

**Partner Update**

September – October 2000

Office of Energy Efficiency and Renewable Energy

**Profile**

Skeet Fitzgerald

**Henderson Manages Growing Pains**

The southern Nevada region has roughly 4,000 new residents each month, with Henderson, NV absorbing 1,200 of these new arrivals on average. Thanks to careful planning, Henderson is emerging as an innovative and progressive community. Voted one of the nation's "safest" and "kidfriendly" cities, Henderson has also ventured into new territory as a Rebuild America partnership.

**Skeet Fitzgerald**, leader of **Rebuild Henderson** and Henderson's housing and grants manager, has played a key role in encouraging the development of an energy-aware city that saved more than \$400,000 in energy costs during 1999.

The population surge has led to a boom in new construction and increased energy demand from both residential and commercial buildings. City planners foresaw the need to plan for this rapid growth and

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**LaGrange, NC: Staying The Course**

Conway Rose, leader of the **LaGrange (NC) Redevelopment Foundation** partnership, knows adversity. Against all odds, the Foundation set out in April of 1997 to revitalize the town of LaGrange, which had been in a deepening depression for three decades. (See *Partner Update, January-February 1999*). The focus of the Foundation was to attract new business and industry to this small town of 3,500 while promoting the historical and cultural preservation of the area. Before long, the Foundation had possession of 13 of 25 buildings in the commercial district. Built between 1890 and 1915, many of the buildings had been abandoned and suffered from years of neglect.

The LaGrange Foundation was immersed in the business of restoration when a one-in-500-year flood struck eastern North Carolina in September of 1999. The town was deluged with 21 inches of rainfall in four days and suffered three major hits from hurricanes during a six-week period. The town's historic buildings that were targeted for



Conway Rose

revitalization sustained heavy damage to their roofs, tin-molded ceilings and walls. Plate glass was blown out of some buildings. Heating and air conditioning systems in two buildings had to be completely replaced and some buildings had to be completely re-wired. Three new roofs installed before the storm hit held, while roofs on five buildings yet to be renovated did not, and had to be replaced. The good news was that there was no permanent structural damage to any of the buildings and the few tenants in place at the time of the flood suffered minor damage but no substantial losses.

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# Lighting Controls Make A Difference

How much of a difference can lighting controls like occupancy sensors, lighting control panels and daylighting make in saving energy and dollars? The Watt Stopper, a Rebuild America Business Partner, has some experience that provides some revealing possibilities. Lighting control devices and techniques can provide 20-to-60 percent savings while offering low initial costs, extended lamp life, and reduced maintenance costs and often provide a payback in less than two years, according to The Watt Stopper President **Jerry Mix**. Equally important, though less tangible benefits include increased employee productivity and a potential increase in sales for retail environments.

Mix points out that lighting controls are compatible with most lighting systems and easily integrate with other building systems. Over the course of nearly 20 years as a lighting control manufacturer, The Watt Stopper has found that lighting controls can yield average savings of 15-to-20 percent in offices, 30-to-75 percent in restrooms, 45-to-65 percent in storage areas and 25-to-75 percent in warehouses.

The results experienced by three retail operations illustrate the potential for energy savings through effective lighting controls:

- Target Stores saved 5 percent of its total annual energy consumption by installing occupancy sensors.
- Blom Brothers, a furniture retailer in Vineland, NJ, also installed occupancy sensors on its retail floor and in warehouse areas, realizing nearly \$4,000 in lighting energy cost savings.
- In Vermont, a McDonald's restaurant yielded energy savings of 29 percent by introducing daylighting.

Similar results have been realized by other business sectors after implementing lighting controls. When Des Moines Area Community College installed occupancy sensors throughout its campus, it realized \$11,500 in energy savings annually, Mix notes. At the National Center for Atmospheric Research, a study conducted by the Lighting Research Center on the use of manual and automatic lighting controls revealed a combined total of 61 percent energy savings.

## Daylighting as an Emerging Technology

Daylighting control systems, which use natural light to reduce the use of artificial lights, provide benefits that extend beyond the significant energy savings, according to Mix. For instance, McDonald's was able to realize a 29 percent savings in energy costs largely due to a daylight harvesting system comprised of 14 fluorescent fixtures in four zones, which enabled lights to be dimmed 40 percent. The restaurant chain was able to achieve additional energy savings by reducing HVAC load.

Two recent studies, conducted by Hescong Mahone for Pacific Gas & Electric in August 1999, provide new evidence that daylighting may boost both occupant productivity and sales. After analyzing test scores from more than 21,000 students in three different school districts, the school study concluded that the presence of daylighting resulted in higher test

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## View from DC

By Mark Bailey & Daniel Sze

The summer of 2000 ushered in some exciting developments for Rebuild America's EnergySmart Schools campaign in its efforts to improve the condition of our nation's schools. The campaign took an important step to help schools make energy-smart decisions about building new schools and renovating existing ones by hosting roundtable discussions of industry professionals as a key step to developing national school design guidelines.

Maintaining inefficient, aging schools is a costly proposition. America's schools are spending more on energy than they are on textbooks and computers combined. Our schools are aging — the average age is 42 years — and one-third of our public schools occupy less-than-adequate facilities that are in need of repair. And an additional 5,000 new schools are needed within the next seven years to keep pace with a growing student population. We have an urgent need to improve our existing school buildings and to build efficient new schools — the energy smart way.

The Western EnergySmart Schools Design Guidelines Roundtable, held July 24 in San Francisco, and its eastern counterpart, held August 3 in Washington, DC, convened a mix of architects, engineers, school board members, facility managers, utilities, state energy offices and others in both the private and public sectors who work with schools. The sessions provided a framework for shaping national school design guidelines to address the role that sustainable design practices, energy efficiency and renewable energy technologies can play in our schools.

