

November 7, 2011 Special Town Meeting
Article 8: Adoption of Stretch Energy Code

In December, 2010, the Board of Selectmen created the Green Communities Study Committee to review the impact of participation in the Green Communities Program, including, to the extent possible, an assessment of the costs and benefits to the Town and to residential and commercial applicants. The committee met on more than 15 occasions to research the provisions of the Green Communities Act, and on June 22, 2011 recommended that the Board of Selectmen recommend adoption of the Stretch Code and participation in the Green Communities Act. The Board of Selectmen voted (3-2) to recommend adoption of the Stretch Code at the November 7, 2011 Special Town Meeting – consideration of the Green Communities Act will be contingent on the vote of Town Meeting. The Board of Selectmen, by majority vote, seeks the support of Town Meeting for the adoption of the Stretch Energy Code in Needham.

What is the Green Communities Act?

The Green Communities Act is designed to promote the use of renewable energy, to encourage energy conservation as an alternative to energy generation, and to encourage municipalities to adopt environmentally sound energy management policies that increase the energy efficiency of their operations and limit the strain on local budgets faced with rising fuel prices. The Act also creates the Green Communities program, which provides grants and expertise to local governments to help achieve energy efficiency. To participate in this program, communities must meet five qualifications: provide as of right zoning for alternative/renewable energy R & D or generation facilities; provide expedited permitting for the above facilities; develop a plan for reducing energy consumption by 20% over five years; develop a fuel efficient vehicle policy; and adopt an amendment to the building code that specifies energy efficiency measures. That amendment is known as the Stretch Code.

What is the Stretch Code?

The Stretch Code is an optional appendix to the Massachusetts building energy code that allows cities and towns to choose a more energy-efficient option. This option increases efficiency requirements for all new residential and many new commercial buildings, as well as for those residential additions and renovations that would normally trigger building code requirements. Stretch Code buildings achieve approximately 20% better energy efficiency in new residential and commercial buildings than is required by the base energy code.

Why is this issue before Town Meeting right now?

Adoption of the Stretch Code was originally planned for the 2011 Annual Town Meeting but was deferred to allow the Committee more time for its evaluation. Adoption of the Stretch Code fulfills one of the requirements of the State's Green Communities Act, which would enable the Town to receive a Green Community grant. If Needham became a Green Community, it is estimated that the Town would receive an initial grant in the range of \$150,000 to \$175,000 for one of its identified energy efficiency projects. After that, Needham would be eligible to submit grant applications in a competitive process.

One of the components of being designated as a Green Community is the development of a plan to reduce energy use in Needham by 20% over the next five years. Energy has been one of the fastest growing expenses in the Town budget. A 20% reduction would

result in a savings that would free up funds for other Town services. Grant funding opportunities will become more competitive as more communities join the program; more funds will be available to help the Town meet the 20% goal if we start now.

How would the Stretch Code benefit Needham, in addition to the grant money and taxpayer savings?

Adopting the Stretch Code would mean that new construction and significant remodeling projects would be more energy efficient, saving money for individual homeowners and businesses. Needham homes would be less drafty and more comfortable, warmer in the winter and cooler in the summer. Having a third party involved to check energy performance (explained below) will enhance building quality by making sure that homeowners get what they pay for. Homes built to the Stretch Code will cost slightly more to build, but will return the initial investment through lower energy bills. The State estimates, that “a residential home purchased with a 30-year mortgage would typically result in net savings to the homeowner in the first year due to energy bill savings that are larger than the increase in mortgage payments from construction and financing costs.” Lower energy use means a reduction in greenhouse gases and pollution and thus benefits the whole community. With the demand for energy efficient building design and products, the green building market will grow, creating jobs in Massachusetts.

If Town Meeting does not vote to adopt the Stretch Code, can Needham still be designated as a Green Community?

Adoption of the Stretch Code is a requirement for Green Community designation.

How is the Stretch Code different from the existing ‘base’ energy code?

