

CITY OF NEWTON

IN CITY COUNCIL

November 20, 2017

ORDERED:

That, in accordance with the recommendation of the Public Facilities Committee through its Chair Deborah J. Crossley, the City of Newton Public Buildings Department Building Design and Construction Sustainability Guidelines be and are hereby approved as follows:

**City of Newton – Public Buildings Department
Building Design and Construction Sustainability Guidelines**

A) Introduction and Summary

In its decisions regarding the design and construction of new municipal buildings and the major renovation of existing municipal buildings, the City of Newton strives to reach the best balance among many goals. Key goals include those pertaining to building function, construction budget, operating costs, siting, appearance, maintenance requirements, longevity, and flexibility for future needs. This document is intended to better guide decision-makers who seek to achieve the best balance among these goals. They are recommendations and do not alter the existing jurisdiction or authority of the City Council.

- 1) These guidelines will be reviewed at least every three years by the Public Buildings Commissioner as technology developments and experience warrant.
- 2) Newton is a leader in the pursuit of a sustainable built environment. As it plans the construction and major renovation of buildings, it will look beyond minimum regulatory standards and consider intelligent building strategies that will contribute to substantial long term conservation of natural resources and operational economies. For each building design project, in addition to meeting code requirements, the City will evaluate all cost effective features that reduce energy and other operational costs and minimize environmental impacts through the use of sustainable building materials and other strategies. This document will guide building siting, design, construction, and operations.
- 3) Newton's goal of a sustainable built environment is, to the extent possible, to

- a. minimize the use of energy, water, and other resources
 - b. maximize the use of renewable sources to provide electricity and heat
 - c. maximize building longevity through rigorous design processes and quality-controlled construction
 - d. minimize environmental impacts of construction materials and methods
 - e. institute building operations and maintenance practices to minimize environmental impacts, achieve optimal performance and maximize occupant health and well-being.
- 4) In all new buildings and in the renovation of existing buildings the City strives to minimize building energy use. To attain that goal, the City has a building design and operation approach that will reduce life cycle costs, demonstrate significant improvements over previous designs, help define a path to net zero, and educate the community regarding feasibility and value. The path to net zero includes reducing building energy use as much possible and maximizing the use of on-site renewable power and heat.
- 5) Per Sec 5-54 of the City of Newton Ordinances, a Design Review Committee (DRC) has been established to coordinate the design review process, examine specifications and study the feasibility of any proposed public facility as submitted to it by the Mayor, City Council, or other public agency (e.g., the Public Buildings Department), and shall make recommendations on a range of solutions within realistic budgetary limits. The DRC may recommend that components of these guidelines be relaxed or modified to accommodate projects whose size or inherent nature make the component inapplicable.

B) Guidelines for Design Teams

1) Design Process Requirements

- a. Newton requires its design teams to use an integrated design approach at all phases of the design process, especially in schematics and design development. Because reduction in energy consuming features and HVAC loads may also reduce the size and cost of other parts of the project, and because choice of building materials may impact durability of construction, Newton requires its consultants to identify all building features that can be affected, when making energy efficiency related decisions. (See the attached commentary by Josh Morse, Newton's Buildings Commissioner, regarding "Integrated Design Approach".)
- b. During all phases of design
 1. Refer to "lessons learned" list from Public Buildings Department
 2. Evaluate Value Engineering options using life cycle cost analysis with full consideration of the impact on other building systems and components.
 3. Value Engineering options that increase energy use require recommendation by the DRC
 4. Continuously consider, propose and evaluate sustainability options
 5. All budget estimates to include air infiltration testing

c. During Conceptual Design Phase

Provide a minimum of three options before completion of Conceptual Development Phase. These options will require creative interactive discussions among the design consultants. These analyses will address onsite alternative energy source options and consider funding sources beyond the established building budget. The City will explore budget sources for Options 2 and 3 before completion of Conceptual Design.

