

Somerville Climate Zoning Recommendations

As of June 17, 2019

By-Right Uses:

Adopt Electric Vehicle Charging Station Language.

We recommend that the city adopt language to support the deployment of electric vehicle charging stations

Examples and Best Practices:

The Governor's Office of Planning and Research (California) **Zoning Example for Installation of Plug-In Electric Vehicle Charging Stations** http://www.opr.ca.gov/docs/Zoning_Example_for_PEV_charging.docx
based off of the Lancaster, CA municipal code:
https://library.municode.com/ca/lancaster/codes/code_of_ordinances

Sustainable Jersey **Make Your Town Electric Vehicle Friendly** http://www.sustainablejersey.com/actions-certification/actions/?type=1336777436&tx_sjcert_action%5BactionObject%5D=520&tx_sjcert_action%5Baction%5D=getPDF&tx_sjcert_action%5Bcontroller%5D=Action&cHash=38e44e6f3893e6fef20fca68f3539fd

NYSERDA **Creating EV-Ready Towns and Cities: A Guide to Planning and Policy Tools**
<file:///C:/Users/nsanches/Downloads/Planning-and-Policy-Tool-Guide.pdf>

Allow for Small-Scale Green Infrastructure By-Right. Small-scale green infrastructure includes sustainable small-scale features such as window and roof gardens, permeable paving, and composting efforts. This serves an important role in giving residents agency over their climate mitigation and adaptation efforts by enabling existing buildings to meet or exceed green area ratio requirements.

Allow for Ultra Low Emissions Building Systems By-Right.

In order to foster further adoption of building systems that help to mitigate climate change by reducing GHG emissions or employing very low-emissions technologies, such as air-source heat pumps, Somerville should allow for these system components by-right. The goal of this language would be to future-proof the code as well as to encourage new technologies and efficiencies that mitigate climate change.

This would include:

- Community Shared Solar Systems
- Solar Photovoltaic Panels and Solar Thermal Collectors
- Compressors and equipment for Air-Source Heat Pumps

Special Permits:

Net Zero Buildings Expedited Review.

An abbreviated special permits review for carbon neutral new construction and major retrofits that achieve net zero if unable to allow by-right. This is a mechanism to develop an expedited net zero carbon permitting pathway for Net Zero buildings in order to encourage their development in Somerville.

Examples and Best Practices:

Seattle, WA Seattle Department of Construction and Inspections **Priority Green Expedited**
<http://www.seattle.gov/sdci/permits/green-building/priority-green-expedited>

Salt Lake City, UT Building Services **Green Building Expedited Review**
<https://www.sl.c.gov/buildingservices/green-building/>

San Diego, CA Planning and Development Services **Green Building Program**
<https://www.sandiegocounty.gov/content/sdc/pds/greenbuildings.html>

Palo Alto, CA **Zero Net Energy Buildings Baseline Study and Roadmap**
<https://www.cityofpaloalto.org/civicax/filebank/documents/60700>

Energy Reporting and One-Year Audit.

Require or promote buildings to self-report expected energy use at the time of permitting, and to either conduct an energy audit or report from the building management system energy use one year after the certificate of occupancy.

This requirement would build on the City of Boston's Article 37 requirements for energy reporting of large commercial buildings, and will give the City of Somerville additional metrics to track Net Zero targets through new construction. This requirement encourages developers to report anticipated building energy use accurately and to maintain behavioral measures or complete retro-commissioning where buildings are not meeting energy reduction targets.

Examples and Best Practices:

City of Boston **Article 37, Green Buildings** <http://www.bostonplans.org/planning/planning-initiatives/article-37-green-building-guidelines>

City of Cambridge **Building Energy Use Disclosure Ordinance**
<https://www.cambridgema.gov/CDD/zoninganddevelopment/sustainablebldgs/buildingenergydisclosureordinance>

ACEEE **A National Framework for Energy Audit Ordinances**
https://aceee.org/files/proceedings/2016/data/papers/9_448.pdf

Massachusetts DOER **Building Energy Asset Labeling Program** whitepaper <https://www.mass.gov/service-details/znep-energy-labeling-for-commercial-buildings> and program <https://www.mass.gov/service-details/building-rating-labeling-commercial-buildings>

South Portland, ME **Energy and Water Benchmarking Ordinance:**
<https://www.southportland.org/departments/sustainability-office/energy-climate/energy-water-benchmarking-ordinance/>

