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Green Renovation Creates Healthier, Energy-Efficient Apartments

The Galen Terrace renovation preserved affordable housing in southeast Washington, DC. (Photo courtesy of National Housing Trust/Enterprise Preservation Corporation)

Complete renovation of a deteriorating apartment complex has created a healthier, energy-efficient, and more secure environment for 83 families and seniors in southeast Washington, DC. Renovation of the Galen Terrace Apartments, a three-building complex on two separate parcels in Washington's Anacostia neighborhood, incorporated energy-efficient technologies and appliances, green building techniques, and a 20-year extension of HUD Section 8 contracts. This ambitious project is aimed at preserving affordable housing in an area facing gentrification.

When Galen Terrace's owner sought a buyer for the complex in 2005, the residents invoked the District's Tenant Opportunity to Purchase Act, which requires owners of buildings with more than four units to give tenants the opportunity to purchase property prior to its being placed on the market. That spring, the Galen Terrace Tenant Association began working with the National Housing Trust/Enterprise Preservation Corporation (NHT-E) and Somerset Development to purchase the complex. NHT-E, a joint effort of the National Housing Trust and Enterprise Community Partners, was formed to preserve and renovate affordable multifamily housing that's deteriorating or at risk of being converted to market-rate units. So far, NHT-E has preserved nearly 4,000 units in 8 states and the District of Columbia. Somerset Development specializes in multifamily and mixed-use commercial development in urban areas, and works to preserve affordable housing. After the sale was finalized in March 2006, construction began the following month and was completed in May 2007.

Financing for the $13.6 million project included $5.66 million in tax-exempt private activity bonds and $4.67 million in Low Income Housing Tax Credits from the DC Housing Finance Agency, a $3.25 million HOME loan from the DC Department of Housing and Community Development, and a $50,000 grant from Enterprise Green Communities.

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PD&R U.S. Department of Housing and Urban Development, Office of Policy Development and Research

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NHT-E worked with the local HUD office to extend the Section 8 contracts for 20 years, which will help keep Galen Terrace affordable. Aimee McHale, assistant vice president at the National Housing Trust, notes that the project could not have been completed without the Section 8 contract extension. "The rents we charge under the Section 8 contracts allow us to service the debt on the loan," said McHale.

HUD's 21-point Energy Action Plan estimates that cutting energy costs by 5 percent a year could save the Department nearly $2 billion in housing assistance expenditures over 10 years. Galen Terrace certainly demonstrates the potential for energy reduction and efficiency. The renovation included installing meters in all 83 apartments and a high-efficiency heating/air-conditioning system. Before the renovation, the complex paid for all utilities; now residents will receive a utility allowance and pay for their own utilities. Energy Star kitchen appliances, double-paned windows with low-E glass (which reduces heat loss and gain), low-flow plumbing fixtures, and a new roof with a reflective surface will all contribute to utility cost reductions at Galen Terrace.

An energy audit of the existing complex identified the need to seal the building envelopes. Because the units contained both lead-based paint and asbestos, residents were relocated during remediation and renovation. The residents moved to apartments within three miles of the complex and paid the same rent. Somerset Development picked up the differential costs for rent, as well as utility and phone deposits.

The full renovation reduced the three buildings to walls and studs. The developer installed new flooring and carpeting, lighting, bathroom fixtures, kitchen cabinets and appliances, and windows, along with six laundry rooms, each with four washers and four dryers. Features added to improve security include controlled-access doors, security guards, surveillance cameras, lights, and fencing.

Photo courtesy of National Housing Trust/Enterprise Preservation Corporation

This deteriorating building was reduced to walls and studs during renovation.

Photo courtesy of National Housing Trust/Enterprise Preservation Corporation

Galen Terrace provides healthy, energy-efficient homes for 83 families and seniors.

The renovation also incorporated environmentally friendly elements, including:

- Paints, primers, and sealants low in volatile organic compound emissions;
- Formaldehyde-free wood cabinets;
- Pipes wrapped to prevent leakage (which could cause mold); and
- Rainwater catchment barrels to provide water for landscaping.

Affordable housing preservation is considered green because rehabilitation produces less construction waste, requires fewer raw materials, and uses less energy than demolition and construction. McHale noted that the benefits of incorporating green technology into the renovation include a healthier living environment for residents, lower utility bills, and increased sustainability.

