

**ENERGY EFFICIENCY AND SUSTAINABLE ENERGY BOARD**

RSA 125-O:5-a  
21 South Fruit Street, Suite 10  
Concord, N.H. 03301-2429

February 13, 2018

DRAFT Policy Statement on Current Energy Codes for Building Construction

**Appendix 1 - Related Recommendations in the 2009 NH Climate Action Plan<sup>1</sup>**

► *Maximize Efficiency in New Construction (RCI Action 1.1)*

Develop a program to maximize energy efficiency and minimize net CO<sub>2</sub> output in new residential, commercial, institutional, and industrial building construction with a phased-in goal for new buildings to use produce as much energy as they consume. New construction should incorporate state-of-the art energy efficiency and renewable energy systems into the design of the building envelope, operating systems (*e.g.*, heating, ventilating, and air conditioning (HVAC)), and energy consuming appliances and devices. This action could be developed in conjunction with national level Architecture 2030 initiative, which targets similar energy use goals for new buildings.

Overall Implementation:

- Develop probable legislation for building codes, zoning regulations, and possible tax code incentives.
- Develop program details, create financial incentives, and begin state outreach and education.
- Develop sustainable funding mechanisms.

Timeframe:

- Implementation can begin immediately.
- Scaling up will continue into the future.

► *Maximize Energy Efficiency in Existing Residential Buildings (RCI Action 1.2)*

Develop a program to retrofit existing New Hampshire housing stock to minimize or eliminate net CO<sub>2</sub> output, and further, to ensure that current and future investments minimize embedded CO<sub>2</sub> output with a phased-in goal to retrofit 30,000 homes annually in order to reduce their net energy consumption by 60%. Program elements should include: 1) building shell and window upgrades, including instrumented air sealing and thermographic inspections; 2) space conditioning equipment upgrades/replacements, including ductwork and duct sealing; 3) domestic hot water system upgrades; 4) ENERGY STAR lighting upgrades/replacements; 5) water saving measures; 6) ENERGY STAR appliances upgrades/replacements; and 7) use of renewable energy systems.

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<sup>1</sup> CCPTF (2009). NH Climate Action Plan, Chapter 5: Summary of Actions and Implementation.  
[https://www.des.nh.gov/organization/divisions/air/tsb/tps/climate/action\\_plan/documents/nhcap\\_ch5.pdf](https://www.des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan/documents/nhcap_ch5.pdf).

Overall Implementation:

- Develop program details, create financial incentives, and begin state outreach and education.
- Develop sustainable funding mechanisms.

The cost effectiveness of the codes is confirmed by an independent analysis of the IECC conducted by the US Department of Energy's Pacific Northwest National Lab (PNNL). The PNNL found a significant life-cycle savings in energy costs during a comparison of the 2009 and 2015 code. Their analysis estimated that, for a home in Climate Zone 5 and 6, a homeowner could expect to save approximately \$7,700 to \$11,200 respectively over a thirty-year period. The simple payback on the upfront investments would occur in four to five years<sup>2</sup>. Many of the energy-efficiency measures will continue to save money and provide additional comfort beyond this time frame.

► *Upgrade Building Energy Codes (RCI Action 1.4a)*

Update New Hampshire's building energy code to require improved energy efficiency in new construction and building renovations. Building energy codes represent one of the more cost-effective ways to reduce energy use and related carbon emissions. The state should participate in the International Energy Conservation Code® (IECC) update process, either on its own or by providing input through other regional partners that do participate, such as Northeast Energy Efficiency Partnerships (NEEP). There is considerable evidence that if New Hampshire is to achieve deeper greenhouse gas emission reductions, the state's building energy code should be more stringent than the current IECC. In addition to updating its mandatory building energy code, the state could define a preferred "stretch code" that sets even higher, but voluntary, "green" building energy performance standards to advance the state's policy objectives.

Overall Implementation:

- Adopt latest revision to IECC.
- Begin consideration of higher performance standards in the near term for either mandatory or "stretch" codes to support RCI Actions 1.1 – 1.3.
- Legislation likely needed to enact these measures.

Timeframe:

- The latest revision to the IECC may be available for adoption in January 2009.
- The code development community appears to have adopted a three-year cycle as reasonable for code updates.