Lessons learned from previous attempts to develop guidelines for schools were also discussed at the roundtables. The consensus was that strong links needed to be established among all the stakeholder groups — parents and students, teachers, school boards and architects and engineers — to fully open the lines of communications and move the project forward to a successful conclusion.

EnergySmart Schools' goal for the roundtables is to produce a series of climate-specific guidelines that school decision-makers and designers can use to plan,

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# Santa Monica and Austin Tap Into Renewables

*Electricity deregulation signals new opportunities for Rebuild America partnerships in the utilities marketplace. Some are exploring their options in purchasing green energy — generated by wind, solar, geothermal and biomass — that has roots in cleaner renewable energy as opposed to fossil fuels.*

*The City of Santa Monica partnership, and Austin Energy, a Rebuild Austin partner, are taking steps to ensure that renewable energy is part of the future of their communities.*

## The Santa Monica Experience

For the **City of Santa Monica** partnership, it's not business as usual when it comes to purchasing power for City facilities. Empowered by the options available in Los Angeles' deregulated marketplace, this coastal town has taken a stand for cleaner air by purchasing energy generated from renewables. During the past year, renewable energy has provided power to 1 million square feet of municipal facilities, including City-owned buildings, public works plants, traffic lights, street lights and beach facilities that include a solar-powered ferris wheel on the Santa Monica Pier.

Purchasing renewable energy has worked so well that the City has opted to renew its one-year contract to purchase geothermal energy through an arrangement with Commonwealth Energy, an energy services provider, and Cal-Energy, a supplier. The City is paying 5 percent over Southern California Edison rates for power that is 100 percent derived from geothermal sources, according to **Susan Munves**, energy and green buildings program coordinator with the City of Santa Monica and leader of its Rebuild America partnership.

The City's switch to renewable energy is part of a strategic energy management plan

that aims to reduce the burning of fossil fuels and improve air quality, Munves notes. "The increased cost of using renewable energy is offset by the substantial environmental benefits," she says.

In addition to committing to use renewables, the City of Santa Monica has completed the energy retrofit of all buildings in its 1 million square-foot portfolio. It is now turning its attention to incorporating green design principles into new construction. All new buildings will be built to a standard that exceeds state code requirements by 25 percent, Munves says.

Other California municipalities using renewable energy include Oakland, Palmdale and Chula Vista. San Jose, Santa Cruz and Berkeley are soliciting bids to purchase renewable energy, she adds.

"Why build power plants when you can build distributed generation plants to encourage the use of cleaner, renewable energy?" Munves asks.

Munves is concerned that the state of California's recent action to remove the credit for municipalities that use renewable energy will dampen enthusiasm for the renewables market. Cities were previously allotted a credit for each kilowatt hour of green energy purchased.

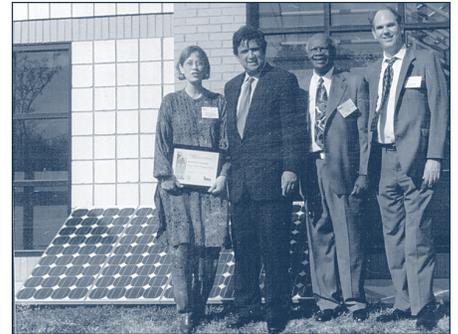
Credit or not, this coastal town plans to stay the course and benefit from the quality of life improvements that result from prudent environmental management.

## Austin Explores Renewables

The City of Austin is giving residents and businesses the opportunity to make decisions about the energy they purchase. Austin has begun to implement strategies that will enable communities to choose electricity generated from renewable energy sources. The City has a goal of generating 5 percent of its electricity from renewable sources by 2005.

Through its GreenChoice program, Austin

Energy, the local utility and a **Rebuild Austin** partner, has plans to contract for new wind turbines, landfill gas recovery plants and solar arrays to help meet the 5



Austin Energy donated a solar panel array to help the Ebenezer Village Daycare Center reduce its energy costs. Posing next to the solar panels, from left, are Kathryn Houser of Sustainable Living Association, Energy Secretary Bill Richardson, Rev. Marvin Griffin and Mark Kaptner of Austin Energy.

percent goal. Such efforts help offset the reliance on fossil fuels and assist in reducing nitrous oxide and carbon dioxide emissions that are harmful to the environment. In February, Austin Energy participated in a Rebuild Austin effort to revitalize an economically depressed area of East Austin and donated a 6-kw roof-mounted photovoltaic panel to a daycare center. (See *Partner Update, March-April 2000*.)

The City of Austin is hoping their efforts will encourage consumers and the business community to opt for cleaner, renewable energy that will pay environmental dividends for years to come.

For more information contact Susan Munves at [SusanMunves@ci.santamonica.ca.us](mailto:SusanMunves@ci.santamonica.ca.us) or Roger Duncan of Austin Energy at 512-499-3575.

# Ohio School District Recognized



From left, Springfield Local School District representatives Richard Archer, Sondra Clevenger, Michael Smith and Dan Laskos pose with Amy Kuhn, center, of the Ohio Department of Development.

The Springfield Local School District near Akron, OH has completed the energy-efficiency retrofit of more than one-half million square feet and has been honored by the U.S. Department of Energy (DOE), Ohio Department of Development's Office of Energy Efficiency and the Foundation for Environmental Education.

The recognition award marks the culmination of the school district's effort to retrofit 521,000 square feet of school space and reduce energy costs by \$234,000 annually or more than 25 percent. The scope of work involved planning and installing energy-saving modules as well as implementing energy-efficiency and renewable energy lessons into the student curriculum.