During the renovation, NHT-E and Somerset Development met with residents and the Edgewood Management Company to discuss enforcement of leases—something that had not happened in the past at Galen Terrace. "As a result, some former residents did not move back into the renovated complex," said McHale. She noted that fewer problems have been recorded since the complex reopened in June 2007.

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City-County Partnership Promotes Lead Hazard Control

Lead is a neurotoxin and environmental hazard that, when present in paint, poses a danger to residents of older homes—especially children, who are particularly susceptible to its harmful effects. As of 2000, approximately 38 million homes built before 1978 contained lead-based paint. When rehabilitated, these older homes are a significant source of affordable housing, but disturbing surfaces covered with lead-based paint releases harmful dust and lead particles that can persist long after renovations are complete. Salvaging these homes for affordable housing requires dedicated resources, special expertise, and leadership.

HUD and the National Trust for Historic Preservation have identified localities that have crafted effective approaches to controlling the hazards of lead-based paint. One such community is St. Paul, Minnesota, where the city partnered with surrounding Ramsey County in 1993 to create the Lead Hazard Reduction Program (LHRP), which provides financial and educational assistance to contractors, property managers, and homeowners, thereby reducing the perceived liability of removing lead-based paint.

Most of the homes in St. Paul and Ramsey County were built before 1940 and are in need of rehabilitation. According to program manager Jim Yannarelly, although local agencies can identify and refer the lead hazard control projects to LHRP, much of the work completed by the organization results from Section 8 annual reviews that can identify lead-based paint hazards. In St. Paul and Ramsey County, these hazards are usually indicated by the presence of deteriorating or peeling paint on older window components.

Photo courtesy of Aaron Sussell/National Institute for Occupational Safety and Health

Using a power sander equipped with a high-efficiency air filter exhaust system, a worker removes lead-based paint from a door.

Pooling Resources

In creating LHRP, St. Paul and Ramsey County used their respective budget allocations, in conjunction with grants from the state and federal governments, to ensure proper control of lead-based paint hazards. The partnership's effort to secure the cooperation of all interested parties has led to a high level of coordination among regulatory agencies and other public and private groups in St. Paul that work closely together to reduce lead hazards, distribute information, and resolve regulatory conflicts.

Subsidizing Lead-Based Paint Removal

Finding sufficient funding to manage lead-based paint hazards is difficult. Because the cost of clean-up efforts can exceed $15,000 per unit, LHRP provides low-cost risk assessments and technical assistance. Properties participating in the program receive $2,000 in grants to support lead hazard control and free clearance testing to determine whether any risk remains at the conclusion of the project. LHRP offers similar grants to homeowners rehabilitating their homes. In addition, LHRP's discounted services are offered to local community development corporations, public housing authorities, and other nonprofit groups.

Building Expertise

LHRP operates educational programs for those involved in lead hazard management. The organization offers Lead-Safe Work Practices training to property owners and managers who have received citations for loose or peeling paint. Participants are taught how to perform lead hazard maintenance and repair in their own buildings. Because owners no longer need outside contractors to perform all lead-based paint work, repair costs are reduced. As a side benefit, training gives rehabilitation groups and property owners greater confidence and less anxiety about potential liabilities. LHRP also offers a program for contractors to become certified in lead paint removal. Workers can complete the classes in two afternoons, minimizing their time away from work. This training has created a pool of certified contractors experienced in lead-safe work practices.

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More about Panelized Construction

HUD's new study, *Panelized Wall Systems: Making the Connections*, could move the building industry a bit further along the path toward better quality affordable housing. This thorough and well-presented report is perhaps the first comprehensive treatment of the connection systems used for the wall panels in panelized construction. The report is one of a series on different aspects of panelized wall construction from the Partnership for Advancing Technology in Housing (PATH).

Affordability and Quality

Panelized construction has the potential to make affordable housing more readily available, since factory-built panels perform well and are easily integrated into the building process. PATH envisions that, eventually, costs for labor, materials, and overhead will be lower for panels than for traditional stick-built construction. Although many materials presently used in panelized homes are more expensive than those in conventional homes, rising demand and the economies of scale should reduce costs over time. Currently, the price of this emerging technology is at least partly offset by labor cost savings because builders can employ fewer skilled laborers at the job site for shorter periods of time. A panelized house can be erected in a day, whereas a conventional frame house might take weeks or even months to build. Electrical wiring and plumbing pipes can even be built into the appropriate wall panel at the factory, reducing time spent by plumbers and electricians at the job site.

