More opportunities

The stage is set for great advances in energy-efficient buildings

by Jared O. Blum

The 111th Congress met for the first time Jan. 6 followed by the historic inauguration of President Barack Obama Jan. 20. These momentous and celebratory occasions long will be remembered as will the steps these leaders take to quickly address the huge economic and energy crises facing the U.S. Be it part of a stimulus package or new energy legislation, those of us in the roofing industry should be prepared for building codes and federal directives that encourage more energy-efficient, sustainable buildings that lead to the creation of not just additional employment but "green" jobs, as well.

Because every good historian knows the past is prologue, understanding the recent developments in building energy codes and energy-efficiency tax incentives that occurred during 2008 will assist us in understanding how to fully take advantage of the policies that will be adopted during the months ahead.

ASHRAE 90.1-2007

For the first time in 19 years, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Inc. increased the minimum required prescriptive R-value for roof and wall insulation levels in ASHRAE 90.1, "Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings," the national model energy standard for commercial buildings. The above-deck roof insulation requirement that was R-15 has been raised to R-20—an increase of 33 percent—in climate zones 2 through 8 in the U.S. Similar increases were approved for walls. The increased roof and wall insulation values now apply to all commercial and high-rise residential buildings covered by ASHRAE 90.1-2007.

In a sense, ASHRAE leadership recognized the insulation levels required in the previous standards no longer were the benchmark as many architects, specifiers, building owners and roofing contractors were designing, requesting and installing insulation at levels that exceeded these values. Even the recently adopted 2007 values will likely give way to higher values in 2010 as the significant economic and environmental benefits that can be achieved by increasing thermal performance become more fully appreciated.

ASHRAE leadership has realized that to maintain the organization's role as the national standard setter for building performance, it must act quickly and responsively to the need for high thermal performance standards. To do otherwise would call into question ASHRAE's continued relevance to the nation's efficiency efforts.

ASHRAE 189P

During the same time the new ASHRAE 90.1-2007 code minimums were being established, ASHRAE also began work on a proposed standard intended to address the growing marketplace demand for green buildings: ASHRAE 189P, "Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings."

Working with the U.S. Green Building Council (USGBC), Illuminating Engineering Society of North America and others, ASHRAE began drafting the proposed standard. The proposed standard reiterates many other green building programs emerging in the marketplace, requiring higher levels of building energy efficiency than the minimum required in ASHRAE 90.1.

In addition, ASHRAE 189P will be accredited by the American National Standards Institute and eventually may be incorporated into building codes. It is intended that the standard will eventually become a prerequisite under USGBC's Leadership in Energy and Environmental Design (LEED®) Green Building Rating System.™

Similar to LEED, ENERGY STAR® and other green marketing programs for buildings, ASHRAE 189P seeks to establish new minimum requirements that deliver superior energy efficiency as a starting point for any building for which sustainability is a design objective. The question of how much better (such as 30 percent, 40 percent or 50 percent more efficient, etc.) will address philosophical goals and practical considerations of available technologies, better use of existing materials and systems, current broad marketplace acceptance and achievability.

Integral to all these objectives is the recognition that all energy efficiency starts with the building envelope. This is magnified by the recognition that a building's life span may be 50, 75 or 100 years or more, making a durable, efficient building envelope even more important. Because the original committee overseeing this project is being reconstituted, it is unclear when ASHRAE 189P will be completed.

Energy Policy Act

The Energy Policy Act of 2005 incorporates key provisions regarding energy-efficient commercial and residential buildings. The legislation provides tax deductions for commercial construction that exceed the minimum energy-efficient construction standards required by ASHRAE 90.1-1999, as well as tax credits for highly energy-efficient residential construction.

On the commercial side, the act offers a tax deduction to building owners who make building improvements that reduce energy and power costs by 50 percent more than what is required in ASHRAE 90.1-2001. Although this level of performance is a significant improvement, current insulation, HVAC and lighting technologies can meet these criteria.

Specifically, the tax deduction is equal to the cost of energy-efficient improvements installed in a building up to a maximum limit of $1.80 per square foot. To qualify, the energy-efficient commercial building improvements must be installed as part of one or more of the following building systems: interior lighting; HVAC; hot water; and the building envelope, which includes roof insulation.

