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PUBLIC HEARING MEMORANDUM

DATE: November 8, 2019

TO: Councilor Susan Albright, Chair, Zoning & Planning Committee
Members of the Zoning & Planning Committee

FROM: Barney Heath, Director, Department of Planning and Development
James Freas, Deputy Director of Planning
Jennifer Caira, Chief of Current Planning

RE: **#363-19 Amendment(s) to Chapter 30 relative to building efficiencies**
DIRECTOR OF PLANNING & CO-DIRECTORS OF SUSTAINABILITY requesting discussion and adoption of amendments to Chapter 30, the Newton Zoning Ordinance to create exemptions to building envelope standards such as height and setback to facilitate the implementation of energy efficiency and alternative energy measures in buildings including external insulation, doorway vestibules, heat pumps, and solar panels among other features.

#364-19 Amendment(s) to Chapter 30 relative to sustainable design
DIRECTOR OF PLANNING & CO-DIRECTORS OF SUSTAINABILITY requesting discussion and adoption of amendments to Chapter 30, the Newton Zoning Ordinance to create a new set of standards related to sustainable development design with requirements for new buildings and development projects to include environmental and energy efficiency features.

MEETING: November 14, 2019

CC: Planning Board
Ann Berwick, Co-Director of Sustainability
William Ferguson, Co-Director of Sustainability
John Lojek, Commissioner of Inspectional Services
Alissa O. Giuliani, City Solicitor
Jonathan Yeo, Chief Operating Officer

The Planning Department is presenting two potential amendments to the Zoning Ordinance intended to improve the environmental performance of buildings in Newton, responding to action items identified in Newton's Climate Action Plan. The first of these provides for changes to dimensional requirements in the zoning ordinance that would reduce barriers to buildings improvements that would improve the environmental performance of the building. The second creates a new sustainable design ordinance that would clarify and make predictable the environmental performance rules for larger buildings requiring a special permit in the City. This draft ordinance also included standards for providing electric vehicle charging stations.

Reducing Barriers to Environmental Building Improvements

As noted in the Climate Action Plan, one of the greatest challenges to reducing greenhouse gas emissions is making improvements to the existing building stock. That challenge is exacerbated when the zoning ordinance prevents or restricts the ability to make design changes for environmental benefits. The primary issue is rules that restrict the building envelope itself such as setback or height rules.

Setback Encroachments (Sec. 1.5.3)

The zoning amendments related to setbacks include three basic types – those addressing the addition of exterior insulation, those addressing heat pump equipment, and those for various structural features that can serve to enhance building energy efficiency.

Continuous insulation is widely recognized as providing significant energy savings, as much as 20% savings in energy used for heating and cooling. Industry best practices, as well as minimizing disruption to building occupants, suggest exterior insulation, but for buildings that currently meet or exceed setback restrictions, adding exterior insulation represents a setback encroachment. Staff is proposing allowing up to 8 inches of encroachment for insulation added to existing buildings.

Heat pumps offer an energy efficient and non-carbon emitting alternative to other forms of heating and cooling systems. The external component of a heat pump system is virtually silent. Staff is recommending that heat pump equipment be allowed to encroach into setbacks in order to facilitate adoption of this technology.

Doorway vestibules, window shades, and large roof eaves or overhangs are all building components that can enhance the energy efficiency of a home. A doorway vestibule reduces the amount of air exchange when a door is opened, reducing the degree to which interior air must be heated or cooled. Window shades a roof overhangs cast shade on windows and the building exterior, reducing heat gain.

Height (Sec. 1.5.4.A)

The height exception is designed to ensure that there are not unintentional obstacles to the placement of solar panels on roofs.

Floor Area Ratio exclusions (Sec. 1.5.5.B.1.b):

Doorway vestibules can do a lot to address energy efficiency, as noted above. The greatest obstacle in Newton's Zoning Ordinance to adding these features is the FAR requirements so the proposed amendment creates an exception. Also, as noted above, exterior insulation can be significantly beneficial to enhancing energy efficiency and must also be exempted from FAR calculations for existing buildings as FAR is measured from the outside face of exterior walls.

Sustainable Building/Site Design Requirements

Staff has not yet proposed any changes to this draft ordinance. Based on the comments received thus far, there is additional analysis that must be completed. The greatest issues remaining include:

- The project size threshold at which this ordinance would be triggered – 10,000 sf, 20,000 sf, or something in between.

- Whether a project must be certified by the given green building program or simply deemed certifiable.
- The extent of the electric vehicle charging station requirements.
- Tightening of the exception clause.

