

Introduction

The built environment has a profound impact on the natural environment, the economy, and human health and productivity. Homes account for over 20% of the nation's energy use and as a result, for over 20% of carbon dioxide emissions in the United States. Home builders and home buyers throughout the country are demonstrating an increased interest in green building – for environmental, health, and financial reasons. Counties can play an important role in providing services, incentives, programs and policies that support the green building movement.

The rising level of education among builders, growth in consumer awareness and the burgeoning demand for sustainable, environmentally friendly products have accelerated the mainstreaming of green building practices. According to the Residential Green Building SmartMarket Report produced by McGraw Hill Construction and the National Association of Home Builders (NAHB), residential and commercial green building will grow from 2% of the U.S. construction market in 2005 to as much as 10% in 2010—representing a difference of up to \$30.8 billion.

Today, more than 80 regional and local green building programs are in place in the U.S. Local governments are finding innovative ways to promote residential green building in the private sector, while also making its health and financial benefits available to vulnerable populations through green affordable housing projects.

About Green Homes

Green homes are healthier, more comfortable, more durable, more energy efficient, and have a much smaller environmental footprint than conventional homes. Green homes rely upon established and proven design elements and technologies through best practice environmental features.

Components of a green home can include:

- strategic site selection to minimize environmental impacts;
- landscaping and development designed to minimize water and energy usage and pre-



serve or enhance the natural environment;

- building design that reduces waste, material usage, and maintenance needs, and increases durability through careful selection of building materials;
- incorporation of salvaged, recycled and/or sustainable building materials;
- emphasis on energy efficiency, particularly in the building envelope and the heating and cooling design;
- use of renewable energy sources (such as solar);
- use of ENERGY STAR-labeled appliances, light fixtures, and bulbs;
- installation of water-efficient appliances and fixtures such as low-flow toilets, water-conserving dishwashers, low-volume irrigation systems, and strategically situated water heaters;
- protection of indoor environmental quality through selection of non-toxic materials and management of potential sources of pollution such as fireplaces, garages, kitchen appliances, and mold; and
- a homeowner or tenant education manual detailing optimal green home usage and upkeep practices.

County Residential Green Building Programs

County residential green building programs help to foster a unified, regional approach to green design and construction, instill con-

sumer awareness and offer training to builders interested in incorporating green features into their projects. These programs can emphasize affordability and flexibility by offering a menu of green options and allowing the homeowner to select green building elements based upon specific regional, personal and environmental needs. By involving builders and homeowner associations in the program development process, and providing outreach and education to the public, county green building programs cultivate a vested community interest and ensure consideration of the most appropriate incentives, policies or programs.

Arlington County, Virginia developed the Green Home Choice program to support Arlington homeowners and builders in going green. The voluntary program provides a list of building guidelines and techniques based on the EarthCraft program, the use of which results in a more efficient and healthy home. A score sheet covering areas such as energy conservation, site management, water and materials conservation, durability, and indoor environmental health helps homebuilders track green choices and earns them points toward certification. Compliance with the guidelines is verified by trained county inspectors. Builders who participate in the program receive front-of-the-line plan review, lawn signs indicating participation in the program, attendance at County-sponsored seminars, and recognition as “green” builders.

Established in 2003, the Green Home Choice program supports over two dozen local contractors, builders, architects, building service specialists, green products suppliers and hundreds of homeowners, and has contributed to the construction or renovation of more than 40 green homes in Arlington County. The program encourages use of ENERGY STAR appliances and techniques.

For more information, contact Stella Tarnay at 703-228-4792 or starnay@arlingtonva.us, or visit: www.arlingtonva.us/Departments/EnvironmentalServices.

Sarasota County, Florida established its Green Building Program in 2005 to educate builders and consumers about the financial and environmental benefits of energy-efficient homes, and to help bolster green building efforts throughout the region. As part of its broad outreach effort, the county sends representatives to speak with individual homeowners and homebuilders and reaches a large and engaged audience by attending homebuilder, homeowner, and civic association meetings.

Builders seeking Florida Green Building Coalition or Leadership in Energy and Environmental Design (LEED) certification are offered a number of time and money-saving benefits through Sarasota's Green Building Program: expedited permitting (three days as compared to three weeks), priority inspections, and recognition through a new green building awards program. Additionally, the \$1,000 refund builders are granted upon completion of each green home covers the costs of both overhead and certification.