**Amy Kuhn**, assistant deputy director of the Community Development Division of the Ohio Department of Development, presented the award on behalf of DOE, Rebuild America and the Foundation for Environmental Education. The ceremony recognized the following Springfield Local School District staff for their commitment and leadership: **Richard Archer**, superintendent; **Sondra Clevenger**, treasurer; **Daniel Laskos**, business manager; **Michael Smith**, maintenance supervisor; and **Robert Collins**, school

board president.

"We applaud the Springfield Local School District for having the vision and the

perseverance to invest in its schools to create better learning environments for children," says **Glen Kizer**, who leads both the Foundation for Environmental Education and the **1500 Days Central Ohio** partnership. "Everyone wins when our schools save money by being smart about energy."

"We're pleased to be saving dollars that we can use toward books and other activities for the students," says Superintendent Archer. "One spin off of this is that it's encouraged students to get involved. The kids see us retrofitting lights and making improvements and we explain what we're doing and why," he says. The result has been more energy aware and environmentally conscious students who want to do their part, he says. "At two elementary schools, students took the initiative to start recycling programs. They worked with their teachers to apply for grants and the recycling programs are now in place."

The school district invested nearly \$2 million in energy-efficiency measures to improve its buildings. The energy improvements were financed through a performance contract with CMS Viron Energy Services. The scope of work encompassed 10 school buildings built between 1920 and 1965 and one administrative building. The first phase of improvements included the installation of windows, doors and central controls for the

energy management system and had a 10-year return on investment. When the first phase of improvements met or exceeded its savings guaranty each year for the next seven years, the school district opted to proceed with Phase 2.

Phase 2 improvements had a 15-year payback and included overhauling the mechanical system and controls, upgrading lighting and installing water conservation measures, according to **Randy Roys**, area manager of CMS Viron Energy Services. CMS Viron uses a monitoring and verification system to track the energy performance of district schools.

All facilities were modeled in software and historical data was gathered to help develop an accurate model baseline, Roys says. This was a challenging task given the age of the buildings and the fact that drawings and information on several buildings was incomplete. The resulting plan detailed hours of occupancy, special uses and problems and included goals. The extensive planning paid dividends in terms of accuracy, according to Roys.

"We were able to identify patterns of deviation in energy use and worked to optimize energy conservation and comfort for the benefit of students and staff," he says.

Of the measures implemented, the energy management system accounts for 39 percent of overall energy savings, followed by lighting retrofits (35 percent), and mechanical retrofits (16 percent). Water conservation measures are saving 7 percent, while new windows and doors are reducing energy costs by 3 percent.

Kizer, who has introduced photovoltaic solar arrays to a number of schools active in Rebuild America and EnergySmart Schools, says he also plans to include Springfield Local School District in these efforts.

*For more information, contact Glen Kizer at [gkizer@centurysurety.com](mailto:gkizer@centurysurety.com).*

## LaGrange, NC: Staying The Course

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Some of the buildings were insured, but the Foundation couldn't get insurance on all of them, Rose says. The Foundation received a low-interest loan of \$100,000 from the Small Business Administration within 60 days of the disaster and set out to tackle the enormous task of repairing the damage. Under the guidance of Rose, who has 40 years of experience as a general contractor, the Foundation kept its focus and managed a crew to replace, repair and restore the damage in all the buildings. After months of dedicated effort, the emergency repairs were completed in April and revitalization plans for the town are now back on track.

### National Historic District

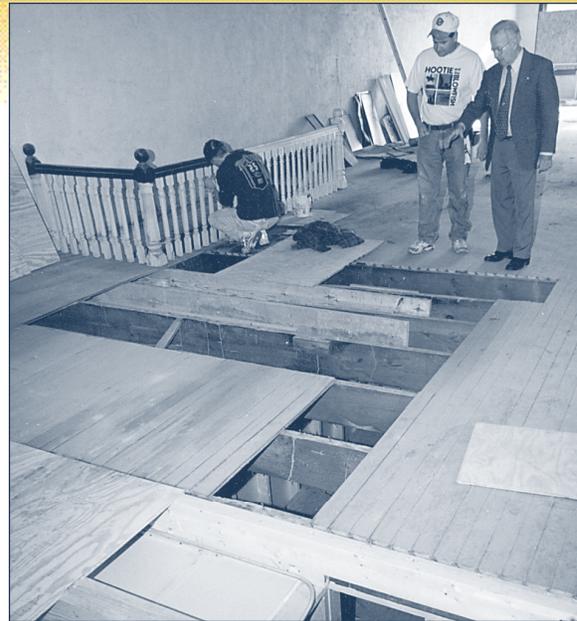
Springtime ushered in a long-awaited victory for the Foundation. Following a 3-1/2 year effort, the town now has a designated National Historic District. The historic district includes 260 buildings, comprised of 225 residences and all downtown commercial buildings. Long-range plans for LaGrange call for establishing the town as a visitor's destination with a vibrant historic and shopping district and a unique regional museum. The historic designation will give the town some exposure and help move it toward this goal, Rose notes. He is presently implementing plans for the museum.

### College Adds New Dimension

In April, Lenoir Community College opened a satellite campus in a building restored by the Foundation that features a 14-foot, tin-pressed, ornamental ceiling, and new heating, air conditioning, wiring and plumbing.

The college, which plans to eventually expand into a neighboring building owned by the Foundation, has been key to efforts to reinvent LaGrange. Rose says the college is a true community partner that is flexible and responsive to the needs of both existing and potential employers and residents. The college opened with a focus on computer training and plans to add a training program for medical and dental technicians. Plans call for offering English- and Spanish-language classes to help both employees and employers, in response to the growing number of Latinos in the county's labor pool. The college is considering offering a GED program after learning that a number of area residents wanted to complete their high school education.