With the exception of the last item, Staff's concern is with the potential impact of these requirements on smaller development projects that might serve to limit or even block small-scale residential or commercial projects. Such projects already are built with little financial wiggle room and the additional cost of an expanded design team and review process could be challenging. As 20,000 sf is essentially the City's current practice, this threshold seems a safe place to start. Below that number requires that staff engage in further analysis, conversations with builders and the sustainable buildings/design network, and potentially, some modeling as was done with the inclusionary zoning effort.

Next Steps

- Staff is recommending the Committee conduct a public hearing on these items on November 13th.

1.5. Rules of Measurement

1.5.3. Setback

- A. **Defined.** A line equidistant from the lot line which establishes the nearest point to the lot line at which the nearest point of a structure may be erected. In the case of a corner lot, the rear lot line shall be the lot line opposite the street on which the main entrance is located.
- B. No building need be set back more than the average of the setbacks of the buildings on the nearest lot on either side, a vacant lot or a lot occupied by a building set back more than the required distance for its district to be counted as though occupied by a building set back such required distance. Averaging applies only to the front setback. In no case shall any part of a building in a residence district extend nearer the street line than 10 feet.
- C. Distances shall be measured from the lot lines to the nearest portion of the structure. ~~including outside vestibule or porch.~~
- D. The following structures may project into the setback:
 - 1. Steps, landings and bulkheads; ~~may project into the setback.~~
 - 2. Heat pump compressors;
 - 3. Exterior insulation may project up to 8 inches;
 - 4. Doorway vestibules may project up to 4 feet with a width no greater than 6 feet;
 - 5. Gutters, cornices, ~~projecting eaves exterior window shading~~ and ornamental features ~~may project up to 2 feet; and into the setback.~~
 - 6. Roof overhangs may project up to 3 feet.

1.5.4. Height

- A. **Defined:**
 - 1. The vertical distance between the elevations of the average grade plane and the highest point of the roof. Not included in such measurements are:
 - a. Cornices which do not extend more than 5 feet above the roof line;
 - b. Chimneys, vents, ventilators and enclosures for machinery of elevators which do not exceed 15 feet in height above the roof line;
 - c. Enclosures for tanks which do not exceed 20 feet in height above the roof line and do not exceed in aggregate area 10 percent of the area of the roof;
 - d. Solar panels which do not extend more than 4 feet above the ridgeline or, in the case of a flat roof, no more than 4 feet above the parapet; and
 - e. Towers, spires, domes and ornamental features.

1.5.5. Floor Area

- A. **Floor Area Ratio.**
 - 1. The gross floor area of all buildings on the lot divided by the total lot area.

2. FAR tables can be found in Sec. 3.1.9 and Sec. 3.2.11.

B. Floor Area, Gross.

1. **Residential Districts.** The sum of the floor area of all principal and accessory buildings whether or not habitable shall be taken from the exterior face of the exterior walls of each building without deduction for garage space, hallways, stairs, closets, thickness of walls, columns, atria, open wells and other vertical open spaces, or other features as defined in this Sec. 1.5.5, as defined below:
 - a. Gross floor area shall include:
 - i. First and second stories;
 - ii. Any floor area above the second story, whether finished or unfinished, that meets all of the following criteria:
 - a. It lies below the area of a horizontal plane that is 5 feet above it and which touches the side walls and/or the underside of the roof rafters;
 - b. Is at least 7 feet in any horizontal dimension, as measured within the area having a wall height of 5 feet or more;
 - c. Has a minimum ceiling height of 7 feet on at least 50 percent of its required floor area; and
 - d. Has a floor area of not less than 70 square feet as measured within the area having a wall height of 5 feet or more;
 - iii. Atria, open wells, and other vertical open spaces, where floor area shall be calculated by multiplying the floor level area of such space by a factor equal to the average height in feet divided by 10;
 - iv. Enclosed porches;
 - v. Attached garages;
 - vi. Detached garages and any space above the first story of a detached garage that has a ceiling height of 7 feet or greater;
 - vii. Other detached accessory buildings, such as sheds or cabanas, except as exempted in paragraph b. below;
 - viii. A portion of mass below the first story, to be calculated using the formula in paragraph D. below; and
 - b. Gross floor area shall not include:
 - i. Unenclosed porches;
 - ii. Doorway vestibules up to a maximum floor area of 24 square feet;
 - iii. Exterior insulation;
 - iv. Carports; and
 - v. detached accessory building equal to or less than 120 square feet in size.

8.3. Defined Terms

Exterior Insulation. Insulation that is installed exterior to the exterior structural wall of the building so as to improve the energy efficiency of the building.

Exterior Window Shading. Non-habitable architectural features attached to a building above windows to reduce the amount of sunlight entering the window.