The Stretch Code offers a streamlined and cost effective route to achieving approximately 20% better energy efficiency in new residential and commercial buildings than is required by the base energy code. This is largely achieved by moving to a performance-based code, where developers are required to design buildings so as to reduce energy use by a given percentage below base code, rather than being required to install specific efficiency measures. Developers have flexibility in choosing cost effective and appropriately designed solutions. For renovations and additions, home owners and developers can choose between the performance based approach and a prescriptive approach that provides a list of specific measures that increase energy efficiency.

How soon after a town adopts it would the Stretch Code take effect?

If adopted at the November, 2011 Special Town Meeting, the Stretch Code would take effect on January 1, 2012. To ease the transition, the Stretch Code runs concurrently with the existing energy code for the first six months. So between January 1, 2012 and June 30, 2012, homeowners and contractors can choose to use either the Stretch Code or the current energy code requirements. Including November and December, the Town would be allowed an eight month transition.

Which of the Town’s comparable communities have adopted the Stretch Code?

Belmont, Brookline, Concord, Dedham, Hopkinton, Lexington, Natick, Newton, Wayland, Wellesley, Weston, Winchester and many other nearby towns have adopted the Stretch Code. Ninety-eight communities, representing over ½ the state’s population, have now adopted the Stretch Code. This important decision should not be made simply because other towns have done so. However, it is important to know that other well-managed towns have explored this option and chosen to implement it. The fact that towns

around us have already adopted this amended code means that there will be an easier transition for most developers who work in multiple towns.

Which buildings are impacted?

The Stretch Code applies to all residential construction - new homes as well as additions and renovations. Minor renovations, which do not affect the building envelope (external wall or roof) do not trigger the provisions of the stretch code, and historical buildings are exempt. For commercial construction (including municipal buildings), the Stretch Code applies to new construction and additions. Certain commercial facilities are exempt from the Stretch Code, including all commercial buildings less than 5,000 square feet, and specialized facilities with unique energy profiles, such as warehouses and grocery stores. The Stretch Code does not apply to renovation of existing commercial facilities.

Does the Stretch Code affect an existing house or a house for sale?

The Stretch Code has no effect on a house that is for sale. It has no effect on an existing house unless the owner undertakes a renovation that would normally trigger building code requirements.

How does the Stretch Code affect construction of new homes?

The stretch code uses a performance-based approach. Rather than requiring that the builder or homeowner include specific energy-saving features, the Stretch Code uses software modeling to project the energy usage of the home based on design features selected by the builder or homeowner. The result is a HERS (Home Energy Rating System) Index. The HERS index is calibrated so that 100 equals the energy use of a home built to the 2006 IECC Energy Code. The HERS rating can be thought of as a percentage - a HERS index of 80, for example, means that the home uses only 80% of the energy of a similar home built to the 2006 IECC Energy code.

To meet the stretch code, new homes must achieve the following HERS ratings:

- HERS index of 65 or less - New homes above 3,000 sf.
- HERS index of 70 or less - New homes below 3,000 sf (includes multi-family buildings of 3 stories or less).

The current Massachusetts energy code is the 2009 IECC Energy Code. Homes built to this code are estimated to be about 20% more efficient than homes built to the 2006 Energy Code (equivalent to a HERS rating of 80). So the difference between a home built under the Stretch Code and a home that is meeting the current energy code is on the order of 20%.

How would the Stretch Code affect a current homeowner undertaking a renovation, remodeling or an addition to his or her home?

The Stretch Code includes less stringent energy performance requirements for renovations and additions than for new buildings. In addition, the code provides a prescriptive option that applies only to those systems and parts of the home affected by the project. The choice of using the performance-based or prescriptive approach is up to the homeowner and the contractor. The goal is to ensure that the homeowner is receiving the full benefit of the current energy code, but the code does not apply to areas of the house that are not being renovated.

How much will it cost to comply with the Stretch Code?