To date, five of the Foundation's historic buildings have been restored and three are occupied. The buildings are equipped with programmable thermostats, sealed duct systems and heating and cooling systems that are geared to maximum efficiency, Rose says. He adds that the thermal characteristics of the 18- to 24-inch brick party walls that separate these historic buildings help retain the



Conway Rose and contractor discuss flooring.

desired heating or cooling in the buildings and negate the need for additional insulation. The Foundation is ready to begin restoration work on two more buildings.

Rose notes that the challenges to the Foundation's mission are many, but it is succeeding by tackling them one by one. One troublesome trend was the increasing number of heavy trucks that were feeding into the Main Street of LaGrange and disturbing the peaceful character of the town. Rose studied the truck traffic, taking note of the 258 companies that owned the trucks. He then sent out "softball" letters that informed the companies of the current effort to rebuild the town, noting that this plan had the backing of legislators and the North Carolina Department of Transportation. Rose gently asked if the companies could find an alternate route to travel and, as a result, most are cooperating, he says.

The North Carolina Department of Cultural Resources had previously helped boost the town's revitalization efforts, but those funds were diverted to emergency relief efforts. The Foundation has managed to raise \$500,000 to date, Rose says, and six of its 13 buildings have been paid off.

"It takes a broad and lengthy range of experiences, coupled with an iron determination, to successfully lead a total community revitalization program," Rose says. "The important thing to remember is to keep persisting. I've found that support can come from some surprising quarters — and often arrives when you need it most and when you least expect it."

*For more information, contact Conway Rose at 252-566-2400.*

## Solutions

# Commercial Code Compliance Made Easy

The U.S. Department of Energy's Office of Building Technology State and Community Programs (BTS) has created a suite of products designed to simplify compliance with building energy codes. Below, staff from BTS's Building Standards and Guidelines Program at the Pacific Northwest National Laboratory (PNNL) field questions about the codes, the benefits of compliance, and the resources available to make compliance easier.

## What is the Building Standards and Guidelines Program?

The Building Standards and Guidelines Program (BSGP) promotes the simplification and improvement of energy codes so they are more energy efficient, more widely accepted and enforced at the state level. To help states adopt and implement building energy codes, the program focuses on three areas: development of energy codes and standards (energy analysis, building design and performance data); development of computer-based training tools, software and other products to make compliance easier; and stakeholder outreach activities including providing information (via website, newsletter and hotline), training (via tutorials and workshops) and technical assistance (training, analysis and support tools).

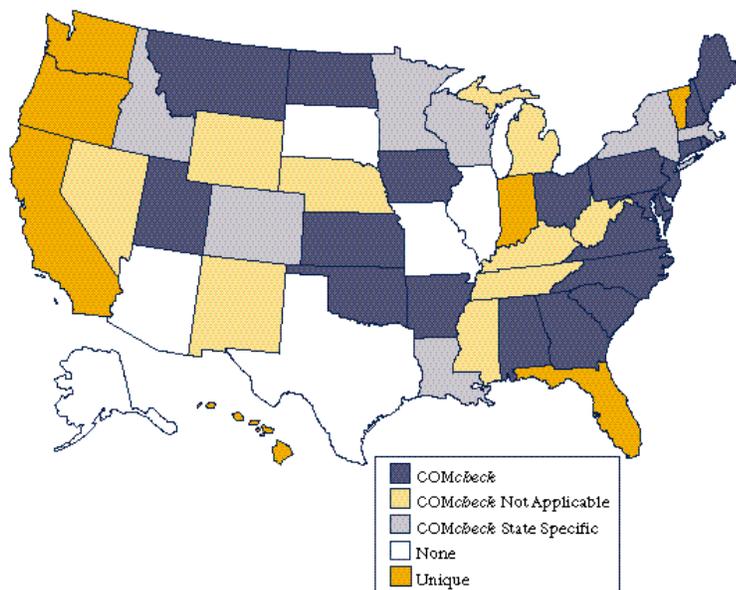
## What is the current industry standard for energy code compliance?

ASHRAE Standard 90 was modified most recently in 1999 as ASHRAE/IESNA Standard 90.1-1999 *Energy Standard for Buildings, Except Low-Rise Residential Buildings* and published in January 2000. ASHRAE's Model Energy Code (MEC) evolved into the International Energy Conservation Code (IECC). The 2000 IECC is the most recent version.

## What resources are available to help partnerships follow existing code mandates or to establish a baseline to comply with non-mandated codes?

BSGP's compliance tool, *COMcheck*, was designed to simplify and clarify commercial and high-rise residential building energy code requirements. *COMcheck* can be downloaded at no charge from [www.energycodes.org](http://www.energycodes.org). It includes printed guides, worksheets and easy-to-use software that can be used to comply with Chapter 8 of the IECC. Two versions of *COMcheck* are available to demonstrate compliance — *COMcheck-EZ* and *COMcheck-Plus*. Both provide a more flexible and simplified approach to energy code compliance than the prescriptive approach of following a manual.

## Commercial Code Compliance



## COMcheck-EZ

*COMcheck-EZ* provides an easy-to-understand method for demonstrating compliance with all commercial energy code requirements for envelope, lighting and mechanical systems. It allows simple trade offs between performance levels within the building envelope and performs simple building space-by-space lighting trade offs. For example, if a user deviates from the relatively inflexible prescriptive paths found in Chapter 8 of the IECC and uses a lower R-value insulation in the walls, that deficit can be made up in another area and the user will still be in compliance. *COMcheck-EZ* eliminates calculation tasks, other than determining square footages, and requires no specialized technical knowledge of commercial codes. When applied to simple buildings, *COMcheck-EZ* is self-contained, requiring no additional resources. It uses terminology familiar to the design, construction and enforcement communities.