Panelized homes provide a superior barrier against moisture and temperature, an important aspect of housing quality. Because the components of these homes are designed and built at the factory and then shipped to a building site and erected immediately, waste and theft are reduced, raw materials are not exposed to the weather, and each component is precisely engineered for a tight fit. If panel connections are well handled at the building site, the result is a tight, durable envelope that translates into energy savings for the homeowner.

The Technology

To make the wall panels, core material is sandwiched between outer skins. The basic concept of a two-skinned builder's panel is at least as old as the sheetrock traditionally used for interior walls. In recent years, however, manufacturers and builders have been

Panelized construction reduces the time required to erect a building and provides energy savings.

applying this technology more broadly and imaginatively. No longer confined to load-bearing and partition walls, prefabricated panels are being used to design entire homes, including floors and roofs.

A PATH-commissioned survey of available panel systems in 2004 identified more than 110 systems that included skin materials of aluminum, concrete, expanded polystyrene, plastic, wood, brick and mortar, steel, and fiberglass. The core materials included agrifibers (from straw, wheat, or rice), autoclaved aerated concrete, polyurethane, Styrofoam, glass/wood, and various honeycombed materials.

Workers on the building site use connectors to attach the panels to each other and to anchor the walls to the floor and the roof. These connectors range from steel angles, screws, cam locks, metal plates, grout, and lumber and nails, to more sophisticated assemblies such as a metal track into which workers at the building site insert the bottom of a wall panel. Although manufacturing the panels under controlled factory conditions ensures that they will insulate effectively, the connections must also perform well to protect the structure's interior from extreme temperatures, moisture, mold, and sound.

About the Report

The research concentrated on 12 of the most frequently used panel connection systems currently on the U.S. market for concrete panels (2 systems), metal panels (3 systems), wood structural insulated panels (4 systems), and wood open-wall panels (3 systems). Most of the report is devoted to matrices that, in

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As part of the renovation, Galen Terrace now has an onsite property manager, a full-time resident services coordinator, and a new community center/property management office. Last summer, the complex offered a camp for resident youth. This fall, it began an afterschool program using the community center's computer lab and 10 networked computers.

The Galen Terrace Tenant Association holds a 15-percent share in the general partnership, NHT-E holds 43 percent, and Somerset Development holds 42 percent. The association received a portion of the development fee to be used as an endowment to pay for resident services. A percentage of the partnership administrative fees also supports resident services and activities.

Before the Galen Terrace renovation, few signs of reinvestment were visible in the Anacostia neighborhood. "Galen Terrace has been a catalyst for other development in the community," said McHale, referring to a former apartment building across the street from Galen Terrace rehabilitated by a longtime neighborhood resident and now for sale as condominiums. In addition, several market-rate condominiums and duplexes are under construction within a one-block radius.

For more information about the National Housing Trust, visit their website at **www.nhtinc.org/index.asp**. To find out more about the HUD Energy Action Plan, see **www.hud.gov/energy/energyactionplan.pdf** and to see more projects by Somerset Development, visit their website at **www.somersetdev.com**. HI

More about Panelized Construction *continued from page 4*

straightforward, readable language, present general information, physical characteristics, performance characteristics, and performance criteria for each system. Color coding allows readers to scan a system's features and make comparisons among systems.

This examination of connection systems will help builders identify appropriate options on the market today and integrate different panel structures. By documenting existing practice, this research sets a baseline against which the factory-built housing industry can continue improving panelized building systems.

Panelized Wall Systems: Making the Connections can be downloaded from HUD USER at no cost at **www.huduser.org/publications/destech/path_panel.html** or ordered for a small fee by calling 800.245.2691 and selecting option 1. HI

Prior research studies on panelized walls sponsored by HUD's Partnership for Advancing Technology in Housing (PATH) are available from HUD USER as free downloads or by calling 800.245.2691, option 1, and requesting copies for a nominal fee. If you'd like to receive printed copies of these and the new report, order any three and get the two remaining print-based editions for free.