To date, 20 green homes have been certified in Sarasota County, with 50-60 more under construction and an additional 1,300 in planning—including multi-family condos,



townhouses, and single family dwellings. As many as 25 builders serving Sarasota, Hillsborough, and Manatee Counties have committed to building all of their homes to green standards.

To learn more about Sarasota County's Green Building Program, contact Paul Radauskas at 941.861.6637 or pradauskas@scgov.net, or visit <https://building.scgov.net/OSG/Sarasota/Green%20Building/GreenBuilding.htm>.

Financial Benefits of Residential Green Building

According to the United States Environmental Protection Agency (USEPA), homes that

are built to ENERGY STAR specifications produce \$200-\$400 in annual energy savings on heating, cooling, and water heater-related costs. Moreover, the durable nature of green home building materials translates to additional savings on maintenance over the life of a home.

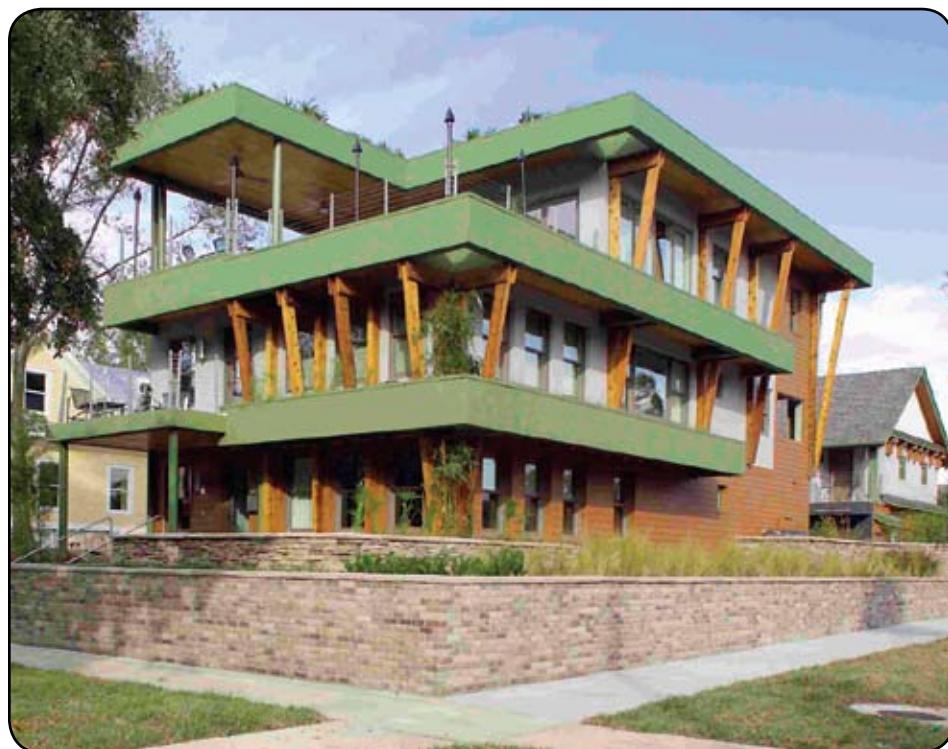
Counties play an important role in educating residents and home builders about these savings and available rebates, credits and other funding assistance for green construction and home improvement projects. Some incentive programs are administered by counties, and others are offered by cities, states, or federal government agencies, public utility companies, industry associations, and nonprofit organizations.

Counties may act as a clearinghouse of information for builders and private citizens looking to maximize the financial benefits of their green building projects. Financial incentives to build green come in many forms, including tax credits for individual taxpayers, an expedited permitting process for homebuilders, and rebates from power and water companies for installing resource-efficient features in a home. Below is a list of some of the incentive and rebate programs available to homebuilders and homeowners.

- **Federal Energy Policy Act Tax Incentives:** The Federal Energy Policy Act of 2005 offers tax incentives for purchasing and installing energy-efficient products in buildings. The act includes credits to builders and consumers for green construction projects, energy-saving home improvements and solar energy systems. To learn more about these credits, visit: www.doe.gov/taxbreaks.htm or www.energystar.gov/index.cfm?c=Products.pr_tax_credits.