Austin, Texas **Energy Conservation Audit and Disclosure Ordinance** <https://austinenergy.com/ae/energy-efficiency/ecad-ordinance/energy-conservation-audit-and-disclosure-ordinance>

State of Oregon Building Codes Division **Statewide Alternate Method Oregon Zero Code Efficiency Standard** <https://www.oregon.gov/bcd/codes-stand/Documents/sam-18-02-OregonZeroCodeEfficiencyStandard.pdf>

Eco-Roof Requirement:

While acknowledging that not all roofs are appropriate for solar photovoltaic installation, and that other roof systems may be highly mitigating as well, we recommend that the City create an Eco-roof requirement to ensure that new construction maximizes roof surfaces to mitigate and adapt to climate change. The language should provide a choice in roof systems while acknowledging that some of these options are more productive for climate mitigation and adaptation and thus preferred over others. We would recommend that the City structure the ordinance to encourage systems that reduce GHG emissions to the greatest extent possible

New construction and major renovations would be required to include at least one of the following uses as part of their roof system:

Renewable Energy Generation: This could be a solar photovoltaic system or a micro-scale wind generation system.

Watertown, MA Planning Board Report **Solar Amendments to Zoning Ordinance:** <https://www.watertown-ma.gov/DocumentCenter/View/26235/2018-11-27-Zoning---Solar-Assessments>. Massachusetts Municipal Association **Watertown Ordinance Requires Solar Panels on Commercial Buildings**
<https://www.mma.org/watertown-ordinance-requires-solar-panels-on-commercial-buildings/>

California **2019 Building Energy Efficiency Standards:**
<https://www.energy.ca.gov/title24/2019standards/> set a PV mandate to go into effect in 2020 **California Solar Permitting Guide Book:** http://opr.ca.gov/docs/20190226-Solar_Permitting_Guidebook_4th_Edition.pdf

Bay Area Air Quality Management District **Solar PV Ordinance:**
https://barc.ca.gov/sites/default/files/instructions_ordinance_.pdf

Solar Thermal System: A system to offset the heating load of the building by pre-heating the building's water with heat generated from solar collectors on the roof.

Austria **Carrots, Sticks and Tambourines: How Upper Austria Became the World's Leading Solar Thermal Market:**
https://www.energiesparverband.at/fileadmin/redakteure/ESV/Info_und_Service/Publikationen/Solar-publ-eu.pdf

Green Roof: a roof system with living green infrastructure with the purpose of mitigating urban heat, storing water, improving air quality, or as a location for urban farming.

Cambridge, MA Zoning Ordinance **22.30 Green Roofs**

https://www.cambridgema.gov/~media/Files/CDD/ZoningDevel/Ordinance/zo_article22_1397.ashx

Toronto **Green Roof By-Law:** <https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/green-roofs/green-roof-bylaw/>

Chicago, IL **Zoning Ordinance 17-4-1015 Green Roofs Incentives:**

<https://secondcityzoning.org/resources/Chicago-Zoning-Ordinance.pdf> (under floor area bonuses)

Georgetown Law **Green Infrastructure Toolkit:**

<https://www.georgetownclimate.org/adaptation/toolkits/green-infrastructure-toolkit/incentive-based-tools.html>

White (or Cool) Roof: A finishing or surface that reflects more light than it absorbs, lowering the temperature of the air around it, and thereby helping to reduce urban heat island impacts.

US Department of Energy Building Technologies Program **Guidelines for Selecting Cool Roofs**

https://heatisland.lbl.gov/sites/all/files/coolroofguide_0.pdf

New York City **Cool Roofs Ordinance** <https://www.coolrooftoolkit.org/wp-content/uploads/2012/04/NYC-Cool-Roofs-Ordinance-2011.pdf>

California Energy Commission **Cool Roof Requirements: California's Title 24 Energy Efficiency Standards for Non Residential Buildings** <https://www.energy.ca.gov/title24/coolroofs/documents/COOLROOF-REQUIREMENTS.PDF>

Blue Roof: A roof system employed in stormwater management. This could be active or passive water storage and drainage systems.