For residential buildings - new homes and major renovations – the Green Community Study Committee estimated that the average cost to a homebuilder/owner will increase by 2 - 4%. Some of these costs may be reduced by rebates from the local utility company. The Massachusetts Department of Energy estimates a lower cost. Construction costs are estimated to increase approximately \$3,000 for a typical single family home, and by 1% to 3% of total costs for commercial buildings. However, after energy cost savings on heating and electricity are included, these higher performance standards save money. One must also consider that over time energy prices are expected to continue to rise. Those higher costs would result in higher savings than what is estimated currently from implementing the code. For example, for new construction, additional first costs are estimated at approximately \$3,000 for a 2,700 square foot single family home, including the cost of a HERS rater. This translates into roughly \$218 per year when rolled into a 30-year mortgage at 6% interest. However, this investment reduces energy bills by about \$500/year, resulting in net annual savings to the homeowner of nearly \$300. For larger homes, the additional costs are higher but so are the energy savings.

For minor renovations of residential buildings, it is anticipated that the average cost to a homebuilder/owner will increase by \$0-\$500, depending on how much of the building envelope is affected. Some of these costs may be reduced by rebates from the local utility company and the homeowner should see a reduction in home energy costs.

Will homeowners undertaking small remodeling projects, like kitchens or bathrooms be required to meet the Stretch Code?

Only the systems being modified have to be brought up to code. If a renovation involves replacing windows and opening part of a wall cavity, then those new windows and wall cavity would have to be brought up to the Stretch Code, just as the plumbing in the kitchen or bathroom being remodeled would have to comply with the plumbing code. However, improving a kitchen or bathroom would not trigger required changes to the rest of the home such as attic insulation or a new heating system.

If the 2012 base code will require more energy efficiency, why not just wait for the change in the base code instead of adopting the Stretch Code?

By adopting the Stretch Code now, the Town has an eight month transition -- two months before implementation begins, then six months when both codes are running concurrently. Waiting for the change in the base code will not provide a transition period. Furthermore, it is not clear yet whether the change in the base code will include the requirement of a HERS rater, the choice of meeting the code through performance-based standards or other desirable aspects of the code. In addition, if the Town does not adopt the Stretch Code, Needham would forgo the advantages of being a Green Community.

How would the stretch code be implemented and enforced?

Once the stretch energy code is adopted by a town or city, it supplements the base energy code language and becomes the binding energy code language for building projects in that municipality. Implementation and enforcement of the code is similar to existing code, where the developer is responsible for submitting documentation of compliance to the Building Inspector for review, and the Building Inspector conducts a site review. The difference is that the local inspector can utilize the certified report of the HERS rater.

For residential projects, what is the role of a building code official when a HERS rater is involved?

Residential buildings meeting the Stretch Code through a HERS rating require independent certification by a HERS rater. The rater will produce a report detailing the energy systems in the building and will provide a HERS index score prior to receiving a certificate of occupancy. The HERS rater is an additional professional on the customer's side. By being involved early in the process, the HERS rater provides guidance on how design choices will affect the home's energy efficiency. This allows the customer to weigh the costs and benefits of different options and it helps assure that the home will meet the energy code requirements when it is completed. Additionally, the HERS rater protects consumers by focusing on things they can't judge for themselves. A HERS rater is an energy expert who performs diagnostic testing to establish whether the house is meeting the energy efficiency targets the customer has chosen and paid for. Finally, the HERS rater is an asset to the Building Department in that he or she will provide a level of expertise in the design and permitting process.

How will the adoption of the Stretch Code impact the permitting process?

Building officials will be provided training on the new provisions, and will in turn provide training to builders, developers and homeowners during the transition process. Moreover, the HERS rater is available to ease the burden on local building officials. Several of our comparable communities have reported that the implementation of the Stretch Code has been relatively seamless, with little need for additional resources for enforcement. The Green Communities Study Committee felt strongly that education of builders and homeowners would be a key to smooth adoption. The Town Manager has indicated that additional hours for part-time inspectors may be required initially in order to provide education and outreach at a cost of approximately \$8,000 - \$16,000. The Green Communities Division has indicated that the Town is eligible to apply for grant money for this purpose.

For additional information, including the report of the Green Community Study Committee, please visit www.needhamma.gov/STM2011 or contact the Office of the Town Manager at 781-455-7500.

Sources:

Q&A for MA Stretch Energy Code Appendix 780CMR 115.AA; Green Communities Study Committee Report. July 22, 2011; report of Belmont Energy Committee, March, 2011.