

Guidelines for Home Energy Upgrade Professionals

Standard Work Specifications for Multifamily Energy Upgrades

Revised July 2011

The Impact of Energy Upgrades

- More than 30% of people in the United States live in multifamily buildings.
- About 70% of U.S. multifamily housing units were built before energy codes were established.¹
- The U.S. Department of Housing and Urban Development (HUD) spends more than \$5 billion annually on energy costs, directly through operating subsidies, and indirectly through utility allowances and contracts for assisted multifamily housing.²
- In 2009, the energy burden for low-income households was 10% of each household's income compared to 3.3% for households that are not considered low-income.³

The Opportunity

A recent Energy Foundation study revealed that investing \$8 billion in energy-efficient upgrades to the multifamily-building sector through 2020 would save multifamily residents and property owners approximately \$9 billion in energy expenses during that same timeframe.⁴



A weatherization worker adds insulation to walls in rooms that have been masked off from the rest of the unit. Healthy homes experts are contributing to the *Standard Work Specifications for Multifamily Energy Upgrades* to address occupant and worker safety issues. Photo by Dennis Schroeder, NREL/PIX 17964

The Question

Why isn't there an active multifamily energy upgrade industry?

The Answer

Multifamily energy upgrades are often expensive to undertake. Energy upgrades for multifamily buildings present unique challenges including the need for diagnostic testing, split-incentives issues, and complex financing structures and energy upgrade measures, all of which differ significantly from those found in single-family housing upgrades. In order to afford multifamily upgrades, building owners need to obtain financing from banks and investors. These financiers are often unwilling to invest money without assurance that the project will be completed in a professional manner and in accordance with robust quality standards.

The Solution

Quality Work by Qualified Professionals

The U.S. Department of Energy's (DOE) Weatherization Assistance Program (WAP) is developing a publication called *Guidelines for Quality Work: Standard Work Specifications for Multifamily Energy Upgrades* to foster the growth of a high-quality home energy upgrade

industry. As an extension of the *Workforce Guidelines for Home Energy Upgrades* that Vice President Biden announced in November 2010, these guidelines have been created to provide a baseline for quality work.

Public and private energy upgrade programs nationwide will be able to use the guidelines to increase the consistency and effectiveness of their work. Training providers may use the guidelines to improve course curricula and materials. The guidelines will also support workers, trades, and industry stakeholders throughout the multifamily-building sector.

Building on Experience of the Weatherization Assistance Program

For more than 30 years, WAP has served families living in multifamily buildings. Across the country, nearly 20% of all weatherization projects occur in this building type. WAP has more experience and more experts in multifamily energy upgrades than any other organization in the United States. As the leading expert in the field, WAP is spearheading the effort to develop quality standards to benefit the entire multifamily energy-upgrade industry.

¹ U.S. Multifamily Energy Efficiency Potential by 2020, Benningfield Group, October, 2009.

² Green Affordable Housing, HUD Has Made Progress in Promoting Green Building, but Expanding Efforts Could Help Reduce Energy Costs and Benefit Tenants, U.S. Government Accountability Office, October, 2008.

³ Energy burden is defined as average residential energy expense divided by average income. Weatherization Assistance Program Technical Memorandum Background and Statistics, Oak Ridge National Laboratory, March 2010.

⁴ U.S. Multifamily Energy Efficiency Potential by 2020, Benningfield Group, October, 2009.

The Collaborative Approach

Upgrading multifamily buildings requires a unique set of workforce skills and work-quality standards. The broad variety of building types and sizes presents specific challenges for the energy upgrade industry. It is essential to consider financing, logistical planning, operational issues, and varying construction methods when developing a comprehensive approach to work-quality standards and energy-efficiency measures. WAP is collaborating with experts working in the building trades, as well as the healthy homes, worker safety, affordable housing, and home performance industries to address these challenges. In addition, WAP has built a strong partnership with HUD and the U.S. Environmental Protection Agency to ensure that this effort is comprehensive in scope and applicability.

The Guidance

The multifamily guidelines will include two components that together will form a guide that industry professionals can reference to find the specific processes involved in quality energy upgrades:

1. *The Standard Work Specifications for Multifamily Energy Upgrades* will define the minimum requirements



Photo from D&R International, NREL/PIX 09003

for high-quality work and the conditions necessary to achieve the desired outcomes for each energy-efficiency upgrade measure.

2. *The Technical Standards Reference Guide* for standards or codes will catalog and summarize the safety, health, materials, installation, and application standards for multifamily building energy efficiency upgrades. These technical standards will be developed by industry or third-party standards development organizations, such as the American Society for Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) and the American Society for Testing and Materials (ASTM).

DOE is still considering whether or not to develop workforce competencies (Job Tasks and Knowledge, Skills, and Abilities) for the multifamily building sector.

The Benefits

For workers and contractors, the guidelines will:

- Foster the growth of a high-quality home energy upgrade industry by developing standards for high-quality work that people trust
- Help training programs develop higher quality and more consistent curricula and training materials.

For residents of multifamily housing, the guidelines will:

- Establish a clear baseline for quality energy-upgrade work and a solid foundation for quality assurance
- Ensure that maximum energy savings are achieved.

For the residential energy upgrades industry and utilities, the guidelines will:

- Build confidence in the energy efficiency finance community that energy

The Timeline

Timeline for Industry Participation in the Guidelines for Multifamily Energy Upgrades

June 14–15, 2011 (completed)

Standard Work Specifications for Multifamily Energy Upgrades Market Lead Event
Raleigh, North Carolina

July 25–29, 2011 (completed)

Standard Work Specifications for Multifamily Energy Upgrades Development Event
Raleigh, North Carolina

If you would like to participate in developing the Standard Work Specifications for multifamily energy upgrades, please email us at workforce.guidelines@nrel.gov.

upgrade work will be completed to a high standard of quality

- Increase expected energy savings and building performance outcomes, allowing greater load control for energy utilities. Increased efficiency will also reduce costs and decrease the incidence of billing default for building owners and utilities
- Improve the consistency and effectiveness of energy upgrade work performed under WAP and state, municipal, and utility energy-upgrade programs nationwide.

The adoption of the guidelines, which are being developed with funding from the American Reinvestment and Recovery Act, will provide a benchmark for worker training and for high-quality multifamily energy upgrades.

For more information about this project, please see the DOE Office of Energy Efficiency and Renewable Energy (EERE) website: http://weatherization.energy.gov/retrofit_guidelines

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