



**TOWN OF ARLINGTON**  
DEPARTMENT OF PLANNING and  
COMMUNITY DEVELOPMENT

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**MEMORANDUM**

To: Sandy Pooler, Town Manager  
Cc: Claire Ricker, Director, Planning and Community Development  
Michael Ciampa, Director, Inspectional Services  
Ryan Katofsky, Chair, Clean Energy Future Committee  
From: Talia Fox, Sustainability Manager, Planning and Community Development  
Date: March 15, 2023  
RE: Warrant Article 10 – Specialized Stretch Energy Code

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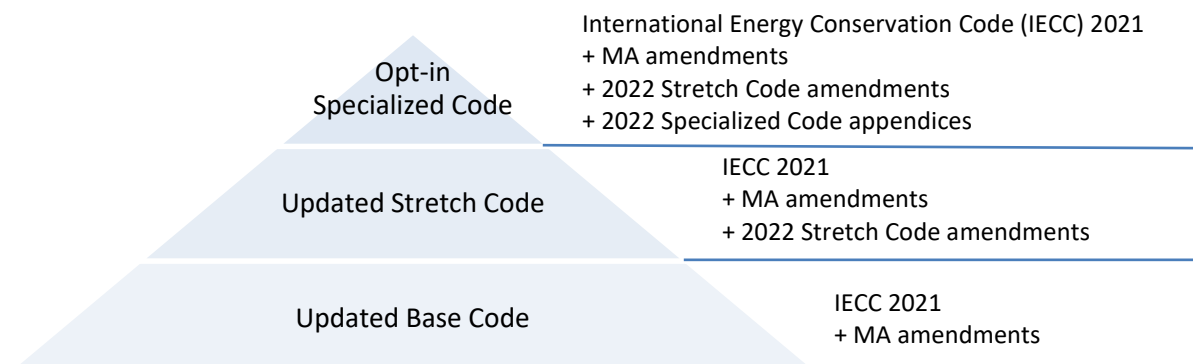
The Town Manager and the Clean Energy Future Committee (CEFC) have proposed Warrant Article 10 to see if Town Meeting will vote to adopt the Specialized Stretch Energy Code. The following memorandum reviews:

1. Introduction to the Specialized Stretch Energy Code
2. Precedent and rationale for Warrant Article 10 in Arlington
3. Key impacts of Specialized Stretch Energy Code in Arlington

**Introduction to the Specialized Stretch Energy Code**

The Specialized Stretch Energy Code ("Specialized Code," "Municipal Opt-In Code," or "Net Zero Code") is a new building energy code designed to help the Commonwealth achieve net-zero greenhouse gas (GHG) emissions by 2050. Per the 2021 Act Creating a Next Generation Roadmap for Massachusetts Climate Policy, the Specialized Code was developed by the Massachusetts Department of Energy Resources (DOER) and promulgated in December 2022. The Specialized Code amends the Stretch Energy Code ("Stretch Code"), which in turn builds upon the Base Energy Code ("Base Code"). The Base Code comprises the International Energy Conservation Code (IECC), the model code used in the U.S., along with Massachusetts-specific amendments. All three energy codes support energy efficiency in buildings. Like the process for adopting the Stretch Code, municipalities must vote affirmatively to adopt the Specialized Code.

*Figure 1. Three Massachusetts Energy Codes Build Successively*



### **Precedent and Rationale for Warrant Article 10 in Arlington**

The Specialized Code follows from a history of local leadership on energy efficiency. In 2010, Arlington was one of the first communities in Massachusetts to adopt the Stretch Code, which was created in 2009 to provide enhanced efficiency over the Base Code. Amendments to the Stretch Code, including those passed in 2022, are automatic for communities that have adopted the Stretch Code (300 out of the 351 municipalities in Massachusetts). Town Meeting adopted the Stretch Code in part because it is a requirement for receiving Green Communities Designation. Administered by DOER, the Green Communities Program provides competitive grant funding for energy efficiency and clean energy initiatives. Since becoming a Green Community in 2010, the Town has received 11 Green Communities grants totaling nearly two million dollars.