## COMcheck-Plus

Developed as a complement to *COMcheck-EZ*, *COMcheck-Plus* simulates the performance of a proposed building code-compliant reference building. It makes demonstrating code compliance simpler by using a whole-building performance method. *COMcheck-Plus* allows additional flexibility for users who wish to trade off energy efficiency between the envelope, mechanical and lighting sections of the code. For example, *COMcheck-Plus* could be used to trade off the requirement for more glazing in favor of higher-efficiency cooling equipment.

The BSGP has also developed computer-based tutorials that can

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## Commercial Code Compliance

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help simplify technical and complicated codes. The program also offers “Train-the-Trainer” workshops to train state officials and others on the commercial standards and teach them how to develop their own commercial code implementation classes. A hotline is available to assist with code compliance and for ordering compliance and training tools: 800-270-CODE [2633].

### What states must adhere to the guidelines of ASHRAE IESNA Standard 90.1-1999?

While most states are required to follow set codes, some have established their own state codes that meet or exceed the standards of the 2000 IECC. The map on page 6 shows the states that mandate codes and those that allow the use of COMcheck to demonstrate compliance. In some states, COMcheck software is adopted by the state as “deemed to comply” with their state codes rather than by direct reference to the IECC. The map also shows states that have no mandates and states with codes where COMcheck is not applicable.

### How are codes determined for different regions?

Envelope requirements are determined by the 16 designated COMcheck climate zones in the U.S. Climate conditions determine the need for various requirements, so codes will vary accordingly.

### What are the benefits of code compliance in states where it is not required?

Buildings that are more energy efficient are typically more comfortable and cost less to operate and maintain than buildings with lower energy performance standards. Energy-efficient buildings use less power and help reduce environmental pollutants such as sulfur oxides and carbon dioxide. Several states that have chosen to comply with energy codes have their own success stories. Louisiana has led a voluntary effort toward compliance, having determined that energy-efficient construction is simply a good building practice that reduces health risks.

*For more information on the Building Standards and Guidelines Program, contact Jeff McCullough at [Jeff.McCullough@pnl.gov](mailto:Jeff.McCullough@pnl.gov) or visit [www.energycodes.org](http://www.energycodes.org).*

## Smart Glazings: Windows That Push The Envelope

When improving the performance of existing buildings, it pays to take a look at the role windows play as an integral part of the building envelope. Research indicates that windows can account for as much as 25 percent of energy loss in a building from heating and cooling. Over the last decade, cost-effective spectrally selective cool glazings have become widely available. They reflect most of the sun's energy in the near-infrared portion of the spectrum while transmitting most of the daylight using only one-third of the cooling load associated with conventional tinted glazing.

Industry experts say that smart glazings, under development for the past 20 years, represent the next significant advancement in window technology. Smart glazings, in effect, are windows that have a built-in, controllable shading mechanism. Electrochromic glazings are a type of smart window whose properties can be changed to respond dynamically to changing weather and occupant needs.

**Stephen Selkowitz**, who leads Lawrence Berkeley National Laboratory's Building (LBNL) Technologies Department, oversees a team that manages DOE's research into developing smart glazings that will save energy and increase comfort for building occupants.

Electrochromic coatings are structured like a three-layer sandwich that's placed between clear electrically conductive coatings.

“The glazing darkens when a small voltage is applied across the conductive coatings and lightens when it is reversed,” Selkowitz explains. “This allows control over how much light and solar heat passes through the window and presents a major opportunity for energy savings by reducing cooling loads.”

He adds that electrochromic windows can also provide privacy, improve occupant comfort, and might even enhance productivity in the workplace.

### Switchable Glazing Study

Manufacturers are developing prototypes that are performing well, according to Selkowitz. Integrating the coatings and associated wiring into a complete window system and linking these technologies to the building energy management system remains a challenge, he notes.

A recently completed LBNL study in a federal office building in Oakland, CA provided monitored performance data on the first full-scale demonstration of large-area electrochromic windows in the U.S. Selkowitz reports that the electrochromic window system tested had excellent optical clarity, no coating aberrations (holes, dark spots, etc.), uniform density of color across the entire surface during and after switching, and excellent synchronization or color matching among a group of windows during and after switching. The color spectrum of the windows ranged from a very slight yellow tint to a deep Prussian blue. When viewed from outside, the nonreflective electrochromic windows looked exactly like conventional tinted windows,

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## Briefs

**Ready for the Presidio Energy Challenge? Rebuild Presidio (CA)** will host the Presidio Energy Challenge on October 11-12. A Rebuild America partnership since 1998, the Presidio National Park in San Francisco is home to more than 400 historic facilities (See *Partner Update, March-April 2000*). Energy Challenge participants will review tenant facilities in the park and recommend building-related energy improvements. The energy team will be comprised of Rebuild America Business Partners, local businesses, preservationists and other experts. Following the site review, tenants and energy team members will discuss aggregation possibilities to enable tenants to leverage energy purchases and act as a single unit to implement energy efficiency.

Participants include representatives from the Presidio Trust, the Presidio Alliance, Rebuild America Business Partners and the Rebuild America Program Team. Others invited include San Francisco and California state officials, local business owners and other Rebuild America partnership representatives.