Option 1. Meets all codes and budget

Option 2. Reduces energy use to 30% below code requirements, with any budget implications

Option 3. Reduces energy use to net zero. If net zero is not feasible, show an option that reduces net energy use to the minimum feasible. Estimate budget implications.

d. During Schematic Design Phase

1. At the start of Schematics, the City will direct the design team regarding the major options developed in Conceptual Design.
2. The design team will develop options to improve sustainability within the parameters accepted in Conceptual Design. Evaluate life cycle costs of each option.

e. During Design Development Phase

1. The design team will develop options to improve sustainability within the parameters accepted in Schematic Design. Evaluate life cycle costs of each option.
2. Make provisions that enable future building modifications to improve sustainability.

f. During Completion of Construction Drawings

1. Develop options for commissioning building envelope construction
2. Develop options for air infiltration testing

g. Modeling for Large Projects. For projects of 20,000 square feet or more of gross floor area the design team is responsible for Building Energy Use Modeling using the following approach:

1. Establish expected schedule of building use before completion of schematics
2. As the design progresses, refine the model and complete energy model runs at Schematics, Design Development, and near completion of Construction Drawings. These models will be used to guide designers on how to achieve better energy conservation results and the impact of sustainability options being considered.
3. For schools, evaluate the feasibility of reducing energy use by 5%, 10%, and 15% compared to the models of three recently completed Newton schools.

2) Certification and Ratings system requirements

- a. Design teams are responsible to meet the following requirements. While LEED is presently the preferred benchmarking system the DRC/ Public Buildings Department may consider alternative indices.

- b. Projects of less than 20,000 sf shall meet the requirements of the most current applicable US Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) Building Design and Construction (BD+C) building rating system at the level 'Certified' or better.
- c. Projects of 20,000 square feet or more of gross floor area shall meet the requirements of either:
 - 1. The most current applicable LEED BD+C building rating system at the level "Gold" or better. For twelve months from the time of adoption of a new version of LEED projects shall have the option to file under either the old or newly-adopted version.
OR
 - 2. For schools, energy efficiency standards acceptable by the Massachusetts School Building Authority (MSBA) for additional reimbursement.
- d. To further support the design, construction, and operation of a project that meets Newton's requirements for energy, water, indoor environmental quality, and durability, provide for implementing the LEED BD+C Enhanced Commissioning requirements.
- e. The Design Review Committee may recommend any municipal project conform to the certification system without actual participation in the formal process.

C) Guidelines for Designer Selection Committee

Consider the comparative capabilities and experience of design teams, including sub-consultants, to respond to these Guidelines as part of the designer selection criteria. Compare design teams' familiarity with recent sustainability achievements of similar buildings.

D) Guidelines for Public Buildings Department

- 1) Include these Guidelines in RFQs and contracts with Design Teams.
- 2) For all design projects, identify means to fund Life Cycle Cost-effective options that raise the cost higher than the established budget.
- 3) Maintain "lessons learned" list for use by design teams. Update this list after construction of each project and after one year of its occupancy. Semi-annually provide this list to the DRC. Among many other considerations, "lessons learned" shall include:
 - a. Evaluation of high performing windows used on recent projects
 - b. Evaluation of air barrier and insulating wall and roof assemblies used on recent projects
 - c. Evaluation of constructability of thermal break strategies in foundations and structural components on recent projects
 - d. Evaluation of HVAC and lighting approaches used on recent projects

- e. Evaluation of building controls, management, monitoring and display functions
 - f. Evaluation of durability and performance of building materials
 - g. Evaluation of educational opportunities for users and the community
- 4) Two years after completion of projects larger than 20,000 sf, compare actual energy use to the building model, and include reasonable explanations for significant deviations, recommendations for performance improvements, and a plan to implement such improvements. Require re-measurement and review one year after substantial completion of any significant improvements.

Establish a formal “recommissioning” process to be completed by the third year of occupancy of buildings, and repeated every three years as follows:

- a. Projects of at least 10,000 sf of floor area but less than 20,000 sf shall meet the requirements of the most current applicable LEED Operations and Maintenance (O+M) building rating system at the level ‘Certified’ or better.
- b. Projects 20,000 sf or more shall meet the requirements of the most current applicable LEED O+M building rating system at the level ‘Silver’ or better.

Under Suspension of Rules

Readings Waived and Approved by Voice Vote

(SGD) DAVID A. OLSON
City Clerk

(SGD) SETTI D. WARREN
Mayor

Date: _____