

By Ken Rosenfeld and Jerin Raj

Achieving Energy Efficiency Through Weatherization

Cities across the country are taking important steps to bolster the energy efficiency of residential, commercial and public buildings through weatherization. Weatherization typically involves physical improvements to a building, such as insulation, weather-stripping and improved windows and doors that prevent energy loss. Comprehensive weatherization services, according to the U.S. Department of Energy, may also include “a wide variety of energy efficiency measures that encompass the building envelope, its heating and cooling systems, its electrical system, and electricity consuming appliances.” Local governments are developing targeted programs, policies and incentives, and finding a variety of partners to help these initiatives succeed.

THE BENEFITS OF WEATHERIZATION

Individual residents and businesses benefit directly from lower energy bills, but that’s only the start of a long list of benefits that can explain the increasing level of interest and popularity in weatherization programs. While communities grapple with the challenges of high energy costs, unemployment and environmental pollution, weatherization holds the promise of providing a coordinated and compelling set of responses, including:

- Reduced energy usage;
- Reduced energy costs;
- Reduced air pollution;
- Reduced greenhouse gas emissions;
- Increased health and safety; and
- New job creation.

Recipients of services funded through the federal Weatherization Assistance Program save an average of \$437 per year.

- U.S. Department of Energy

Particularly during an economic downturn and deflated housing market, the opportunity exists to reduce homeowners’ and businesses’ utility costs while making improvements to the building stock that can add long-term value to homes and communities.

A product of the National League of Cities, in conjunction with its Sustainability Partner, The Home Depot Foundation



ACTION STEPS

ENCOURAGE ENERGY AUDITS

An energy audit is an important step to determine how and where to direct weatherization efforts. The audit assesses the building's envelope to pinpoint the areas of greatest energy loss and allows for prioritization of weatherization investments. For example, while a homeowner may first think of replacing windows to combat energy loss, energy audits often show that the primary avenues of loss are through the roof and cracks in the walls or foundation. The complexity of energy audits can range from basic visual inspections to comprehensive systems inspections, including water, heating and cooling, appliances, lighting and ventilation. Qualified energy auditors should be certified and have experience with a variety of housing units.

BERKELEY, CALIFORNIA

(WWW.CI.BERKELEY.CA.US)

The city made its priorities clear decades ago by passing a unique energy conservation ordinance, requiring sellers of residential properties to install energy conserving technologies upon the sale of a building or when renovations to a building total more than \$50,000. Required upgrades included insulation, water heaters, fluorescent lighting, weather stripping and low-flow shower heads. Commercial buildings have since been added, requiring efficient HVAC equipment, water systems, lighting and refrigeration. The city reports that 12,000 residences — 30 percent of the total housing stock — have been certified as meeting the requirements, substantially reducing residential energy consumption and household energy costs.

CONSIDER PRE-WEATHERIZATION NEEDS

The outcome of an energy audit may determine that other immediate actions need to be taken prior to implementing weatherization services. “Pre-weatherization” concerns are typically associated with older properties and involve issues related to structural integrity and the health and safety of the residents. These may include the presence of lead-based paint or asbestos, pest infestation or mold. In such cases, the integrity of the building takes priority and should be resolved prior to undergoing weatherization. Many cities with older housing stock are finding the need to implement pre-weatherization programs as a necessary step.

BOSTON

(WWW.CITYOFBOSTON.GOV)

The Renew Boston Residential Energy Efficiency pilot program targets middle income residents who do not qualify for low-income assistance programs. Energy audits and weatherization, funded through corporate donations and utility rebates, are provided free to residents earning 60-120 percent of the area median income. Since the program's inception, 175 homes have participated, and audits have verified annual energy savings averaging \$230 to \$390 per household, depending on the level of services provided. The city intends to build on the pilot program, with a target of reaching 150,000 households and 30,000 businesses by 2020.

IDENTIFY FUNDING

A challenge facing weatherization programs is that capital investment is needed upfront in order to generate the savings or appreciation that will occur in the future. This can lead to significant hurdles: individual building owners may lack the ability to invest up front; some building owners or developers may be reluctant to pay upfront costs while their tenants or buyers will reap the savings from future energy bills; and municipalities may lack the funds or staff capacity to create city-led initiatives, no matter how worthy.