- **State Incentive Programs:** Many states have enacted legislation which provides homeowners and/or homebuilders with financial incentives to "go green." Examples include the New York State Green Building Tax Credit, Maryland's Green Building Tax Credit, and New Mexico's Sustainable Building Tax Credit. To learn about green building tax incentives in your state, contact your state's environmental services agency.

- **City and County Incentive Programs:** By offering expedited permits, directories of green builders, community outreach, homeowner education, and a flexible rating system for a variety of green building options, city- and county- level green building programs provide regionally appropriate incentives encouraging builders and homeowners to build green. Examples of city incentive programs include the Green Building



The images of homes were featured at NAHB's 2007 International Builders Show in Orlando. They are certified green by the Florida Green Building Coalition and are ENERGY STAR-rated.

Programs in Scottsdale, Arizona Austin, Texas and Gainesville, Florida. To read more about county programs, see page 3.

- LEED-Based Incentive Programs: Some localities choose to provide tax incentives based on the LEED standards set forth by the United States Green Building Council (USGBC). An up-to-date list summarizing LEED incentives offered by county and city governments can be found at: www.usgbc.org>ShowFile.aspx?DocumentID=2021.
- Public Utility Rebate Programs: Many public utility companies provide incentives for decreasing energy and resource usage. Water companies may offer rebates for replacing water-intensive fixtures, appliances, and landscaping. Gas and electric companies may offer rebates or incentives for individuals and builders to incorporate energy saving features and appliances into existing homes or new homes. Contact your local utility companies for details on their specific rebate programs.
- ENERGY STAR Rebate Program: ENERGY STAR partners, such as utility companies and state and local governments, may offer specific rebates and/or tax credits as specific incentives for installing ENERGY STAR rated features in a home. To locate ENERGY STAR rebates, visit: www.energystar.gov/index.cfm?fuseaction=rebate.rebate_locator.

National Ratings, Certifications, and Standards

Nationally-recognized green building ratings, certifications and standards systems can be excellent tools for counties to employ when starting their own residential green building programs. National programs can be customized according to regional differences, while providing a consistent framework on which counties can develop their own green building approach. Extensive networks have also allowed these national programs to collect case studies and best practices information from throughout the U.S. Below are descriptions of several nationally-recognized green building ratings, certifications, and standards programs which counties may wish to consider for developing green building programs or adopting incentives.

LEED for Homes

The USGBC, whose mission is to advance the market transformation of the built



environment, developed and administers the LEED for Homes Rating System. LEED for Homes, which went into pilot in August 2005, provides a tool for certifying homes that are designed to be energy, water and resource efficient, and built with the health of future occupants in mind. The program, which recognizes and rewards top-performing new homes, ensures that homes are third-party inspected, performance-tested, and certified to be more efficient than conventionally-built homes. LEED can be applied to single- and multi-family homes and is intended for both market-rate and affordable housing projects.

Owners of homes certified through LEED's Homes Rating System enjoy lower water and energy bills, reduced home maintenance costs, decreased exposure to indoor environmental toxins, and the knowledge that they are conserving natural resources and decreasing greenhouse gas emissions.

LEED for Homes will complete its pilot and be launched on a national scale in the fall of 2007. The pilot included more than 350 builders and 6,000 homes pursuing certification. As of July 2007, 90 home projects totaling more than 200 units have been certified.

For more information visit www.usgbc.org/leed/homes.

Center for Communities By Design

The American Institute of Architects' (AIA) Center for Communities By Design provides

assistance to communities on sustainable planning through its Sustainable Design Assistance Team (SDAT) program. The mission of the SDAT program is to provide technical assistance to help communities develop a vision and framework for a sustainable future.

The SDAT brings together multidisciplinary teams of professionals to work with community stakeholders and decision-makers in an intensive planning process. Teams are composed of volunteer professionals representing a range of disciplines, including architects, sustainable design professionals, economic development experts, land use attorneys, and others. The SDAT program is modeled on the Regional and Urban Design Assistance Team (R/UDAT) program, one of AIA's longest-running success stories. While the R/UDAT program was developed to provide communities with specific design solutions, the SDAT program provides broad assessments to help frame future policies or design solutions in the context of sustainability.