Philadelphia, PA Water Department **Storm Water Management Practice Guidance Blue Roofs**

<https://www.pwdplanreview.org/manual/chapter-4/4.6-blue-roofs>

New York City Planning **Zone Green** https://www1.nyc.gov/assets/planning/download/pdf/plans/zone-green/zone_green.pdf

Climate Overlay Zone:

The objective of a climate overlay zone is to regulate greenhouse gas emissions in a designated zone in order to both mitigate climate change and to ensure that the co-benefits of mitigation and adaptation are enjoyed by residents of Somerville. We propose three options for implementing a climate overlay zone with varying levels of risk:

Option 1: LEED Platinum or Zero (+ WELL Standards)

For the easiest to implement option for a Climate Overlay Zone, the City of Somerville could require that buildings within the climate overlay be LEED Platinum certified, or at least certifiable. This requirement would encourage development to reduce energy use and implement adaptation measures within designated zones to a higher standard than the rest of the City. LEED Zero is a newer LEED option, “a complement to LEED that verifies the achievement of net zero goals and signals market leadership in the built environment,” as defined by the U.S. Green Building Council. MAPC recommends the latter for an overlay zone that matches the City’s commitment to net zero.

By pairing the additional LEED requirement with a WELL incentive or requirement, the City could emphasize the co-benefits of GHG emissions reduction with buildings constructed to optimize health and wellness of its occupants. The WELL standard is aligned with the LEED Green Building Rating System, the Living Building Challenge, and other leading global green building standards. It is third-party certified through the Green Business Certification Inc. (GBCI) – the certification body for the LEED Green Building Rating System. Adding WELL to zoning would be new for Massachusetts municipalities, though less outside of precedent than an entirely different standard.

Option 2: Pioneer an advanced standard such as Passive House, Living Building, or Architecture2030

In this option, the City of Somerville would pioneer utilizing a standard separate from the LEED suite as a requirement for new construction and major renovations to meet within the overlay. This method would not have Massachusetts precedent on which to rely. A building standard that has multiple options for compliance outside of those solely concerned with energy will be most in line with the precedent set by LEED inclusion.

We would recommend that the City pursue Passive House standards for this option. Passive House emphasizes building a robust building envelope that enables homes and businesses to more easily become net zero in the future. The construction of strong building envelopes has important resiliency, health, and cost-savings benefits, and would allow residents to comfortably shelter in place for longer in the case of energy outages or emergencies.

Option 3: Set a Per Building GHG Emissions Cap for the Overlay. (Near transit centers, around business squares)

With this option, the City would be one of the very first municipalities to regulate buildings based on maximum allowable annual GHG emissions, following on the exciting step taken by New York City in April 2019. The emissions cap could be set based on a reduction from the estimated current GHG emissions per building, or on a sliding scale to Net Zero structures at 2050. To achieve the increasingly stringent thresholds, buildings would: meet Passive House standards; generate renewable energy onsite when possible and source the remainder from offsite; and participate in neighborhood-wide efforts such as community shared solar, water-based district energy, and car-free blocks.

New York City Old Buildings Emissions Standards: <https://www.popsci.com/new-york-city-old-buildings-emissions-standards#page-3>

GHG Emission Reduction Overlay Mechanisms:

Buildings:

- Require buildings to meet Passive House standards
- Allow for accessory dwelling units by-right
- Co-locate residential and commercial uses to enable ease of microgrid implementation

Energy Source:

- Enable infrastructure for district heating and cooling systems
- Require onsite renewable energy and offsite offsets, as necessary
- Require electrification of new construction; transition to electric heating/cooling and transit connections to the extent possible
- Allow for residents and businesses to install additional PV capacity for use in, or dedicated systems for the purpose of community shared solar by right
- Encourage battery storage and distributed renewable generation: allow by right for use on site and as part of community shared solar systems.

Transportation:

- Implement Car-Free Zones. Establish pedestrian, bike, and bus focused spaces immediately around transit hubs or residential blocks and relocate parking to perimeters.
- Protected bike and walking infrastructure both within and leading to the car-free zones.
- Climate Paving. Require new paving to be permeable to absorb stormwater and reduce run-off and to utilize albedo in order to mitigate urban heat islanding.
- Electric Vehicle Charging Infrastructure. Require additional density of EV charging stations at the perimeter parking spaces, and enable ZEV car sharing.

Open Space and Landscape:

- Require storm water management in roofs and pocket parks.
- Increase Green Area Ratio requirements within the overlay.
- Multi-use civic space: encourage additional community gardens, shade trees, picnic tables and other infrastructure within civic zones to encourage public engagement in parks and open space.