2001 *Model Guidelines for Design, Fabrication, and Installation of Engineered Panelized Walls*
www.huduser.org/publications/destech/panelized_walls_guidelines.html

2002 *Design, Fabrication, and Installation of Engineered Panelized Walls: Two Case Studies*
www.huduser.org/publications/destech/panelized_walls.html

2002 *Technology Roadmap: Advanced Panelized Construction, Year One Progress Report*
www.huduser.org/publications/destech/panelization.html

2004 *Technology Roadmap: Advanced Panelized Construction, 2003 Progress Report*
www.huduser.org/publications/destech/tech_roadmap_APC.html

2004 *Residential Panels Benchmark Requirements (download only)*
www.huduser.org/publications/destech/respanbnchmrk.html

NeighborWorks® America Delivers

Every day, a network of 240 loosely affiliated nonprofit organizations is creating housing opportunities in communities across the nation. Although each nonprofit has its own locally focused activities, it is also a chartered member of NeighborWorks® America—a network that generates an array of on-the-ground initiatives to make communities stronger.

Established by Congress in 1978, NeighborWorks America is a public nonprofit corporation directed by the Secretary of Housing and Urban Development, the U.S. Comptroller of the Currency, a member of the Board of Governors of the Federal Reserve System, a Director of the Federal Deposit Insurance Corporation, a member of the National Credit Union Administration board, and the Director of the U.S. Office of Thrift Supervision. Its purpose is to mobilize public, private, and community resources to revitalize neighborhoods.

Membership in the NeighborWorks network gives eligible nonprofit organizations access to resources designed to strengthen local efforts to improve the affordability of housing, the vitality of economies, and the quality of community life. These efforts are well-illustrated by the following examples:

- In 2005, Neighborhood Housing Services of Dimmit County in Carrizo Springs, Texas provided 72 families with pre- and post-purchase counseling; helped 9 families purchase a home through homeownership counseling and downpayment, closing cost, or financing assistance; and owned or managed 12 rental apartments for low-income and elderly residents.
- Neighborhood Housing Services in Fairbanks, Alaska and its partner, the Northern Schools Federal Credit Union, started a program in which eligible families open a savings account reserved for the purchase of a home. After six months, the credit union matches each dollar the families save with three dollars in home purchase funding.
- Pocatello Neighborhood Housing Services (PNHS), in Pocatello, Idaho, collaborates with five local credit unions, each of which contributes $20,000 or more to a fund from which PNHS makes loans to customers for home purchase and rehabilitation. Credit union members are eligible for downpayment and closing cost assistance as well as third-party counseling for the Home Equity Conversion Mortgage program, which serves 250 customers annually.
- In Tucson, Arizona, the Primavera Foundation preserved seven historic adobe homes and built three new units in Barrio Historico, a project recognized with a Best of the Best Practices Award from HUD in 2000.
- Neighborhood Housing Services of Boise, Idaho teaches youth who live in the multifamily housing it owns or manages to use money wisely through saving, spending, donating, and investing. This community-based organization also runs a foreclosure-prevention program and enlists corporations to sponsor house raisings for low-income families.
- Homewise, in Santa Fe, New Mexico, has helped more than 1,300 people purchase homes and has provided financial and technical assistance for home repair to over 600 homeowners. Homewise has trained and counseled more than 3,000 people seeking homeownership and has built more than 150 affordable homes. In 2005, Homewise's revolving loan fund brought $8.7 million into the community and leveraged $22.5 million from conventional lenders and other sources.
- The Chautauqua Home Rehabilitation and Improvement Corporation, in Mayville, New York, rehabilitates about 100 housing units annually, eradicates lead hazards, educates homebuyers and new owners, and adapts or repairs homes for disabled and frail elderly residents.

Courtesy of NeighborWorks® America

Neighborhood residents in South Chicago plant a community garden during NeighborWorks® Week in June 2006.

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NeighborWorks® America Delivers *continued from page 6*

In his April 2007 testimony before the House Committee on Financial Services, NeighborWorks CEO Kenneth Wade summarized the network's achievements of the past five years. Through its chartered member organizations, NeighborWorks helped 100,000 low-income and minority families become homeowners, provided homeownership education and counseling to 317,000 families, trained 50,000 community development practitioners, owned and managed more than 63,500 affordable rental units, and facilitated nearly $9 billion of investments in distressed communities.

