We encourage the submission of 'real world' experiences from the public, and we engage in extensive research using information available from other sources. By presenting a range of sometimes divergent views, it is our hope that policy makers will be better prepared to make informed decisions based on the experiences and insights of their peers. Since initiating the project in January of 2002, we have collected over 2,200 individual regulatory barriers and solutions.

To make this information readily accessible to the broadest possible audience, we've created the Regulatory Barriers Clearinghouse Web site at www.regbarriers.org; a portal site of www.HUDUSER.org. The site contains an electronic database, an online newsletter, links to relevant publications, and a simple, straightforward means of submitting viable strategies and experiences. Our bimonthly electronic newsletter, *Breakthroughs*, features real-world success stories on how various communities are effectively addressing regulatory concerns. We also respond to telephone calls (1-800-245-2691, option 4) and emails as part of our



Old world meets new world: New housing development abutting an old barn in Loudon County, VA exemplifies the stress felt in rapidly developing communities across the country.

overall Clearinghouse efforts, and have met with over 30 industry and trade organizations whose members stand to benefit from Clearinghouse resources.

Every effort is made to collect information from those on all sides of the regulatory reform debate, and to present the resulting information in an easy-to-use database, so that our constituents can make informed – and perhaps even enlightened – decisions on what's best for their communities. Our most gratifying responses thus far have been variations on a theme of "Wow – I didn't even know there was a problem in our community until I saw what they're doing to promote affordable housing in..." Spokane, Detroit, St. Petersburg, Rochester... indeed, every state in the nation and over 100 cities and towns so far.

We're extremely pleased to support and be a part of a larger effort here at HUD known as the America's Affordable Communities Initiative, and to continue refining and sharpening a tool that's helping housing advocates, builders, and municipalities cut through outdated and unnecessarily restrictive regulations to make room for more mixed income and other forms of affordable housing in their communities. Thanks to the wonders of the Internet, the efforts of some rather insightful Congressional representatives, and your friends here in PD&R, planners, community development agencies, and state and local officials can learn from the successes of their peers, and need no longer reinvent the regulatory wheel.

Architectural education shapes visionaries — it teaches us to see possibilities within the constraints of built infrastructure. Cross-disciplinary projects become second nature in today's academic environment, and collaboration prepares students to join disparate forces and to combine approaches that previous generations saw as incongruent. The contemporary shift back to mixed-use and mixed-income neighborhoods reflects such a swing of the pendulum.

This visionary role requires the ability to coordinate various aspects of the built environment at various scales. To remain vibrant as centers of commerce and community, cities need visionaries, and so governments employ planners to envision the urban environment. Architects have similarly learned to synthesize disparate concerns to achieve unified and coherent design.

Part of this ability stems from early years of architectural education ("beginning design" or "foundation studies"), when we are required to 'suspend disbelief' in order to see possibilities that might otherwise seem impossible, impractical, or invisible. Leaving school, we step into the very pragmatic business of architecture, where internship provides a period of time to master the more practical aspects of building design and project management. The structure of the architecture profession suggests that, following visionary design education and an internship into



HU Architecture student Michael Brown (far left) meets with members of West Park View's Civic League and the Virginia Department of Historic Resources to discuss his photo documentation of one Portsmouth neighborhood.

practical application, the Registered Architect will forge a balance between the two worlds.

Prepared to design and dream, the entering intern faces an unfamiliar language with constantly updated codes and details, as well as the day-to-day concerns of project administration and business. These aspects of the profession provide a number of unforeseen challenges, and many architects never quite achieve the delicate balance between the practical and visionary worlds. Balancing these worlds requires an ability to continually shift scales, concerns, and perspective — to evaluate an issue from various positions and at both micro and macro levels.

Striking a balance takes concentration and time. Most days, the tasks at hand prove so demanding that no time or energy remains for shifting perspective or scale. Faced with seemingly insurmountable 'to do' lists, the architect may never escape the purely pragmatic aspects of design to achieve this elusive balance or to rekindle the joy of discovery.