Heat Pump Compressor. A device that serves as a heating and cooling system for a building by transferring heat energy into a building to heat it and out of the building to cool it. The compressor is the external portion of this system.

5.12. Sustainable Development Design

5.12.1. Intent and Purpose

The intent of this section is to reduce the use of energy, water, and other natural resources in Newton's building stock and minimize adverse environmental impacts from buildings and development in both construction and long-term operation by:

- A. Increasing the use of renewable energy sources for electricity, transportation, heat/cooling, and hot water
- B. Increasing the use of efficient electricity technology for transportation and buildings
- C. Increasing the number of buildings built to Passive House, net zero, or similar standards.
- D. Minimizing the environmental impacts of construction materials and methods, including waste reduction.

5.12.2. Definitions

- A. **Green Commissioning.** The process of verifying and documenting that a building and all of its systems and assemblies are installed, tested, operated, and maintained to meet specified levels of environmentally sustainable performance in accordance with the provisions of Section 5.12 of this Zoning Ordinance.
- B. **Green Commissioning Agent.** An entity or person with documented experience on at least 2 building projects with a scope of work similar to the proposed project extending from early design phase through at least 10 months of occupancy.
- C. **Green Building Professional.** A professional who holds a credential from a Green Building Rating Program indicating advanced knowledge and experience in environmentally sustainable development in general as well as specific Green Building Rating Systems or otherwise possesses comparable experience in environmentally sustainable development. In instances where a Green Building Rating Program that does not offer such a credential is being applied to meet the provisions of Section 5.12, the designated Green Building Professional must have demonstrated experience as a project architect or engineer, or as a consultant providing third-party review, on at least 3 projects that have been certified using the applicable Green Building Rating Program.
- D. **Green Building Project.** Any development project that meets the provisions of Section 5.12.3.
- E. **Green Building Rating Program.** A collection of activities and services directed by an organization to promote environmentally sustainable development and to recognize projects that achieve defined environmentally sustainable development objectives, including the establishment and oversight of one or more Green Building Rating Systems.
- F. **Green Building Rating System.** A specific set of design standards for environmentally sustainable performance established under the auspices of a Green Building Rating Program against which a project or building design may be evaluated.

5.12.3. Application of the Sustainable Development Requirements

- A. These sustainable development requirements apply to any proposed development in any zoning district that includes the construction or substantial reconstruction of one or more buildings totaling 20,000 sf or more of gross floor area that also requires issuance of a special permit under any provision of this Zoning Ordinance.
- B. **No Segmentation.** The inclusionary zoning provisions of this Section apply to projects at one site or two or more adjoining sites in common ownership or under common control within a period of five years from the first date of application for any special permit for construction on the lot or lots, or for the 12 months immediately preceding the date of application for any special permit. An applicant for development may not segment or divide or subdivide or establish surrogate or subsidiary entities to avoid the requirements of Section 5.12. Where the City Council determines that this provision has been violated, a special permit will be denied. However, nothing in Section 5.12 prohibits the phased development of a property.

5.12.4. Sustainable Development Requirements

- A. A green building project must be designed to meet the standards of one of the authorized green building rating systems identified in Section 5.12.5 according to the requirements listed below. Certification by the green building rating program is not required.
 - 1. **LEED Green Building Rating Program.** A green building project being designed according to the LEED Green Building Rating program must be designed to achieve a minimum 'Silver' level standard. Projects of greater than 50,000 sf of gross floor area must be designed to meet a minimum 'Gold' level standard.
 - 2. **Passive House Green Building Rating Program.** A green building project being designed according to the Passive House Green Building Rating program must be designed to achieve the minimum criteria for certification.
 - 3. **Enterprise Green Communities Green Building Rating System.** A green building project being designed according to the Enterprise Green Communities Green Building Rating program must be designed to achieve the minimum criteria for certification.
- B. **Electric Vehicle Charging Stations.** A green building project must provide that a minimum of 10% of parking spaces have access to electric vehicle charging stations up to a maximum of 40 spaces. An additional 10% of parking spaces must be electric vehicle charging station ready, meaning that electrical systems and conduit are prepared to expand the number of charging stations as demand increases. This Section 5.12.4.B only applies to new or rebuilt parking facilities; those projects using existing parking lots are exempt.
- C. **Solar Panels.** [reserved]

5.12.5. Authorized Green Building Rating Programs

- A. Any of the following green building rating programs may be used to meet the requirements of this Section 5.12.
 - 1. The Leadership in Energy and Environmental Design ("LEED") Green Building Rating Program developed and overseen by the United States Green Building Council;
 - 2. The Passive House Green Building Rating Program developed and overseen by either Passive House Institute US, Inc. or the Passive House Institute; or

3. The Enterprise Green Communities Green Building Rating Program developed and overseen by Enterprise Community Partners, Inc.