Through the Design Assistance Team (DAT) program, over 500 professionals from 30 disciplines have provided more than \$3.5 million in professional pro bono services to more than 150 communities across the country. The SDAT program is the visible demonstration of architecture's value to the sustainability discussion. For more information on the SDAT program, go to the Center's website, at www.aia.org/livable.

NAHB's Model Green Home Building Guidelines

Programs based on NAHB's Model Green Home Building Guidelines are now established in more than two dozen state and local home building associations with about 100 more local programs planned to launch this year. NAHB members have constructed about 100,000 homes under voluntary certification programs like the Guidelines. Localities that choose to employ Model Green Home Building Guidelines have the flexibility to customize the program's point system based on regional differences, while still satisfying a nationally-recognized set of core green building principles.

NAHB has teamed with the International Code Council to develop a residential green building standard based on the Model Green Home Building Guidelines. Using the American National Standards Institute standards development process, the new standard will be a consensus-based document for residential buildings comprising contributions from a wide range of committee members in all sectors of the homebuilding industry and extensive public comment. When completed in early 2008, the National Green Building Standard will provide a blueprint for counties wishing to implement certifiable, regionally-appropriate residential green building programs.

NAHB's new National Green Building Program will support the standard with a national registry of green builders and green homes, an interactive, web-based certification system, and other tools and resources for builders and certifiers.

NAHB's Model Green Home Building Guidelines can be downloaded at: www.nahbrc.org/greenguidelines/index.html. For more information on the new standard, visit: www.nahbrc.org/technical/standards/greenbuilding.aspx.

ENERGY STAR for Homes

Homes that earn the ENERGY STAR meet guidelines for energy efficiency set by the U.S. Environmental Protection Agency. ENERGY STAR qualified homes are at least 15% more energy efficient than homes built to the 2004 International Residential Code. These homes can include a variety of energy efficient features such as effective insulation, high performance windows, tight construction and ducts, efficient heating and cooling equipment, and ENERGY STAR qualified lighting and appliances.

As of July 2007, over 3,500 home builders

Green Affordable Housing Programs

Many counties are working to ensure that all citizens may enjoy the benefits of a green home, regardless of income level. Despite worries that green affordable housing may initially cost more to build, counties are finding that green housing units produce significant financial savings and lifestyle benefits.

By working with a team of green building professionals to employ an integrated, system-wide approach to affordable housing design and construction, counties can realize direct, long-term savings on maintenance, utility bills and liability. A well-planned affordable housing community can also reduce demand on county water, energy, and waste disposal infrastructure. Coupled with the increased quality of life and health for residents and decreased

impact on the environment, these benefits can ultimately make "green" a sensible choice for affordable housing.

Below is a list of national programs working on affordable green building issues.

- The AIA Green Affordable Housing Program provides a series of guidelines and green affordable housing case studies. Visit: www.designadvisor.org
- Green Communities facilitates green affordable housing projects by providing builders, developers and investors with tools such as grants, low-interest loans, and training opportunities. Visit: www.enterprisecommunity.org
- LEED Homes Initiative for Affordable Housing promotes sustainable building practices specifically for affordable homes. Visit: www.usgbc.org/DisplayPage.aspx?CMSPageID=147#afford

have partnered with the USEPA to build more than 750,000 ENERGY STAR qualified homes.

To learn more visit: www.energystar.gov/index.cfm?fnew_homes.hm_index.

Green Communities

Green Communities is the first green building program focused entirely on affordable housing. By providing tools such as grants, low-interest loans, and training opportunities, Green Communities is designed to help developers, investors, and builders make the transition to a greener future for affordable housing.

All Green Communities projects must meet a minimum set of criteria, developed by green building and smart development experts, in order to qualify for the financial products available under the Green Communities program. Mandatory green standards must be satisfied for a total of 20 or 25 points on the criteria scales for rehabilitation projects and new construction, respectively.

Green Communities Criteria address the following design, operations, and development elements:

- Integrated Design Process
- Location and Neighborhood Fabric
- Site Improvements
- Water Conservation
- Energy Efficiency
- Materials Beneficial to the Environment

- Healthy Living Environment
- Operations and Maintenance

To learn more visit:
www.greencommunitiesonline.org/index.asp.