Constant pressure to meet proposal deadlines and address pre-determined building programs turns the architect into an apt order taker, at times fulfilling requests that he or she knows are inappropriate or unhealthy. Despite an understanding that isolated, free-

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Hakeem Purnell, Earl Massey and Marcus Pinn contemplate pocket parks in Portsmouth's Historic Districts.

Santa Monica 'LEEDS' the Way cont. from page 1

Colorado Court is owned by the Community Corporation of Santa Monica (CCSM), a nonprofit organization that developed the project as a means of providing affordable rental housing for low-income residents. CCSM felt that there were no greater beneficiaries of the 'bleeding edge' technologies used in this project than those of low-income who cannot afford high utility bills. As a result, all 44 single room occupancy (SRO) units rent for less than \$400 per month, including utility costs. Units rent to county residents chosen from a waiting list who earn less than 40% of the area median income.

Architects Pugh + Scarpa were chosen to team with San Francisco-based architect Steve Kodama to design the CCSM's Colorado Court building. Architect Larry Scarpa described the process this way: "The project originally had different architects. At the time we took over, the City had required that the project be 'green', but at that time, green meant using solar panels and maybe a few other [environmentally friendly] things. We wanted to do much more than that." The planning and design of Colorado Court emerged out of the passive solar, 'whole building' approach to design, which looks not only at the various elements of a building, but at how these elements can be integrated to form a cohesive whole, while taking into account the surrounding landscape and climate to optimize overall performance.

Colorado Court features solar electrical panels integrated into the facade and roof of the building; these supply most of the peak load electricity demand. The solar photovoltaic system produces green energy on site, and no pollutants are released into the environment. Additional solar design strategies include orienting the building to control solar cooling loads and exposure to prevailing winds, specifying and placing high-performance windows that maximize daylight and natural ventilation without allowing too much pass-through heat from the sun, shading south-facing windows and minimizing west-facing glazing, and shaping the interior of the building to enhance daylight and natural air flow.

The building's electricity and hot water is generated from a natural gas powered turbine/heat recovery system. This generation system captures waste heat to produce hot water for the building throughout the year, as well as providing space heating in the winter. The system yields a conversion efficiency of natural gas in excess of 70%, compared to a less-than-30% conversion efficiency of primary energy delivered by the utility grid at the building site.

One hundred percent of the building site's water is collected from rainwater runoff from the entire city block behind the property. A series of underground chambers collect the runoff, which is slowly filtered into the soil. "In preparing this project, the City told us we needed to mitigate a certain level of the storm water run-off," Scarpa said. "But we went far beyond the levels they told us...the system is designed to mitigate nearly all of the storm water."

Even the building's interior was designed with efficiency in mind. The materials and resources used were selected based on their effects on indoor air quality. Products used include highly efficient appliances, low flow toilets, recycled content carpets, cabinets made from formaldehyde-free medium-density fiberboard, fluorescent lighting with low mercury content, motion sensor lighting in the parking garage, building insulation made from recycled newspaper, a heat pump with an 'ozone friendly' refrigerant, oriented strand board (OSB) instead of plywood, low-VOC paints, and linoleum flooring made from natural materials.

Project planners funded the \$4.7 million project by tapping into multiple resources for loans, grants, and tax credits. A host of public and private entities funded the project, including the Cities of Santa Monica and Irvine, Southern California Edison (utility company), and the California Energy Coalition. Rebates from the California Energy Commission helped defray the cost of the energy generating equipment used. The integrated energy systems will pay for themselves in less than ten years, and annual savings in electricity and natural gas bills are estimated to be in excess of \$6,000.

Colorado Court has received high honors since its 2002 completion. Among the prestigious national awards it has received thus far are the AIA/COTE Top Ten Green Projects 2003, AIA Honor Awards for Architecture 2003, Rudy Bruner Prize 2003, AIA Housing PIA Award 2003, and the World Habitat Award 2003 from Building Social Housing Foundation.

For more information about the Colorado Court project, you may contact Larry Scarpa, Pugh Scarpa Kodama Architects at larry@pugh-scarpa.com or contact the Community Corporation of Santa Monica at 310-394-8487.

Architect cont. from page 5

standing office buildings contribute to sprawl, even the most well-intentioned architects can become excited about designing sleek modern masterpieces — a tangible representation of the vision.