On the residential side, there is a $2,000 tax credit for site-built homes that are certified to have a level of annual heating and cooling energy consumption that is at least 50 percent less than that of a comparable home constructed in accordance with the *2003 International Energy Conservation Code*. Manufactured homes are eligible for the $2,000 credit in the case of a 50 percent efficiency improvement and $1,000 credit for either a 30 percent improvement or compliance with ENERGY STAR criteria for manufactured homes.

For the roofing community, this legislation certainly was a strong incentive for high thermal performance in new buildings but was not as useful in retrofit applications because of Internal Revenue Service (IRS) regulations that were adopted pursuant to

the act. NRCA and the Polyisocyanurate Insulation Manufacturers Association (PIMA) requested the IRS modify these regulations to make it more likely federal tax incentives may be available in certain roof system retrofit situations.

This important tax incentive plan was to expire in 2008. However, on Oct. 3, 2008, former President Bush signed the congressionally approved landmark financial rescue plan that contained, among other things, the extension of renewable and energy-efficiency tax incentives for commercial buildings for five years.

The inclusion of the tax incentives came as the result of exhaustive efforts by efficiency and renewable energy advocates during the past year to convince Congress these federal programs are essential to the U.S.'s long-term energy security. The enactment of these tax extensions places roofing contractors in the key role of recognizing the potential economic benefits of high-performance buildings.

Economic opportunities

Although it is difficult to imagine there are economic opportunities during these uncertain times, recognizing the role of building efficiency in a multitude of forums creates such opportunities. Energy efficiency is the keystone to the growing desire for sustainability in the building sector and as such adds fuel to the increased efficiency demand.

New reports by McKinsey Global Institute and the United Nations Foundation and strong commitments by the Obama administration re-emphasize that efficiency is the existing strategy that charts an affordable mitigation of global warming. This creates new opportunities for the roofing industry.

Building owners already have begun to see the value of superior energy efficiency and the marketing power of sustainable projects. The Building Owners and Managers Association International has widely marketed its internal analyses of the value of increased energy efficiency—showing increased property values, ability to secure higher rental values, higher market resale values and increased tenant desirability.

Many architects are trying to reposition their practices to focus on sustainability. As such, the insulation values shown in ASHRAE 189P will be a new starting point—an even higher energy-efficiency bar to meet when seeking to demonstrate truly sustainable projects.

The American Institute of Architects has been promoting its carbon-neutral goal for 2030. To achieve this goal, buildings must deliver dramatically higher levels of energy efficiency with ASHRAE 189P as a starting place.

As the demand for more energy-efficient projects increases, energy performance becomes an expectation rather than an option. During 2007 and 2008, there was an increased demand for home energy ratings in real estate transactions. Commercial property owners are being asked by prospective tenants for ENERGY STAR and other energy performance certifications. Indeed, California now requires these disclosures.

The energy-efficiency and roofing industries recognize these energy improvements are capital investments—permanent improvements to infrastructure. However, we need to educate our customers that while energy costs rise, these investments will act to dampen the rate of increase in long-term operations and maintenance costs and are the key to sustainability and long-term performance.

PIMA's proposal

As an incentive to increase employment and energy savings in the commercial roofing sector, PIMA, NRCA, the Center for Environmental Innovation in Roofing, Business Council for Sustainable Energy and a broad coalition of other organizations have proposed to the Obama administration a 50 percent bonus depreciation effective during 2009 for energy-efficient roof system replacements installed on existing commercial buildings and high-rise residential rental buildings (those taller than three stories).

Such a depreciation would permit a building owner to deduct 50 percent of the adjusted basis of a qualified roof property placed in service during 2009. The proposal could be added to the bonus depreciation that was enacted in February 2008 as part of the Economic Stimulus Act of 2008 or enacted on its own.

Because commercial roof systems are not covered by the existing bonus depreciation, including energy-efficient roof system replacements would provide a significant incentive for building owners to initiate such replacements during the economic downturn instead of waiting. A qualified roof system replacement would be defined to require minimum roof R-values similar to those listed by ASHRAE 189P for green buildings, which, on average, are 76 percent more stringent than the R-values currently required by state and local codes.

This initiative combined with the already existing federal tax incentive for photovoltaic systems on commercial buildings places roofing contractors at the forefront of meeting the carbon-emission reductions envisioned by most governments in the coming years.

An opportune time

Charles Dickens begins *A Tale of Two Cities* with the famous line: "It was the best of times; it was the worst of times." This could aptly describe the present economic climate. However, visionary contractors will see this new era as an opportunity to benefit from the newly vital role of highly energy-efficient roof systems in the 21st century.

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