B. Applicability of Rating Systems.

1. If a green building rating program offers different green building rating systems, a green building project must use the system that is most directly applicable to the project or building type, as determined by the Planning Director.
2. The green building rating system must address the design and construction of buildings, not building operations or neighborhood development.
3. A green building project must use the most current version of the applicable green building rating system at the time of the special permit application.
4. The green building rating system, including the applicable version, must be specified at the time of special permit application.

5.12.6. Sustainable Development Review Procedures

A. Special Permit Submittal Requirements. The following must be submitted with the special permit application:

1. **Rating System Checklist.** A document enumerating the criteria set forth in the applicable green building rating system and indicating which technical and design requirements will be met in the green building project design and the resulting rating level of the green building project.
2. **Rating System Narrative.** A written description of the technical and design elements of the green building project that will be utilized to achieve compliance with the applicable green building rating system.
3. **Energy Narrative.** A written description of the energy efficiency, renewable energy, and other technical and design elements of the green building project that serve to minimize energy use, make use of renewable energy sources, and otherwise demonstrate how close the project is to achieving net zero energy use status. This narrative should include descriptions of building envelope performance, anticipated energy loads, site planning, mechanical systems and on-site and off-site renewable energy systems. The narrative must also describe how the building could be made to achieve net zero status in the future.
4. **Credentials.** A document demonstrating the credentials of the green building project's designated green building professional, which must include a credential from the green building rating program indicating advanced knowledge in the specific green building rating system being applied to the green building project.
5. **Affidavit.** An affidavit signed by the green building professional stating that he/she has reviewed all relevant documents and that to the best of their knowledge, the documents provided indicate that the green building project is being designed to achieve the requirements of this Section 5.12.

B. Building Permit Submittal Requirements. When applying for a building permit for a Green Building Project, the documentation listed in Section 5.12.6.A above, updated from any previous version to reflect the current Green Building Project design, and the additional documentation listed below must be submitted to the Department of Planning and Development.

1. Credentials of the Green Building Project's Green Commissioning Agent.
2. For a Green Building Project using the Passive House Green Building Rating Program, the following set of documents is required:

- a. Credentials of the Passive House rater/verifier who will perform testing and verification and letter of intent stating he/she has been hired to complete the on-site verification process;
 - b. Credentials of the Certified Passive House Consultant who has provided design, planning, or consulting services;
- C. **Certificate of Occupancy Submittal Requirements.** When applying for a final certificate of occupancy for a Green Building Project, the documentation listed in Sections 5.12.6.A and 5.12.6.B above, updated from any previous version to reflect the current Green Building Project design, and the additional documentation listed below must be submitted to the Department of Planning and Development.
 - 1. An affidavit signed by the Green Commissioning Agent, certifying that the pre-construction commissioning process requirements of Section 5.12.6.D have been met and that the post-construction commissioning process requirements of this Section were included in the scope of work and will be met, including a schedule of when each commissioning requirement was or will be met.
 - 2. For Green Building Projects using the Passive House Green Building Rating Program, the final testing and verification report completed by the Passive House rater/verifier.
 - 3. Credentials of the Green Building Project's accredited Green Building Professional and an affidavit signed by that professional stating that he/she has reviewed all relevant documents and that to the best of his/her knowledge, the documents provided indicate that the Green Building Project was built to achieve the requirements of Section 5.12.
- D. **Green Commissioning.** The Owner of property on which a Green Building Project is proposed must complete a Green Commissioning process with a Green Commissioning Agent. The Green Commissioning process must include the following activities for mechanical, electrical, plumbing, and renewable energy systems:
 - 1. Review contractor submittals;
 - 2. Verify inclusion of systems manual requirements in construction documents;
 - 3. Verify inclusion of operator and occupant training requirements in construction documents;
 - 4. Verify systems manual updates and delivery;
 - 5. Verify operator and occupant training delivery program and effectiveness;
 - 6. Verify seasonal testing;
 - 7. Review building operations 10 months after substantial completion; and
 - 8. Develop an ongoing commissioning plan that outlines the organization, schedule, allocation of resources, and documentation requirements of the commissioning process prior to the start of commissioning activities.

5.12.7. Exceptions

A special permit may be granted to allow for exceptions to this Section 5.12 if an applicant can demonstrate that the same or better environmental outcomes can be achieved through a different approach or project design. An exception may also be granted where literal compliance is impracticable due to the nature of the use or that such exceptions would be in the public interest.