

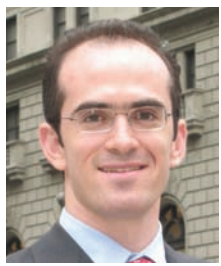
Green Building

Everything You Wanted to Know About Energy Audits of Multifamily Buildings...But Were Afraid to Ask

FROM MEASURING ENERGY usage and revealing ways to cut costs, to providing entry to a myriad of possible governmental and private incentives, the energy audit is becoming an increasingly important tool for owners, developers, and managers of affordable multifamily rental housing properties.



Andrew Padian



Jeffrey Perlman

In recent interviews, two experts in energy audits of multifamily residential buildings provided details about energy audits: Jeffrey Perlman, President and Founder, Bright Power, Inc., New York, NY; and Andrew Padian, Vice President for Energy Initiatives, The Community Preservation Corporation, New York, NY. Perlman is a LEED-accredited green building professional and Certified Energy Manager. Padian has 30 years' experience in multifamily housing and has completed thousands of energy audits.

Q. What is an energy audit?

A. Padian: An analysis of a building's energy and water usage and how that usage and/or energy costs can effectively be reduced while preserving the health, safety, durability, and comfort of the building.

Q. Why are the benefits to an owner/developer of an energy audit of their existing multifamily building?

A. Padian: Multifamily buildings use two to five times more energy per square foot than single-family homes. By performing an energy audit, a third party can evaluate the building and tell the owner – you should do these things to cut your energy. It's the true definition of green – cash.

Most buildings are very wasteful. A building owner who acts on the recommendations in an energy audit can expect savings of 20 to 40 percent.

Q. What is done in an energy audit?

A. Perlman: There are two main activities. Off-site: An analysis of the site's energy bills followed by a written report of the findings. On-site: A walk-

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Boston Owner Makes Use of Energy Audits

Preservation of Affordable Housing (POAH), a Boston, MA-based affordable housing developer and owner, used energy audits performed by Bright Power, Inc. to obtain funds for energy improvements to three of its existing developments in the Boston area.

The impetus was a funding initiative of the Massachusetts Technological Collaborative (MTC).

POAH development advisor Rodger Brown identified several properties as candidates for MTC grants: Bridal Path, a 132-unit senior housing complex in Randolph; and Fair Weather, a 121-unit project in Salem. POAH received a \$10,000 grant to pay for an energy audit of Bridal Path, and a subsequent \$390,000 grant to help pay for installation of a 40-kilowatt solar photovoltaic system. Fair Weather is adjacent to another POAH development that is seeking to build a \$2.1 million, 650-kilowatt wind turbine to generate power for both of the properties. An initial \$50,000 grant is funding the feasibility study; another grant will be sought to help cover the cost of the wind turbine.

"The energy audit showed the improvement we wanted to make was feasible, would produce a substantial energy savings, and thus fit neatly into the parameters of the MTC initiative," Brown said. ■

– James T. Berger

Audit,*continued from page 15*

through of the property and the performance of various tests of the building's systems.

Q. What are the technical steps?

A. Perlman: Step 1 is benchmarking: Evaluating the building's current performance using historical utility bills. Step 2 is the audit: Assessing the building's systems for efficiency opportunities, making an on-site visit, and then writing the audit report.

Q. What is measured in an energy audit?

A. Padian: All of the energy usage is analyzed with respect to the dimensions of the building, includ-

ing ceiling heights, the number and sizes of windows, existing insulation, basement issues, and existing energy-related equipment in the building. **Perlman:** We also analyze the sizes and number of doors, thickness of walls, places where air is leaking out of the building, the efficiency of the furnace and/or cooling systems, the type of lighting, and water usage.

Q. What is the equipment used?

A. Perlman: Various thermometers; blower door to measure air leakage; combustion analyzer; light meter; ballast checker for fluorescent lighting; smoke stick to diagnose air leakage paths; anemometer to measure speed of airflow from ducts and fans; and psychomotor to measure humidity.

Q. Are there different levels of energy audits?

A. Padian: There is the simple energy audit, consisting of the analysis of utility bills and energy usage, site walk-through, and report. Then there are audits conforming to American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) standards, where you actually develop energy models.

Perlman: There are three levels of ASHRAE audits: Level 1 (walk-through); Level 2 (preliminary scoping study); and Level 3 (investment grade audit).

Q. What is the end product of an energy audit?**Audit,***continued on page 17*


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Audit,*continued from page 16*

A. Padian: If the findings of the audit are acted upon, the building owner can achieve 20 to 40 percent in energy savings. The savings-to-investment ratio is greater for items that have a longer lifetime. Paybacks are looked at both in years and savings/investment ratios.

Q. What happens after the energy audit is done?

A. Padian: It's up to the owner receiving the energy audit report whether to implement the recommended improvements.

Q. Who performs an energy audit?

A. Perlman: Anyone who is quali-

fied. There are a few useful professional certifications for energy auditors. The Building Performance Institute (BPI) offers a certification; another certification is Certified Energy Manager (CEM). Some engineers such as mechanical, civil, electrical, etc. are good. **Padian:** A good engineer or architect with a proven track record working in multifamily might be a good candidate. But beware: Few engineers want to do audits of multifamily buildings or understand the peculiar nature of these buildings. If you select an engineer, be sure that he or she has experience with multifamily buildings.

Q. How does one select a qualified energy auditor or energy audit firm? Are there lists somewhere?

A. Perlman: Use references first.

Certifications can be helpful, but they aren't an indicator of quality. There isn't any single list; different states keep different lists. **Padian:** Don't hire any firm that has a vested interest in a product or a service like window or siding companies.