On the Ground and Prepared to Act

In addition to these ongoing activities, the network has the coverage and flexibility to respond quickly to crises. Almost immediately following the Gulf Coast hurricanes of 2005, network members arranged shelter for evacuees, temporary housing, supplies, searches for missing family members, a donation drive, and a food bank. They helped victims register for Federal Emergency Management Agency aid, find jobs, and resume their educations. The umbrella corporation deployed emergency funds and launched the Power of Ten campaign, setting housing and financial education goals to achieve in the region by 2010. With $100 million in hand, NeighborWorks expects to leverage $1 billion in investments in the Gulf Coast region by 2010. By adding 10 chartered organizations, 10 housing resource centers, and 10 strategic partnerships in the region, the network intends to serve 100 communities, help 100,000 families preserve or achieve homeownership, sponsor 100 training scholarships for nonprofit leaders, build or rehabilitate 10,000 affordable homes, and train 1,000 resident leaders. Hence the name: Power of Ten.

Courtesy of NeighborWorks® America

Volunteers from MANNA, a DC housing organization, refurbish a neighborhood during a NeighborWorks® Week event.

The network is also positioned to make a timely response to the rising rate of foreclosures. NeighborWorks has built a strong core of foreclosure prevention programs and counselors, developed research-based solutions, and reached at-risk homeowners. To build on these accomplishments, NeighborWorks joined forces with the Ad Council to launch a national public service announcement (PSA) campaign to urge at-risk homeowners to call the Homeowner's HOPE hotline at 888-995-HOPE to learn how to find help. The PSAs, which can be reviewed at **www.adcouncil.org/default.aspx?id=435**, began appearing in June 2007.

Read more about NeighborWorks' foreclosure prevention initiatives at **www.nw.org/network/neighborworksprogs/foreclosuresolutions/default.asp** and the Power of Ten campaign at **www.nw.org/network/gulfrecovery/power.asp**. For more information about NeighborWorks' member organizations, programs, and achievements, visit the website at **www.nw.org**.

City-County Partnership Promotes Lead Hazard Control *continued from page 3*

Lead-based paint is an expensive hazard, both in terms of health and in terms of rehabilitating affordable housing. Despite the challenges, St. Paul and Ramsey County have worked together to promote cost-effective lead-based paint hazard control. Additional information on these initiatives, which can serve as a starting point for other jurisdictions working to manage lead-based paint hazards and encourage affordable housing rehabilitation, is reported in *Best Practices for Effecting the Rehabilitation of Affordable Housing*. The two-volume report can be downloaded free of charge at **www.huduser.org/publications/affhsg/bestpractices.html** and is also available in print for a nominal fee by calling HUD USER at 800.245.2691, option 1.

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In the Next Issue of... research works

- The current issue of *Cityscape*, HUD's journal of policy development and research, discusses key questions about barriers and homeownership gaps faced by minorities and low-income families. We'll scan the latest findings on gaps in homeownership rates by socioeconomic status, the impact of downpayment assistance programs, relationships between demographic/socioeconomic factors and the Hispanic homeownership gap, interest rates and borrower characteristics, and household income/wealth and homeownership.
- Plumbing is heading in new directions, made possible by a material called cross-linked polyethylene, or PEX. This new technology has a wide variety of applications in home construction and holds promise as a component in affordable housing. We'll visit a field test conducted in Lincoln, Nebraska that demonstrates the appeal of PEX residential plumbing systems to designers, builders, plumbers, and homeowners.
- In July 2007, HUD introduced its new Green Initiative. This nationwide pilot encourages owners and purchasers of affordable multifamily properties to rehabilitate and operate their properties using green building principles, including sustainability, energy-efficiency, recycling, and indoor air quality. Our discussion will provide an overview of the Green Initiative, especially as it relates to HUD's Mark-to-Market (M2M) program. We'll also examine the benefits to owners, residents, and taxpayers.
- *Goal Performance and Characteristics of Mortgages Purchased by Fannie Mae and Freddie Mac, 2001–2005*, recently released by HUD as part of the Housing Finance Working Paper Series, explores Fannie Mae and Freddie Mac's recent performance in the secondary mortgage market. We'll look at how well the GSEs met the goals established by the HUD Secretary for their mortgage purchases and examine the basic characteristics of the mortgage loans purchased by Fannie Mae and Freddie Mac.

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