*For more information, contact Leanne Hoadley at 415-561-2500, x205 or by email at [leannehoadley@botmail.com](mailto:leannehoadley@botmail.com).*

**Chicago Regional Conference...**More than 50 people participated in the Chicago Regional Conference on June 28-29 at the Summit Executive Center in Chicago. The interactive meeting included presentations on partnership activities throughout the region, the EnergySmart Schools initiative and the Business Partners program. Open discussions focused on the premise that Rebuild America serves as a "community gateway" and that the program connects people, resources, ideas and practices to find energy solutions. The event provided a forum for identifying resources available to partnerships and to discuss participants' current successes and plans. Technology resources were especially prevalent, with presentations on FEDs software, the revamped

Rebuild America website, partnerships' database systems for tracking projects and other software and web-based resources available for partnerships. In other peer exchange news, **Juli Pollitt** of the Chicago Regional Office used the occasion to introduce **John Devine**, the Chicago region's new team leader.

*For more information about Chicago Region activities, contact John Devine at 312-886-8581 or by email at [john.devine@ee.doe.gov](mailto:john.devine@ee.doe.gov).*

**In 2002, Cleaner and Greener Olympic Winter Games...**Hosting the Olympics can be a costly energy endeavor. In addition to constructing a 70-acre Olympic Village, Salt Lake City will be a temporary home to 26,000 volunteers and 3,500 athletes from 40 nations. Along with meeting the energy costs of construction, transportation and lodging, energy demand in the Village will need to accommodate the 2002 Winter Games' estimated 800,000 attendees and the worldwide media.

The Cleaner and Greener Olympics program is an effort to offset the additional emissions that the city of Salt Lake City will incur while hosting the games. The program will first calculate a baseline and then estimate the increase in emissions due to the games. To mitigate the environmental impact, an "emissions trading floor" will enable states to identify contributors who will invest directly or indirectly in energy-efficiency measures and renewable energy projects and then donate their emissions credits to create offsets. Any state energy office can recruit participation from building owners, school districts or businesses in their state. All contributors will be formally recognized by the Salt Lake Organizing Committee.

*For more information, visit the Leonardo Academy's Cleaner and Greener Program website at [www.cleanerandgreener.org](http://www.cleanerandgreener.org) or contact Michael Arny at 608-280-0255.*

## Lighting Controls Make A Difference

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scores in math and reading, with scores ranging from 7-to-26 percent higher. The retail study analyzed sales performance data from 108 stores of a chain retailer. Two-thirds of the stores had skylights while one-third did not. Sales in the skylit stores were 31-to-49 percent higher on average

compared to the non-skylit stores.

Mix notes there is a need to

educate retail executives and facility managers about the benefit of lighting controls. Toward this end, The Watt Stopper is developing a design guide to address these issues for retailers and has plans for a design guide focusing on commercial office buildings.

*For more information, contact Jerry Mix at 408-988-5331 or via email at [jerry\\_mix@wattstopper.com](mailto:jerry_mix@wattstopper.com).*



In addition to saving energy, the emerging daylighting control technology may encourage increased productivity in the workplace.

## Upcoming Events

### October

**Oct. 5-7** - The Natural Step Fifth Annual Conference on Sustainability, Atlanta, GA. Visit [www.naturalstep.org](http://www.naturalstep.org) or contact Nicole Whiting at 415-561-3344.

**Oct. 19-20** - Profiting From Deregulation, Power Techniques for Power Purchasing Seminar, Dallas, TX. Visit [www.energywiz.com](http://www.energywiz.com) or call 877-NRG-GURU.

**Oct. 29-31** - 2000 NAHRO National Conference and Exhibition, Phoenix, AZ (Phoenix Civic Plaza). Contact Jill Quaid at 202-289-3500 or visit [www.nahro.org](http://www.nahro.org).

### November

**Nov. 5-7** - AGA/EEI Energy IT Conference and Exhibition, Phoenix, AZ (Phoenix Civic Plaza). Presented by American Gas Association, Edison Electric Institute and McGraw-Hill's Utilities IT magazine. Contact Dana Lupton at 203-847-9599.

**Nov. 15-17** - NAESCO 17th Annual Conference, Palm Springs, CA. (Ritz Carlton Rancho Mirage). Contact Nina Kogan Lockhart at 202-822-0952; email [nkl@dwgp.com](mailto:nkl@dwgp.com); or visit [www.naesco.org](http://www.naesco.org).

### December

**Dec. 5-9** - National League of Cities: Congress of Cities, Boston, MA (John B. Hynes Memorial Convention Center). Visit [www.nlc.org](http://www.nlc.org).

## Rebuild by "Unbuilding" Urban Areas



Steve Loken demonstrates the strength and flexibility of a fiber constructed from wood wastes.

Making the connection between "unbuilding" and "rebuilding," **Steve Loken** outlines a community-based, environmentally sound and energy-efficient philosophy that echoes that of the Rebuild America program. Loken, president of Loken Builders and director of the Center for Resourceful Building Technology, endorsed a holistic approach to urban renewal, promoting environmentally responsible practices in community planning, building design and construction during a recent lecture at the National Building Museum.

At the heart of his methodology is a belief in the significant worth of preserving the heritage, workmanship, environment and value of communities. Too many communities opt for new construction without evaluating existing buildings, materials and sites for efficiency opportunities, Loken says. He urges community leaders to seek building opportunities in older structures and in areas already developed and discourages new construction.

Loken has coined the phrase "carchitecture" to describe the car-centric focus of U.S. cities, which he says sacrifices the livability of communities and abuses urban land through continued fragmentation of ecosystems,

contamination of waterways and the inefficient use and abandonment of existing sites. Despite this, he believes cities can still realize tremendous efficiencies. Loken encourages communities and builders to "unbuild" and then rebuild urban ecosystems by incorporating efficiency practices in all phases of design and construction. A preferred strategy is to recapture windows, treated metals, wood and other materials from buildings slated for demolition.

