

# Commercial Building Codes for a Changing Environment

## The simple facts are:

1. Buildings consume about **two-thirds of the U.S. power supply**
2. Buildings account for about **40% of carbon emissions.**
3. Without significant energy use reductions from buildings that are designed and constructed to better energy codes, many **carbon reduction goals are unachievable.**
4. There is a feasible and practical model energy code for commercial buildings that would **improve energy performance by up to 30%.\***

Advanced energy codes are a critical step to achieving better energy performance in commercial buildings. Not only will they produce buildings that use less energy and emit less carbon, they offer a healthier, more productive built environment.

New Buildings Institute (NBI) and the American Institute of Architects (AIA) are working with cities and states, as well as the International Code Council (ICC), on adoption of advanced energy codes. Our proposals are based on the Core Energy Code, a codified version of NBI's Core Performance protocol. Core Performance is a nationally recognized,

prescriptive design path that helps architects and others create buildings that are 25 to 30% more energy efficient than current model energy codes.

While the energy savings represents a significant increase from current standards, the protocol to achieve the savings is **practical, achievable and affordable** (for more information on the measures, see section later on "How Does the Core Energy Code Work?"). What's more, savings offered by Core Energy Code should meet the near-term goals of the Architecture 2030 Challenge and federal legislation pending before Congress.

*\*compared to the widely accepted baseline of ASHRAE 90.1-2004.*

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## Services Offered to Jurisdictions

Advanced energy codes are essential for local and state jurisdictions working to achieve their carbon reduction goals. The Commonwealth of Massachusetts was the first to adopt a version of the Core Energy Code as their local-option “stretch” code. Several cities have also referenced the standard. New Buildings Institute offers the following resources and support to local code-development agencies and groups:

- **CODE-READY LANGUAGE FOR ALL US CLIMATE ZONES.**  
A complete strikethrough version of Chapter 5 of the International Energy Conservation Code (IECC) that saves between 15% and 25% over ASHRAE 90.1-2004. NBI staff and expert consultants are available to support the code development process.

- **CORE PERFORMANCE GUIDE.** The guide describes NBI’s prescriptive path to achieving energy savings that closely parallels the optional energy-saving version of the IECC. Retail price is \$95.
- **CODE TRAINING AND IMPLEMENTATION SUPPORT.** NBI is working with regional partners to develop and offer training and implementation materials.
- **MODELED PROTOTYPE ENERGY/DEMAND/GAS SAVINGS AND GREENHOUSE GAS SAVINGS OF OPTIONAL IECC CHAPTER 5 FOR ALL CLIMATE ZONES.** Available at [newbuildings.org/codes.htm](http://newbuildings.org/codes.htm).
- **PROTOTYPE ENERGY SAVINGS MODELING FOR CUSTOM CODE PROPOSALS.** On a fee basis.

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## Revising Chapter 5 of the International Energy Conservation Code

New Buildings Institute (NBI), the American Institute of Architects (AIA) and the U.S. Department of Energy (DOE) have proposed comprehensive changes to the International Energy Conservation Code (IECC) that would improve efficiency of new commercial buildings by up to 30% beyond what today’s standard require. The IECC is updated every three years with the next iteration to be effective in 2012.

The proposal, EC147, passed its first hurdle in October when it was approved on a 6-5 vote at the IECC Code Development Hearings in Baltimore, Maryland. In addition, two other NBI-AIA proposals were adopted during the hearings: one addressing the IECC’s current opaque envelope table and another on the fenestration table.

The proposals, which codify much of the Core Performance protocol and several addenda to ASHRAE 90.1-2007, would represent **the largest efficiency increase in the history of the IECC.** If adopted, the standard should meet the near-term goals

of the 2030 Challenge and federal legislation pending before Congress.

These three proposals will be heard for final adoption at the ICC Final Action Hearings in October 2010. NBI and AIA, along with DOE, are working to ensure a successful public comment period (through June 2010), addressing concerns from all interested stakeholders in preparation for acceptance by the full ICC voting membership.

For more information on the proposals to the IECC, visit [www.newbuildings.org/codes.htm](http://www.newbuildings.org/codes.htm). For details on the commenting process, visit: [www.newbuildings.org/iecc.htm](http://www.newbuildings.org/iecc.htm).

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## How Does the Core Energy Code Work?

### MEASURES AND STRATEGIES

The specification and design strategies included in the Core Energy Code are used across the country and employ widely available equipment and products. The code builds from an integrated approach to designing energy-efficient buildings. It matches reduced energy consuming equipment and lighting fixtures to an efficient envelope design.

This permits reduced expense for cooling and heating equipment, plus the ability to utilize natural daylight and ventilation in the operation of the building.

### BUILDING ENVELOPE

The Core Energy Code incorporates insulation standards that are used in utility programs or have been adopted into recent national model codes. The windows and doors are specified to provide good insulation value while also keeping out excess heat that increases air-conditioning costs.

### HEATING AND COOLING

The Core Energy Code provides for improved design of air distribution systems and increased efficiency levels in heating and cooling equipment.

### LIGHTING

Good design specifies high-efficiency lighting fixtures ballasts and bulbs smartly placed in work and retail areas.

The Core Energy Code ensures that quality lighting is delivered with minimum energy use and cost in all types of commercial buildings.

### RENEWABLE POWER AND QUALITY ASSURANCE

The Core Energy Code offers options for using renewable power to meet part of the energy savings objective. In addition, in order to assure that buildings do save energy as they were designed, it specifies testing or commissioning processes for key building systems.

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## Contact

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