► *Increase Building Energy Code Compliance (RCI Action 1.4b)*

Consider mechanisms that would result in stricter enforcement of energy codes. Building energy codes – either mandatory or voluntary – are among the more cost-effective ways to reduce energy use and related carbon emissions. Mandatory energy codes can be used to set minimum requirements for energy use in both new construction and major building renovations. However,

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<sup>2</sup> US DOE (2015). *National Cost-Effectiveness of the Residential Provisions of the 2015 IECC*, Pacific Northwest National Labs, [https://www.energycodes.gov/sites/default/files/documents/2015IECC\\_CE\\_Residential.pdf](https://www.energycodes.gov/sites/default/files/documents/2015IECC_CE_Residential.pdf)

## Draft For Discussion Purposes Only

any effort to capture savings from mandatory energy codes is only as good as compliance with the codes. Consideration should be given to creating a system to promote stricter enforcement of the state's building energy code to ensure compliance in all affected structures, including those in rural communities where resources are often lacking. Such programming could include required third party certification, the fee for which could be included as a cost of construction. The state should consider a formal certification process for inspectors beyond the current voluntary process offered through the International Code Council (ICC).

### Overall Implementation:

- Evaluate current barriers to effective enforcement of building energy code; begin state outreach to municipalities to improve code compliance rates.
- Legislation likely needed to require mandatory training and certification of all municipal building inspectors on the state building energy code.
- Consider revenue sources to support the inspector certification program and local enforcement of the state's energy code.

### Timeframe:

- Initiatives to enhance energy code compliance can begin immediately.

### ► *Establish an Energy Properties Section in Real Estate Property Listings (RCI Action 1.5)*

Establish an energy section in the Multiple Listing Service (MLS) real estate listings. This measure would create a specific, defined set of energy-related criteria/ratings for properties presented in the MLS listings. The concept behind an MLS energy section is to reinforce the fact that energy is a major factor in home buying and to provide the consumer with a means for comparing energy usage between homes. Presumably, properties that are energy-efficient would be favored, and market pricing would reflect this advantage.

### Overall Implementation:

- Adopt a building energy rating standards.
- Design and implement an energy section for MLS listings of New Hampshire properties.
- Perform outreach to build awareness of this new feature available to buyers and sellers.

### Timeframe:

- Design and implementation of an energy section for MLS listings can begin immediately.

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**Appendix 2 - Related Recommendations in the 2014 New Hampshire State Energy Strategy<sup>3</sup>**

**4.7 BUILDING CODES AND LABELING**

**Beyond Code**

The IECC should be considered a minimum level of efficiency, and builders should be encouraged to go beyond its requirements to maximize energy savings. For example, Rhode Island requires that every new residential building undergo performance testing, and Massachusetts has developed a “stretch” code to incentivize building to an even higher standard. These efforts require a strong focus at the state level and support for local communities, factors that are currently lacking in New Hampshire. The State should examine ways to leverage efforts underway in other states, and build upon the Collaborative.

Energy codes are an important piece of the full suite of building codes, and they help to ensure that buildings are constructed in a safe and energy efficient manner. Buildings that are built to or above code are more comfortable, durable, and affordable to operate. The State Building Code Review Board, which is administratively attached to the Department of Safety, is charged with reviewing and proposing building code amendments to the Legislature.<sup>4</sup> The State Building Energy Code for residential and commercial buildings is based on the International Energy Conservation Code (IECC),<sup>5</sup> which is revised every three years. The 2009 IECC is currently in effect in New Hampshire, and the 2015 code is currently under review by the State Building Code Review Board. While some have expressed concern that continual updating can make it difficult for builders and inspectors to know what’s current, there is good reason for the 3-year revision cycle. Building technologies can change rapidly, and each new version of the code seeks to recognize those changes, allowing builders to take advantage of better technologies. The codes are increasingly moving to performance-based, rather than prescriptive, standards

that give builders more flexibility to maximize efficiency in the way that makes the most sense for each individual building. It is important that the State update the energy code on a regular basis to ensure that energy saving measures are incorporated in both new construction and in renovation projects. Every building that is constructed in an inefficient manner is a lost opportunity to keep

<sup>3</sup> SEAC (2014). 2014 New Hampshire State Energy Strategy, State Energy Advisory Council, <https://www.nh.gov/osi/energy/programs/documents/energy-strategy.pdf>

<sup>4</sup> <http://www.nh.gov/safety/boardsandcommissions/blgcode/index.html>

<sup>5</sup> <http://www.iccsafe.org/AboutICC/Pages/default.aspx>.

more of our energy dollars in state, and retrofitting a building later costs more than building it efficiently from the start.

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**Recommendation 9 - CONTINUALLY ADOPT THE NEWEST BUILDING CODES**

Summary and Rationale: Energy codes are important to ensuring that new buildings (and major retrofits) are constructed in a manner that is safe, durable, and affordable to operate. In the absence of strong codes, owners may find their buildings in need of major efficiency upgrades just a few years after being built—at much greater expense than if they had been properly constructed initially. New Hampshire should ensure that the most recent version of the IECC is continually adopted as the state’s code, and should explore how to assist communities and the building industry with compliance.

Design Considerations: Educating consumers, lenders, appraisers, and builders is critical to ensuring that efficient buildings are valued and therefore pursued, and the State should continue its efforts in this area.