The Specialized Code is key to achieving local and state climate goals. In 2018, the Select Board endorsed a goal of achieving net zero GHG emissions in Arlington by 2050. The CEFC was then established to pursue this goal and developed a Net Zero Action Plan (NZAP), which the Select Board endorsed in 2021, the same year that Massachusetts codified its own target of net zero emissions by 2050. A priority measure from the NZAP is to “Advocate...for a state net zero energy stretch code,” and the corresponding metric of success in the NZAP is the Town’s adoption of this code, what is now called the Specialized Code. The Specialized Code supports achievement of the Commonwealth’s net-zero GHG emissions target by incentivizing efficient, all-electric new construction. Electrification, or replacing fossil fuel combustion in homes and vehicles with all-electric systems powered by clean energy, is a key strategy in the Commonwealth’s Decarbonization Roadmap<sup>1</sup> as well as for Arlington to achieve its own 2050 GHG goals. Also, should Town Meeting vote to adopt the Specialized Code this spring, the higher energy efficiency requirements being phased in with the updated Stretch Code would take effect sooner. DOER recommends a January 1, 2024, effective date of the Specialized Code in Arlington.

Arlington has already demonstrated support for the Specialized Code and its goal to promote all-electric new construction. The Town has already advocated for new construction in Arlington to meet requirements *more stringent* than those ultimately adopted in the Specialized Code, including through:

- 1) the development of a 2021 letter signed by 30 municipal executives calling for a “True Net Zero Code” that would, among other provisions, forbid the use of fossil fuels in new construction;
- 2) 2022 Town Meeting’s passage (by a vote of 170-8) of Article 73, a resolution for DOER to adopt a “True Net Zero Opt-In” code; and
- 3) 2020 Town Meeting’s passage (by a vote of 225-18) of Article 5, Home Rule Legislation and a bylaw amendment allowing the Town to prohibit fossil fuel infrastructure in new construction and major renovations.

### **Key Impacts of Specialized Stretch Energy Code in Arlington**

The Specialized Code applies only to new construction. In Arlington, approximately 20-30 new single- and two-family homes are constructed per year.<sup>2</sup> The Specialized Code would go beyond the Stretch Code updates (which are automatic for Arlington) in four ways:

- 1) All dwelling units greater than 4,000 conditioned square feet (CSF) would need to be either all-electric or, if they use natural gas or other fossil fuel systems, net zero energy. All-electric means that no fossil fuels are used for space heating, cooking, water heating, or clothes drying (outdoor grills and generators are exempted). Net zero energy requires that buildings meet stringent energy efficiency requirements and then

<sup>1</sup> Massachusetts Executive Office of Energy and Environmental Affairs. 2020. Massachusetts 2050 Decarbonization Roadmap. <https://www.mass.gov/info-details/ma-decarbonization-roadmap>

<sup>2</sup> Arlington Department of Planning & Community Development. 2023. Data from building permits pulled Jan 2018 through March 2023.

reduce GHG emissions to net-zero by offsetting any fossil fuel use with renewable energy, typically onsite, rooftop solar. In 2022, approximately 70% of new single-family homes constructed in Arlington exceeded 4,000 CSF.<sup>3</sup>

