



CITY OF SOMERVILLE, MASSACHUSETTS
JOSEPH A. CURTATONE, MAYOR

MEMORANDUM

TO: Mayor Joseph A. Curtatone

FROM: Monica R. Lamboy, Executive Director, OSPCD *ML*
David Lutes, Director, OSE *DL*

DATE: April 8, 2010

SUBJECT: An order adopting Appendix 120.AA of the Massachusetts Building Code, known as the Stretch Energy Code, as the energy code for the City of Somerville

The Office of Strategic Planning and Community Development (OSPCD) and the Office of Sustainability and Environment (OSE) respectfully request that you forward the attached order that will have the City of Somerville adopt Appendix 120.AA of the State Building Code. Adoption of the Stretch Code will ensure that development in the City meets a higher performance standard in terms of energy use, as discussed below. In addition, adoption of the Stretch Code is a criterion for Somerville to become designated as a Green Community by the Commonwealth, which will allow us to apply for grants funds from the state's Green Communities Program.

BACKGROUND

Appendix 120.AA known as the "Stretch Code" was adopted by the Massachusetts Board of Building Regulations and Standards in May 2009, as an optional appendix to the Massachusetts Building Code 780 CMR. This optional Stretch Code was developed in response to the call for improved building energy efficiency in Massachusetts. Municipalities in Massachusetts may adopt Appendix 120.AA in place of the energy efficiency requirements of the "base" building code.

In early 2010 the "base" building energy code in Massachusetts was updated to the recently published IECC (International Energy Conservation Code) 2009 energy code. The Stretch Code is similarly based on the IECC 2009 energy code, but with approximately 20% greater building efficiency requirements, with a move towards 3rd party testing and rating of building energy performance.

STRETCH CODE PROVISIONS

• Commercial –New Construction

Commercial buildings smaller than 5,000 square feet are exempt from the stretch code. In addition, due to their widely differing energy needs, commercial building renovations and “specialty” buildings (e.g., supermarkets, laboratories, and warehouses) below 40,000 square feet in size, are also exempt. These exempt buildings remain subject to the “base” Massachusetts energy code (IECC 2009 and ASHRAE 90.1-2007), all with applicable Massachusetts amendments.

Large buildings of any type over 100,000 square feet and “specialty” buildings over 40,000 square feet are required to meet a performance standard set at 20% below the energy usage of the commonly used American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2007 code.

Medium-sized commercial buildings, which include residential buildings of 4 stories or more, but that are less than 100,000 square feet, have the option of meeting the same 20% better than ASHRAE 90.1-2007 performance standard, or using a simplified, prescriptive energy code.

The prescriptive code is based on Chapter 5 of the IECC 2009 energy code, and adds incremental efficiency improvements primarily through:

- a. Building envelope elements (walls, roofs, windows, insulation, etc.).
- b. Commissioning requirements to ensure that building energy systems operate as designed.
- c. More efficient lighting power densities and improved lighting controls.
- d. A choice of one of three compliance paths: high efficiency HVAC, equipment, further lighting energy reductions, or on-site renewable energy.

The prescriptive option for commercial buildings between 5,000 and 100,000 sq. ft. was developed from the Core Performance program of the New Buildings Institute. The Core Performance program used over 30,000 energy modeling runs to evaluate and rank the most cost effective modifications to the ASHRAE 90.1 code, and has been run specifically with Boston climate data to represent Massachusetts.

• Residential - New Construction

Under the stretch code, new residential buildings three (3) stories or less will be required to meet an energy performance standard using the Home Energy Rating System (HERS). The HERS system was developed by the Residential Services Energy Network and adopted by both the US EAP and US Department of Energy. The HERS index scores a home on a scale where 0 is a zero-net-energy home, and 100 is a code compliant new home.

The HERS index has been in use for many years in programs such as Energy Star Homes, and LEED for Homes, and by the Federal IRS for tax credits and energy efficient mortgages. HERS

ratings are performed by an independent HERS rater, working with the home builder, and then submitted to the local building code official. The Mass Stretch Code requires a HERS index of 65 or less for new homes of 3,000 square feet or above, and 70 or less for new homes below 3,000 square feet (this includes multi-family units in buildings of 3 stories or less). A HERS index of 65 means that the home is estimated to use 65% as much energy as the same home built to the 2006 energy code, or a 35% annual energy savings.

- **Residential – Home Renovation**

Home additions and renovations have two options to meet the Stretch Code:

- i) The same “performance” approach as new construction but requiring a HERS of 80 or less for significant changes to homes over 2,000 square feet, or 85 or less for homes below 2,000 square feet; or,
- ii) A “prescriptive” approach, where specific efficiency measures are rather than a HERS index number. This utilizes the Energy Star for Homes program prescriptive requirements, and insulation at least equal to IECC 2009.

Staff from OSPCD – Inspectional Services and Economic Development – and from the Office of Sustainability and the Environment have reviewed the proposed stretch code in a high level of detail and see it as a benefit to the Somerville community.

GREEN COMMUNITIES PROGRAM

The Green Communities program, which was created by Chapter 169 of the Act of 2008, creates five criteria that municipalities can commit to meeting. These five criteria include zoning and permitting changes to allow for the growth of the renewable and alternative energy industry, commitments on reducing energy use within municipal government, municipal fleet improvements and the adoption of the Stretch Code. Certification as a Green Community makes communities eligible for annual grants from the state. If Somerville is certified we would be able to apply for this year’s grant funding prior to May 28th.

TIMING

The Green Communities Division has given municipalities until May 14th to submit their applications to be certified by the program. If the Board of Aldermen is able to pass the Stretch Code resolution at their April 22nd meeting, this would allow plenty of time to meet this deadline. There is also the possibility that passage at the May 13th meeting would be sufficient.

RECOMMENDATION

Its is recommended that the Board of Aldermen pass the attached order adopting Appendix 120 AA of the State Building Code, the Stretch Code, as the energy efficiency code for the City of Somerville.