

Improving Building Energy Codes *Will 2010 Be a Landmark Year for Energy Efficiency?*

We Are Closer Than Ever to 30% Boosts in Model Code Energy Efficiency

This October, the International Code Council will complete action on its 2012 IECC (International Energy Conservation Code). Both the US Conference of Mayors and the National Association of State Energy Officials have endorsed “The 30% Solution 2012,” a comprehensive proposal authored by the broad-based Energy Efficient Codes Coalition which would boost energy savings of the 2012 IECC by more than 30% beyond its 2006 counterpart.

The American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE) will release its new 2010 model energy standards for commercial buildings this year, and is working to achieve 30 percent energy savings. The IECC may also include a comprehensive commercial building proposal that could surpass ASHRAE’s savings.

ENERGY EFFICIENCY BENEFITS

Efficient buildings can improve energy security, reduce stress on the power grid and on natural gas supplies, improve local air quality, address global warming, and save homeowners money. A report by the McKinsey Global Institute found that America could reduce energy use in new and existing buildings by more than one quarter by 2020 with measures that pay for themselves within ten years.

Clearly, by the end of 2010, we may see a dramatic shift in favor of building energy efficiency.

Legislation Moving Through Congress Will Set National Energy Saving Targets for Building Codes

Buildings consume over 40 percent of all energy and over 70 percent of all electricity used in the United States, and are responsible for about 40 percent of US carbon dioxide emissions. Knowing that it cannot hope to adopt sound national energy policy without addressing the largest energy consuming sector, Congress for decades has tried to encourage states and localities to adopt and enforce progressively stronger energy codes for new homes and commercial buildings. Among those statutes and legislative efforts are:

- The **1992 Energy Policy Act** directs states to consider the model residential energy code (IECC) and to adopt the model commercial energy code (ASHRAE Standard) or equivalent, with updates.
- The **American Recovery and Reinvestment Act of 2009** required states to commit to adopting and improving compliance with the 2007 ASHRAE Standard and the 2009 IECC as a condition for receiving their share of \$3.2 billion in State Energy Program grants.
- Legislation that in different forms has passed the House of Representatives (**HR 2454, American Clean Energy and Security Act**) and the Senate Energy & Natural Resources Committee (**S. 1462, American Clean Energy Leadership Act**), and been introduced by Sen. Richard Lugar (**S. 3464, Practical Energy and Climate Plan**), would **spur major building efficiency improvements by setting national performance targets of first 30% and later 50% savings** for both residential and commercial codes, and setting targets for state code adoption and building compliance.
- The legislation also would greatly increase financial and technical assistance to the states and local governments, with an emphasis on codes implementation, and to the national model code-setting bodies.

Why Improve Building Energy Codes?

Building energy codes are the foundation of energy policy for the buildings sector for several reasons:

- Building energy codes overcome market barriers that stem investment in buildings energy efficiency. For example, builders have little incentive to invest in energy efficiency since they pay the up-front costs but not the building's energy bills, and buyers cannot easily predict how efficient a new building will be.
- Building energy codes save consumers money. While there may be a modest initial cost for energy efficiency improvements, once that cost is rolled into the mortgage, it will be more than paid back through lower energy bills. Because the total monthly cost to the homeowner—mortgage payments plus utility bills—is lower, energy efficiency makes homes more affordable.
- Building energy codes create the foundation for “beyond-code” high-performance energy-efficient buildings. Codes improve the majority of buildings, which are built to code, and move up the baseline for the highest performance buildings, which are spurred by market-driven, above-code activities like Energy Star New Homes and utility programs.

Because buildings last for decades, they can lock in energy waste or energy savings for a long time. The cheapest and easiest time to achieve savings is during construction or renovation. Building energy codes are essential to making this happen in all buildings. Efficiency advances are readily available, and their energy savings usually generate positive cash flow exceeding their initial cost.

If model building energy codes are strengthened by 30% starting now and by 50% starting in 2016—and if all states implement the codes—the impact will be considerable. **In 2030 our nation could save 7% of its total energy use in buildings (3 quadrillion Btus), save consumers \$25 billion a year, and reduce greenhouse gas emissions equal to taking 40 million cars off the road (200 million tons of carbon dioxide).** Even without further code improvements, cumulative savings through 2050 would reach more than 100 quads of energy and 6 billion tons of carbon dioxide.

The Process for Advanced Building Energy Codes

Building energy codes currently are set through a complicated process that is only beginning to address the national need to reduce growth in energy demand:

- *National model codes* are updated every three years by two independent professional organizations, the IECC issued by the International Code Council for homes, and ASHRAE Standard 90.1 for commercial buildings. Both these codes vary by eight climate regions.
- The Department of Energy (DOE) provides technical assistance and is required to make a *determination* within one year on whether the amended model code saves energy compared to the previous version.
- *States (and some local governments)* adopt the actual building energy codes based on the national models. States are required to adopt a commercial energy code at least as stringent as the national model within two years of DOE's determination. For residential codes, states are required to look at updates to the national model and either adopt them or explain why they chose not to.
- *Local governments (and sometimes states)* enforce the codes, but funding is insufficient, and even with good codes compliance is spotty.

Summary

- New building energy efficiency must be a key part of any successful national energy policy because homes and commercial buildings are the largest source of energy use, a new building may last 30-50 years or more, and improving efficiency at time of construction is the most cost effective option available.
- Legislation before Congress is not intended to federalize building codes—it is carefully designed to leave states and local governments in charge of setting their own building codes and to leave independent code-setting organizations primary responsibility for the national model energy codes.

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