The AIA's "Standard Form of Agreement Between Owner and Architect" has widened the gap, by listing site selection, site analysis and program preparation as Additional Services. Architects have excluded themselves from some fundamental pre-design issues that are critical to both good design and visionary coordination.

To get past the role of passive order taker, architects must play more a proactive role in shaping the urban environment. We have the training to find visionary solutions, yet often choose to advance ill-conceived projects, believing that we are justified because "If we don't fill the order, someone else will." This kind of thinking results in 'design by lowest common denominator'.

To combat this way of thinking, we must constantly look for new ways of finding pleasure in great design — from sound expansion joints and accessible ramps, to beautiful rooms, to great street fronts, to improved zoning ordinances.

The architecture curriculum at Hampton University demands that students shift scale in this way, and that they learn to work collaboratively during their five-year undergraduate education. While architecture studios teach design — from chairs, to houses, to office and community complexes — the Urban Design semester requires understanding and designing for a specific urban district of Hampton Roads. Last summer's Urban Design Studio analyzed Portsmouth neighborhoods as part of a collaborative effort between Hampton University, the City of Portsmouth, West Park View and Port Norfolk Civic Leagues.

On behalf of Hampton University's Architecture Department, I wish to thank local professionals who have assisted in this and similar collaborative projects. The advice and expertise you share with our students is priceless.

For more information, contact Shannon Chance, Hampton University Assistant Professor of Architecture; shannon.chance@hamptonu.edu, (757)727-5640.

This article was published in slightly different form in AIA Hampton Roads Newsletter, January 2004 and is reprinted here with permission of the author.

PATH in Florida cont. from page 3

By providing a natural means of runoff filtration, rather than the conventional method of quickly piping off water to the lowest lying area, evidence suggests that improvements in water quality may also be realized.

Marketable, Profitable, and Green

Not only do these ideas conserve natural resources and extend the life of the home, but they also create a more comfortable environment for the homeowner. The reduction of the energy and water required by the Madera houses saves the homeowner money and offers them an advantage in their mortgage options.

With sustainable building products and systems in place, the homes will qualify for green financing. Fannie Mae will offer its Home Performance Power program to potential homebuyers in the Madera community. The program recognizes that lower operating costs from energy-efficient design and construction can result in a

reduced operating cost burden for homebuyers. The program offers 100% financing on the supplemental costs of efficiency upgrades.

The Madera project is a wonderful illustration of how low impact development can integrate a number of key environmental and energy-saving actions: from improved energy efficiency, to reduced water use, waste water, and pollution; to creative collaboration during the planning process among developers, builders, and an energy extension service. With its Madera partners, PATH is demonstrating that developing land in a responsible, cost-effective manner is an approach that serves nearly everyone's interests. Builders and designers create better communities while still turning a profit, homebuyers enjoy lower energy bills and a more comfortable home, and the reduced stress on the environment represents a sound, sustainable approach to housing in the 21st Century.

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In the Next Issue of ^{research} **works ...**

- A summary of a new report released by HUD about the interplay between housing subsidies and welfare reform. "Housing Assistance and the Effects of Welfare Reform: Evidence from Connecticut and Minnesota" examines how welfare reform has affected HUD tenants in light of new incentives offered by different state welfare departments.
- An in-depth look at how one state department – the Illinois Department of Human Services – has partnered with a statewide coalition of banks, government agencies, bank regulators, and adult educators, and used the flexibility afforded under the Temporary Assistance for Needy Families (TANF) program to create innovative financial education and asset-building programs for welfare recipients and low-income workers.
- A story about how the Housing Authority of the City of Austin (HACA) helped break the pattern of non-collaboration among the local government agencies and private, nonprofit organizations to establish the Austin Works Together (AWT) project – a comprehensive public-private partnership that helps TANF recipients and other eligible individuals make the transition from welfare dependence to self-sufficiency.
- Life cycle costs: a look at shifting the focus from first (construction) costs to the true costs of homeownership over time. This article will examine the mechanisms and techniques that promote affordability and durability throughout the life of the home.