- 2) All mid- and high-rise multifamily housing over 12,000 CSF would need to be constructed to highly efficient Passive House standards. Passive House results in buildings that reduce heating energy usage by 90% and overall energy use (including plugs and lights) by 60%.<sup>4</sup> The Massachusetts Clean Energy Center (MassCEC) has found that the average incremental cost of Passive House construction compared to less efficient construction is 2.3%, with ranges from 1.0%-4.3%.<sup>5</sup> Over 6,700 units are anticipated to achieve Passive House certification by 2026 through the Mass Save Program, which offers incentives for Passive House feasibility studies (\$5,000), energy modeling (\$500/unit up to \$20,000), pre-certification (\$500/unit), certification (\$2,500/unit), and energy savings (dollar amounts vary by fuel).<sup>6</sup> Approximately 1-2 new multifamily buildings larger than 12,000 CSF are constructed in Arlington per year, on average.<sup>7</sup>
- 3) New buildings that use fossil fuels would need to be pre-wired to be all-electric. Buildings that use fossil fuels for space heating, water heating, or other appliances (including gas stoves and fireplaces) are also known as “mixed-fuel” buildings (outdoor grills and generators that use fossil fuels are exempted). Mixed-fuel buildings are required by the Specialized Code to have sufficient electrical capacity and wiring (dedicated circuits and plugs) to accommodate future electric heating, ventilation, and air conditioning (HVAC), hot water service, and appliances. In 2022, 50% of the 24 new single- and two-family homes constructed in Arlington were mixed-fuel homes.<sup>8</sup> The goal of this provision of the code is to facilitate and lower the cost of future electrification. The requirement aligns with the Commonwealth’s definition of a net zero building as being “compatible, as-built, with the Commonwealth’s net-zero emissions economy in 2050.”<sup>9</sup>
- 4) New buildings that use fossil fuels must install solar photovoltaics (PV), where feasible. The goal of this provision is to offset GHG emissions with renewable energy production. PV system size requirements depend on the type of building, and exemptions exist for shaded sites (viable areas shaded >70% daylight hours) and Passive House-certified buildings.

Building Type (WITH FOSSIL FUELS)		Solar Requirement	Notes
Low-rise Residential (≤3 stories)	Dwelling units <4,000 CSF	≥4kW for single family ≥0.75W/SF for multifamily	Exemptions: Shaded sites (viable areas shaded >70% daylight hours); Passive House certified, buildings where the Potential Solar Zone Area is <300 SF
	Dwelling units >4,000 CSF	Solar PV or other renewables sufficient for zero energy	
Multifamily	Buildings >12,000 CSF	N/A – optional*	Must pursue Passive House
Commercial	Small commercial, offices / schools, high ventilation	≥1.5W/SF for each sq foot of 3 largest floors or 75% of Potential Solar Zone Area	Excludes multifamily buildings*

\*Projects undergoing Environmental Design Review, per Arlington’s Zoning Bylaw, must install solar on ≥50% of the roof area.

<sup>3</sup> Arlington Department of Inspectional Services. 2022. Data from 2022 building permits for single-family homes.

<sup>4</sup> Passive House Massachusetts. 2023. What is Passive House? <https://phmass.org/what-is-passive-house/>

<sup>5</sup> Massachusetts Clean Energy Center. 2022. Scaling Up Passive House Multifamily: [https://www.masscec.com/sites/default/files/documents/Scaling%20Up%20Passive%20House%20Multifamily\\_The%20Massachusetts%20Story\\_20220824.pdf](https://www.masscec.com/sites/default/files/documents/Scaling%20Up%20Passive%20House%20Multifamily_The%20Massachusetts%20Story_20220824.pdf)

<sup>6</sup> Mass Save. 2023. Passive House Incentives. <https://www.masssave.com/residential/rebates-and-incentives/passive-house-incentives>

<sup>7</sup> Arlington Department of Planning & Community Development. 2023. Data from building permits pulled Jan 2018 through March 2023.

<sup>8</sup> Arlington Department of Inspectional Services. 2022. Data from 2022 building permits for single-family homes.

<sup>9</sup> Massachusetts Department of Energy Resources. 2022. Summary of Proposed New 225 CMR 22.00 and 23.00 (Updated September 22, 2022). <https://www.mass.gov/doc/summary-document-explaining-stretch-energy-code-and-specialized-opt-in-code-language/download>