"Garbage is not refuse, but resources," says Loken, "The pattern should be deconstruction, salvage and reuse." He offers the following tips:

#### *For planners:*

- Determine if existing structures should be historically preserved and adapted for reuse.
- Judge if site is being appropriately used.

#### *For architects:*

- Tackle energy efficiency and environmental design issues from the outset.
- Incorporate innovative design trends, such as smaller buildings, that save energy and use space more efficiently.
- Integrate daylighting techniques and other energy-efficient practices.

#### *For builders:*

- Optimize material use focusing on lightness, strength, durability and efficiency.
- Use indigenous materials, which minimizes transportation costs.
- Seek out buildings slated for demolition for materials.

And finally, Loken believes all rehabilitative construction, or any construction, should include the installation of energy-efficient equipment and systems.

*To order publications on these topics, visit the Center for Resourceful Building Technologies website at [www.montana.com/CRBT](http://www.montana.com/CRBT). For information about the National Building Museum, visit [www.nbm.org](http://www.nbm.org).*

## Henderson Manages Growing Pains

Continued from page 1

were determined to avoid an energy crisis. If Henderson's energy demands were to outpace supply, the local economy would suffer the adverse affects.

In 1998, City Council Member Amanda Cyphers urged the City to create the first local government-led Rebuild America partnership in southern Nevada. Her reasoning was solid: Nevada's annual energy costs total more than \$3 billion; if Henderson could reduce that cost by just 1 percent, it could redirect \$30 million back to the state's economy and, in turn, \$8 million back to Henderson itself. The City Council couldn't disagree with her logic.

The partnership leader responsibilities fell squarely on Fitzgerald's shoulders. He soon found that, while the municipality itself was excited by the prospect of "smart growth," the City's businesses and investors were too preoccupied with their changing roles to give time or finances to Rebuild Henderson.

At this point Rebuild America's inherent flexibility proved to be a benefit to the City. Rebuild Henderson was able to designate City departments as their partners, along with the Nevada State Energy Office and local utility Nevada Power. The partnership was betting that once the community saw the benefits of the program, they would feel compelled to join in.

"If the City can do it and we can show some of the successes that we've had, we can go to the community and show them we can save money and energy in this way," Fitzgerald says. "In time, we think that others will see the benefits."

### A Different Kind of Medicine

Amid Henderson's tremendous population explosion, many builders were concentrating on growth and the booming economy and ignoring the benefits of energy efficiency. Fitzgerald was determined to change that mindset.

His responsibilities include securing financing for housing and community development projects; therefore, he was initially discouraged by the program's lack of available funding. However, he soon realized the effectiveness of Rebuild America through his use of the technical assistance and peer exchange capabilities to educate the municipality and local architects, builders and construction companies working with Henderson.

"What I initially perceived as a weakness really turned out to be the greatest asset of the program," he says. "(This program) gives partners the ability to identify energy inefficient systems, share resources and establish solutions, making our city a leader in energy efficiency."

One of the first projects Fitzgerald undertook was an upgrade of the City's wastewater treatment plant. While plant management had already taken steps to reduce energy consumption, Rebuild America served as a gateway to further educate the

southern Nevada region. Fitzgerald scheduled a Motor Challenge Seminar, presented by the Department of Energy's (DOE) Office of Industrial Technologies, at the plant and invited officials from Las Vegas and other neighboring municipalities. Besides consultation with DOE labs, the City was able to take advantage of pressure line and pumping system upgrades that accounted for the lion's share of the \$400,000 in savings and 7 percent reduction in energy use.

As another testament to Rebuild America's flexibility, Rebuild Henderson has lent its energy-efficiency expertise to support new construction projects. Fitzgerald facilitates Henderson's use of energy-efficient technologies by sharing information from the Rebuild America network with the City's construction management department. Additionally, Rebuild Henderson garnered strong support from Nevada Power and DOE national labs, which helped to ensure new buildings employed current energy-saving techniques, including efficient lighting, heating and cooling systems.

To date, the City has completed several projects including two recreation centers, a fire station and the Henderson Police Department's Green Valley substation. Once the city completes the new addition to City Hall, which is actually larger than the existing structure, it plans to begin its first retrofit — the original City Hall.

After seeing the results, the local housing authority has expressed a renewed interest in joining the partnership. *The Las Vegas Review-Journal* and the July 2000 edition of *American City and County* magazine have chronicled the wise management of the City's resources and programs. Skeet Fitzgerald and Rebuild Henderson are certifiable assets in helping the City reach its goals of saving 15 percent to 20 percent in energy costs each year.

*For more information about Rebuild Henderson, contact Skeet Fitzgerald at [bef@gty.ci.henderson.nv.us](mailto:bef@gty.ci.henderson.nv.us)*

### View from DC

Continued from page 2

design and build or renovate schools that are energy smart. The architectural firms of Innovative Design and Eley Associates, both of which have considerable experience in sustainable school design, are helping to develop draft guidelines based on input from roundtable participants. The draft guidelines are expected to be ready for review this fall.

DOE Assistant Secretary **Dan Reicher** announced the EnergySmart challenge to participants of the eastern roundtable held on August 3: That following the release of the guidelines, 5 percent of all schools will be designed as fully compliant, sustainable EnergySmart schools.

