

## 9.0 SUSTAINABLE DESIGN

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The Proponent supports goals of the Commonwealth of Massachusetts and the Town of Wayland to promote sustainable design measures for construction projects. Although the Wayland Town Center project is still in the preliminary design stages, this section provides a description of the sustainable design measures to be evaluated for incorporation into the building designs.

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System sponsored by the US Green Building Council provides a measure of the sustainable efforts of the final building designs. Although the project is still in the preliminary design stage, the Proponent intends to evaluate potential sustainable design measures using the LEED Green Building Rating System as a general guideline.

The following is a brief analysis of the sustainable design measures that will be evaluated as the project progresses.

### 9.1 Sustainable Site Provisions

The Wayland Town Center project is situated on land which has been previously developed as a surface parking lot and a large commercial building. When completed, the project will create a new mixed use community featuring housing, retail space and a municipal building.

The Proponent will work to reduce the absorbed heat on landscape and roof surfaces by providing trees for shading. The design will include small landscaped parking fields with the goal of reducing the heat-island effect as compared to the existing surface parking lots on the site. Efforts to reduce light pollution from site lighting will likely include low-level indirect light fixtures with cut-off lens or other appropriate devices.

#### **9.1.1**     *Water Use*

Plumbing fixtures and appliances will be specified to reduce the usage of water as required by the Massachusetts State Building Code.

#### **9.1.2**     *Energy and Atmosphere*

The goal of harvesting site energy is addressed by the buildings massing, unit layouts and the HVAC design. For the residential buildings, the floor plates will be articulated to provide as much day-lighting as possible to living areas. The overall depth of the floor plates will be kept small to reduce the reliance on artificial lighting. Living rooms and bedrooms will be located at the perimeter of the buildings and internal spaces such as kitchens will be open to allow natural light and ventilation.

The residences will be heated and cooled with 4-pipe fancoil units or heat pumps, either of which will allow simultaneous heating or cooling of the units depending on the building orientation, reducing the need to heat or cool the entire building simultaneously. The windows in the residential units will be operable to allow the occupants to use natural ventilation when weather allows. Individual metering will also provide financial incentives to conserve energy.

Care will be taken to assure that all systems are installed and function as designed, and commissioning requirements will be included in the specifications, if appropriate. All building components will meet the Massachusetts Energy Code Ch.13.

Efforts to reduce energy use will be evaluated and incorporated as appropriate. Wherever feasible, building systems will be controlled by automated building management systems to reduce energy consumption.

### ***9.1.3 Indoor Environmental Quality***

The Proponent will work toward the goal of meeting the minimum requirements of the voluntary consensus standard ASHRAE 62-1999 Ventilation for Acceptable Indoor Air Quality and approved addenda. Entrance lobbies will likely include fixed entryway systems to capture dirt and other particles, and fumes, if present, will be vented or drained to prevent re-circulation of contaminants.

Where possible, CO<sub>2</sub> monitoring will be incorporated with the building management systems to maintain indoor air quality. Ventilation throughout the project will be designed to permit natural ventilation where practical, and mechanical ventilation will strive to attain an air change effectiveness of 0.9 as defined by ASHRAE 129-1997.

Wherever practicable, individual thermostats, humidity and ventilation controls will be incorporated to improve the comfort of occupied spaces and conserve energy in unoccupied areas.

Indoor air quality management plans for construction and pre-occupancy phases will be reviewed during the final design phases for the project and the Proponent will evaluate building components, including paints, sealants, carpets and other products with the goal of reducing volatile organic compounds.

## **9.2 Construction and Building Materials**

The residential buildings will include provisions for designated recycling storage to encourage residents to participate in town-sponsored recycling programs.

The exterior façade materials, with proper maintenance of sealant and waterproofing, are expected to have a long life span.

As material components and finishes are selected, the Proponent will evaluate materials that contain a percentage of post-consumer and post-industrial recycled content. Materials that include recycled products are steel, concrete, and interior finishes such as carpet, tile, and fabrics. Where recycled products are not available, virgin materials will be evaluated that are rapidly renewable and readily recycled at the end of their useful service life. In addition, regionally manufactured materials will be used wherever practicable.

Where feasible and consistent with environmental regulations, abandoned concrete foundations and other stone material encountered during excavation will be crushed and reused as drainage fill.

### 9.3 Building Systems

Although the project is in the preliminary design stage, the Proponent will evaluate a range of sustainable building design and construction measures, as further outlined below:

*Thermal Performance.* The buildings will be designed to comply with current energy code requirements to improve thermal performance. The proposed designs will likely provide a high percentage of solid, insulated walls that will improve the overall thermal performance of the buildings. Windows and other glass areas will be double-glazed with low E glass and thermal break frames to minimize heat transfer. Additional air barrier detailing will be provided at the window frames to minimize air infiltration.

*Building Mechanical Systems.* The Proponent will evaluate sustainable design measures for the building mechanical systems to minimize energy consumption. The residential mechanical system is likely to be a four pipe fan coil system or heat pumps, either of which allows individual control of heating and to minimize the amount of energy consumed. The Proponent will also evaluate sustainable design elements for the heating, cooling, and circulation system components, including high-efficiency motors for fans and pumps, energy-efficient lighting, and energy management systems with space temperature control.

*Recycling.* The Proponent will encourage recycling efforts by retail tenants, restaurants and residents. Recycled materials will likely include mixed paper, newspaper, cardboard, cans and bottles, glass, plastics, magazines, phone books, and wooden pallets, as is accepted by the Town of Wayland's recycling program. Space for sorting, storage, and pick-up of recyclable materials will be provided in the residential buildings. Building management will also provide residents with the facilities and services necessary to recycle materials consistent with the Town of Wayland's recycling guidelines and regulations.

*Local Building Materials.* Local building materials will be used for construction and operation of the project whenever possible and economically feasible.

*Future Adaptability.* Accommodations for future energy and environmental technologies will be evaluated during the design phase and incorporated whenever possible and feasible.

*Carbon Monoxide Alarms.* Carbon monoxide meters will be included in the residential units and the proposed garages.

*Anti-idling Signage.* Anti-idling signage will be installed in all loading areas.

*Sensor-operated Toilets and Faucets.* As required by the Massachusetts State Building Code, the Proponent will install low-flow toilets and urinals, flow aerators on lavatory faucets, and sensor-operated faucets and toilets in public restrooms.

#### **9.4 Exterior Spaces**

*Native Plantings.* The Proponent will include native and drought-resistant plant species in project landscaping to the extent feasible to reduce irrigation needs.

*Sprinkler System.* Irrigation system sprinklers will include timers, tension meters, and rainfall sensors.

*Exterior Project Lighting.* The Proponent will consider the use of shielded lights with full-cutoff lens and fixtures that direct the light properly and uniformly on the ground and energy efficient lighting, such as fluorescent or low-pressure sodium light sources.

## 10.0 Mitigation and Draft Section 61 Findings