County Green Building Standards and Legislation

In addition to national standards programs, some counties and other local governments have established their own regionally-specific standards for green building. Some have also enacted green building legislation, setting minimum standards of resource efficiency, waste output, and indoor environmental quality for all residential buildings.

County Highlights

- Coconino County, Arizona – The Coconino County Sustainable Building Program (CCSBP) encourages sustainable and energy efficient building practices through research, outreach, education, rebates and incentives. A program of the county's Sustainable Economic Development Initiative, CCSBP offers free consulting services to potential green builders with a goal of creating "better living through sustainability." For more information visit: http://ccsed.org/green-products_resources_ccsbp.html.
- Chatham County, North Carolina – In 2007, Chatham County Board of Commissioners appointed a Green Building Task

Force (GBTF). The GBTF is assigned with researching and advising the Board on the development of residential green building guidelines and on green building strategies for county buildings. The task force's first report is expected on January 31, 2008. For more information visit: www.chathamnc.org/Index.aspx?page=380.

- King and Snohomish Counties, Washington – Built Green™ is a residential building program developed by the Master Builders Association in cooperation with King and Snohomish Counties. Built Green is a rating system for the construction or remodeling of single- and multi-family dwelling and community developments which assists homeowners, builders and developers in creating sustainable, energy efficient homes. King County also provides information for rural residents considering building green, including educational materials and links to incentives and tax credits. For more information visit: www.builtgreen.net.
- Marin County, California – All single-family homes over 3,500 square-feet are required to meet stringent energy efficiency requirements. Marin's Residential Green Building Rating System evaluates the environmental impacts and sustainability of a home in compliance with Marin County code. The county's BEST (Building Energy Efficient Structures Today) program provides free energy efficiency and green building consulting. For more information visit: www.co.marin.ca.us/depts/CD/main/comdev/advance/best/resources.cfm.
- Montgomery County, Maryland – Private-sector, nonresidential, or multi-family residential buildings of at least 10,000 square feet gross floor area are required to achieve LEED certification or an equivalent standard. For more information visit: www.montgomerycountymd.gov/content/council/pdf/bill/2006/17-06.pdf.

Conclusion

Green homes are less energy and resource-intensive than their conventional counterparts, and result in less waste and an enhanced indoor living environment for occupants. Using environmentally sound building materials provides better air filtration, reduces stormwater run-off, increases resale value, and saves both homeowners and homebuilders valuable time and money. By facilitating residential green building projects, counties can experience a number of co-benefits, including a reduced impact on county infrastructure (such as water systems and landfills), higher property values, market growth for local

green builders and supply companies, and a healthier populace.

Additional Resources

● Building Green

www.buildinggreen.com

Provides information to help building-industry professionals and policy makers improve the environmental performance and reduce the adverse impacts of buildings.

● Edison Electric Institute (EEI)

www.getenergyactive.org/wisely/programs.htm

The trade association for investor-owned utilities, many of which provide information and incentives for building more energy-efficient homes.

● Environmental Design and Construction

www.edcmag.com

A source for integrated high-performance building.

● Greener Buildings

www.greenerbuildings.com

A resource for environmentally responsible building development.

● Housing Zone

www.housingzone.com/subcommunity/45955/24199.html

Provides information on green building products as well as articles for builders, by builders, on why to go green.

● Smart Communities

Offers resources, publications, and community success stories on green building and other topics.

● Square Footage

www.squarefootage.net

Provides information on cost-effective and practical measures for greening construction projects.

● Sustainable Buildings Industry Council

www.sbicouncil.org

Supports and partners with buildings-related professionals and local governments promote a 'whole building approach' to design.

● Whole Building Design Guide

www.wbdg.org

Provides up-to-date information on integrated 'whole building' design techniques and technologies.



About the NACo Green Government Initiative

The NACo Green Government Initiative serves as a catalyst between local governments and the private sector to facilitate green government practices, products and policies that result in financial and environmental savings. Launched in 2007 with the support of eleven founding corporate members, the Initiative provides comprehensive resources for local governments on all things green, including energy, air quality, transportation, water quality, land use, purchasing and recycling.

For more information contact Kelly Zonderwyk, NACo Senior Community Services Associate, at 202.942.4224 or kzonderwyk@naco.org.