Q. What is the typical dollar cost of an energy audit for a multifamily rental building of, say 100 units?

A. Padian: Under \$5,000 for a typical walk-through audit. For ASHRAE-level reports, add another \$10,000 to \$15,000.

Q. What factors determine the cost of an audit?

A. Perlman: The size and number of buildings in the project, the com-

Audit,*continued on page 18*

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Audit,*continued from page 17*

plexity of the building systems – keep in mind that the audit will cover all of the key basic elements, such as heating, cooling, electrical usage, water usage, insulation, basement issues, etc.

Q. How long does it take to perform an energy audit?

A. Perlman: About two to four weeks to gather billing data and information and do the site visit, and another two to four weeks to develop the written report.

Q. How is an energy audit typically paid for?

A. Perlman: One of three ways: By the owner or developer; by a government incentive program such as those of a state or the U.S. Department of Housing and Urban Development; or by a utility company.

Q. Are there governmental funds or subsidies to pay for some or all of the costs of an energy audit?

A. Perlman: In the HUD green affordable housing initiatives, the audit is paid for by HUD; Enterprise Community Partners

will cover energy audit costs for some of the properties they fund; and certain state and utility programs cover all or part of the cost. **Padian:** Incentives vary regionally. The best source of information on state-by-state incentives is at <http://www.dsireusa.org>. One HUD initiative is targeted at the Section 8 portfolio, specifically properties in the Mark-to-Market Program. This nationwide pilot initiative encourages owners and purchasers of affordable multifamily properties to rehabilitate and operate their properties using sustainable green building principles. ■

*– James T. Berger***Awards,***continued from page 1*

developments received Honorable Mention recognition.

A panel of judges selected the winners from 40 applications representing projects in 19 states.

Following is a description of each winning project:

Winner Metropolitan/Urban Housing

Verne Barry Place

GRAND RAPIDS, MI

Developer Dwelling Place, Inc. renovated and expanded this public housing project into 118 units of affordable rental housing, a major portion of which are intended for formerly homeless, disabled individuals. The project involved the historic rehabilitation of three aging buildings and the construction of a new LEED Gold-certified tower to link them. Located in

a burgeoning downtown arts district, Verne Barry Place is part of Michigan's Cool Cities program, designed to revitalize distressed neighborhoods in the state.

The property, entirely handicapped-accessible, offers a wide range of services to residents, including GED classes, English as a second language, art classes, computer training, and counseling. Two on-site full-time resident service coordinators arrange for access to job services, alcohol and drug counseling, medical care, and other social services. A partnership with a nearby apartment complex enables residents who can't cook for themselves to participate in a meal program, and free health and dental clinics are just blocks away.

Funding sources included equity generated by the syndication, by National Equity Fund, Inc., of federal low-income housing and historic rehabilitation tax credits; federal HOME program dollars; state and local grants; Federal

Home Loan Bank Affordable Housing Program funds; a construction loan from Charter One Bank; and charitable donations.

Equity investors include California Bank & Trust, Citicorp, Fannie Mae, Freddie Mac, HSBC, JPMorgan Chase, and LaSalle Bank Community Development Corporation.

Winner – Rural Housing

Red Hawk Apartments

SPRINGDALE, UT

This new mixed-income community contains 22 low-income housing tax credit apartment units, serving households making as little as 37% of the area median income (AMI), plus 15 single-family homes. Developed by Color Country Community Housing, Inc., the development is in a community of 500 people located near Zion National Park.

Awards,
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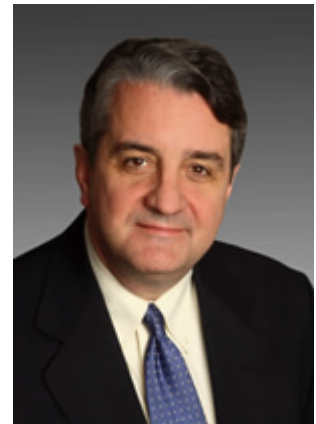
VP of Energy Initiatives at CPC, Padian Selected to Judge MHN's Green Initiative Awards

June 5, 2009

New York—**Andrew Padian**, vice president for energy initiatives for the **Community Preservation Corporation (CPC)**, has been selected to judge MHN's second annual Green Initiative Awards.

At CPC, Padian assists with the implementation of the Energy Efficiency Loan Program, working with CPC staff and building owners across the tri-state area.

The Green Initiative Awards, presented by MHN, recognize eco-friendly corporate initiatives by apartment communities, developers, suppliers, manufacturers and others in the multifamily sector. Winners will be published in the November 2009 issue of *Multi-Housing News* magazine. Deadline for entries is August 1. [Click here for more information and to enter MHN's Green Initiative Awards Competition.](#)



"My environmental associates and colleagues have been in the business for decades, and we all share a strong commitment to improve the built or natural environment, or both," notes Padian. "My involvement began almost 35 years ago, when I read about how we were ultimately going to run out of oil and gas; that was two years after my sister and I would get up early in the morning and push the car along in gas lines on odd/even days depending upon your license plate number during the first major oil embargoes," he recalls.

Padian has 30 years of experience in the building science of multifamily buildings, with an emphasis on the affordable housing sector. He has performed detailed energy analysis on hundreds of buildings across the country, providing recommendations for energy and water efficiency, comfort, durability, and health and safety for both new and existing buildings. He is involved in many sustainable causes in New York, including Green Home NYC, the Clinton Community Garden, and the Northeast Sustainable Energy Association.

Prior to CPC, Padian ran the Multifamily Buildings Division for Steven Winter Associates Inc. Padian has also worked for the Association for Energy Affordability, the NYC Mayor's Energy Office and the NYC Department of Housing Preservation and Development.

Check back for information on other judges for MHN's Green Initiative Awards.