## Smart Glazings: Windows That Push The Envelope

Continued from page 7

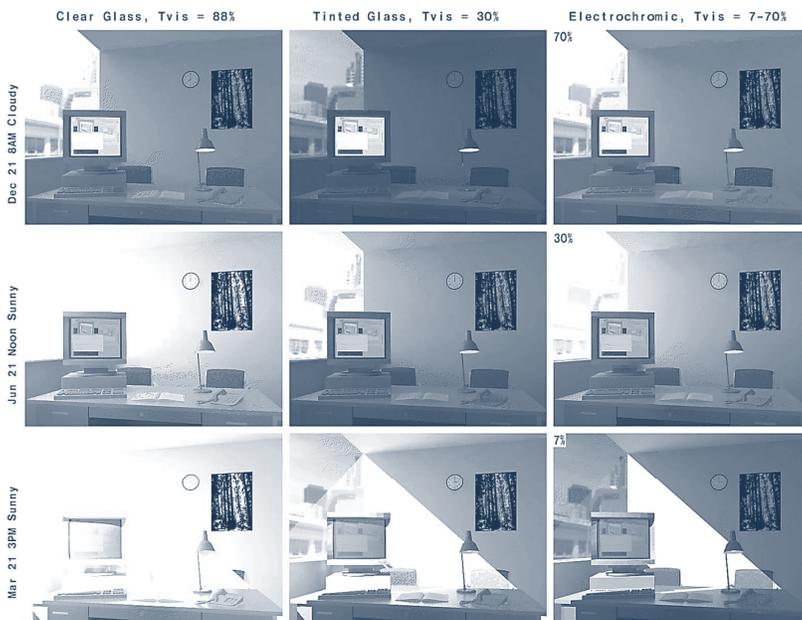
except that tint could be altered.

Glazing properties were controlled by sensors and integrated with a dimmable electric lighting system to properly light the work space and control direct sun intensity. Results suggest that compared to more conventional glazing, the electrochromic window reduced the need for artificial lighting and could be dynamically managed to greatly improve the visual environment for performing computer tasks.

“As was the case with low-E coatings, it will take time to build confidence in smart glazing technology, to solve the systems integration issues, and to reduce costs to the end users,” Selkowitz notes.

Decision makers will need reliable product data that accurately and fairly describes the properties of new technologies such as smart glazings. Manufacturers and organizations such as the National Fenestration Rating Council (NFRC), which administers a voluntary, uniform rating and labeling system for the energy performance of windows, doors and skylights, may well have an expanded role to play as the fenestration industry becomes cognizant of the need to provide customers with reliable performance information about window products as an integral part of the building system.

*Primary support for LBNL's windows research is provided by DOE. For more information about LBNL's smart windows projects and to download papers and tools, visit <http://windows.lbl.gov>. Information on rating and labeling windows is posted on the NFRC website: [www.nfrc.org](http://www.nfrc.org).*



Electrochromic windows, shown in far right column, adapt to changing environmental conditions by controlling the amount of natural light that enters a room. This smart glazing performed consistently better than static clear (far left) and tinted glazings (center) during testing.



Daniel Sze works with Rebuild America at DOE headquarters.

**Vital Statistics:** Lives in energy-progressive Falls Church, VA with Swedish wife, Elisabeth, who became a U.S. citizen this year, and Rhoemer, a mixed Chow and

Belgian long-haired shepherd. Four adult children visit often: Sara, 28; Anna, 24; Andrea, 20; and Daniel Richard, 18.

**Current Role with Rebuild America:** If you think of Mark Bailey as CEO of Rebuild America, then I'd be the COO – chief operating officer.

**How you became involved with Rebuild America:** When I was with DOE's Office of Field Management, where I worked in project management, policy and oversight for seven years, I asked to serve as a special advisor to EnergySmart Schools. My wish was granted. I later came on board with the program and am continuing my involvement with EnergySmart Schools.

**Special skills or experience you bring to the program:** I'm a registered architect with program integration and program management experience — a background that may serve the program well as it grows in new directions.

**The greatest challenge you see for Rebuild America:** To take thoughtful, carefully planned steps to position Rebuild America as a gateway for strategically deploying DOE resources to communities pursuing energy efficiency and renewable energy technologies.

**What you like to do in your spare time:** Help neighbors with home improvement projects.

**Something you haven't tried but think you might be good at:** Skydiving.

**What books and movies do you like?** Good science fiction that offers a plausible, logical system of alternate reality.

**Where you'd live, if you could live anywhere in the world:** I would spend winter in the Canary Islands and summer in a place that wasn't too hot. I'm open for suggestions on where.

**Total Number of Partnerships..... 289**

**Total Square Feet Committed For Retrofit..... 479 million sq. ft.**

**Number of States and Territories with Partnerships..... 51**

*Lighting retrofits installed in schools comprising over a half million square feet spelled big energy savings for the Springfield Local School District near Akron, OH. School district Maintenance Supervisor Michael Smith is pictured at right. See story p. 4.*



## Share Your Success

To submit news or story ideas, contact:

- Elise G. Rand, 202-466-7391, or email [erand@pcgpr.com](mailto:erand@pcgpr.com)
- Anita Denning, 301-588-9387, or email [adenning@drintl.com](mailto:adenning@drintl.com)

To be placed on the mailing list for *Rebuild America Partner Update*, e-mail [rebuildamerica@drintl.com](mailto:rebuildamerica@drintl.com).

## Rebuild America Welcomes 3 New Partnerships

Canyon County Commission, Caldwell, ID

City of East Palo Alto, CA

City of Nampa, ID



**Rebuild America**

Rebuild America is a network of community partnerships – made up of local governments and businesses – that save money by saving energy. These voluntary partnerships, working with the U.S. Department of Energy, choose the best ways to improve the energy efficiency of commercial, government and apartment buildings. Rebuild America supports them with business and technical tools and customized assistance.

By the year 2003, Rebuild America partnerships will be involved in over 2 billion square feet of building renovations, which will save \$650 million every year in energy costs, generate \$3 billion in private community investment, create 26,000 new private sector jobs, and reduce air pollution by 1.6 million tons of carbon dioxide a year.

Rebuild America  
Office of Building Technology,  
State and Community Programs  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-0121

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