Assistance may be available through the federal government, which has focused on weatherization since the energy crisis of the 1970s. The Weatherization Assistance Program (WAP), created in 1976, provides funding to the states through the U.S. Depart-



ment of Energy, and has reached more than 6 million low-income households. The program received a significant boost in the 2009 American Recovery and Reinvestment Act (ARRA), which included \$5 billion for WAP. ARRA also funded other potential sources for weatherization programs, including the Energy Efficiency and Conservation Block Grant (EECBG) program, the State Energy Program (SEP) and workforce development grants related to energy efficiency and clean energy.

Regardless of the source of funds and other support, cities have identified a variety of financial solutions they can offer to their communities, including short-term loans, revolving accounts and utility buybacks.

FORM PARTNERSHIPS

Whether or not federal funds are identified, successful weatherization programs necessitate careful design and creative partnerships. Potential allies are numerous.

- Community organizations are likely to recognize and champion the tremendous benefits.
- Many businesses similarly understand the benefits to the community.
- A growing number of utilities are actively creating programs to assist their customers; this trend should increase as states continue to pass renewable electricity and energy efficiency standards.
- Banks and other financial institutions are gradually realizing the significant financial value of these improvements.

BRIDGEPORT, CONNECTICUT

(WWW.BRIDGEPORTCT.GOV)

As part of the city's "BGreen 2020" sustainability initiative, a Conservation Corps of young adults has utilized a door-to-door campaign to educate city residents about the benefits of home energy audits and weatherization programs. Working in teams of two, canvassers have visited thousands of homes, gauging interest and distributing information about energy efficiency. Through a partnership of utilities, public agencies and nonprofits, free or low-cost energy audits and weatherization assistance are available to residents earning up to 60 percent of the state median income, and low interest loans with extended repayment periods are available for weatherizing homes. Bridgeport is also using a federal grant to develop a green job training center specializing in weatherization and energy efficiency retrofits.

RESOURCES

U.S. DEPARTMENT OF ENERGY

- Weatherization Assistance Program (WAP)
 - www1.eere.energy.gov/wip/wap.html
- Weatherization Assistance Program Technical Assistance Center
 - www.waptac.org

ABOUT THIS PUBLICATION

Ken Rosenfeld is director of the sustainability program in the Center for Research and Innovation at the National League of Cities. Jerin Raj contributed to the writing of this report, and additional content was provided by Tammy Zborel and Corinne Kisner. For additional information about cities and sustainability, visit the NLC webpage at www.nlc.org or e-mail sustainability@nlc.org.

The National League of Cities is the nation's oldest and largest organization devoted to strengthening and promoting cities as centers of opportunity, leadership and governance. NLC is a resource and advocate for more 1,600 member cities and the 49 state municipal leagues, representing 19,000 cities and towns and more than 218 million Americans.



Through its **Center for Research and Innovation**, NLC provides research and analysis on key topics and trends important to cities, creative solutions to improve the quality of life in communities, inspiration and ideas for local officials to use in tackling tough issues and opportunities for city leaders to connect with peers, share experiences and learn about innovative approaches in cities.

The Home Depot Foundation, created in 2002, supports nonprofit organizations dedicated to creating and preserving healthy, affordable homes as the cornerstone of sustainable communities. The foundation's goal is for all families to have the opportunity to live in healthy, efficient homes they can afford over the long-term; to have access to safe, vibrant parks and greenspaces; and to receive the economic, social and environmental benefits of living in a sustainable community. For more information, visit www.homedepotfoundation.org and follow on Twitter @homedepotfdn. Created in 2009, the **Sustainable Cities Institute (SCI)** is a two-part initiative from The Home Depot Foundation that provides a one-stop shop for cities and sustainability professionals to find vetted best practices from across the country to help them identify and implement local sustainable practices and policies as well as communicate with other cities about sustainability related issues and topics. For more information, visit www.sustainablecitiesinstitute.org and follow on Twitter @sustcitiesinst.