Sunrise Chestnut Hill

Enterprise Green Communities (EGC)
Green Building Rating System Narrative

May 5, 2022

Sunrise Senior Living (Sunrise) and their design team are designing Sunrise Chestnut Hill, the project, to meet the standards of the Enterprise Green Communities (EGC) Green Building Rating program.

1. Integrative Design

Integrative Design promotes collaboration between Sunrise, the architect, consulting engineers, sustainability consultant, general contractor, and major subcontractors. GHP will be facilitating the completion of EGC's "Project Priorities Survey" before the team begins the integrative design process.

After completing the "Project Priorities Survey," the team will develop a process for working through each of the action steps required through a series of collaborative meetings. Responsibility for each action step will be assigned to a member of the Integrative Design team.

To ensure that the general contractor, subcontractors, and vendors comply with the requirements, EGC criteria will be included in the contract documents, and project specifications. A summary of the "Project Priorities Survey," the sustainability goals, and the anticipated roles of each party will be made a part of the contractor/subcontractor education training plan. This plan will be attached and referenced in Division 1 Specifications, Section 01 81 13 – Sustainable Design Requirements.

2. Location + Neighborhood Fabric

2.1 Sensitive Site Protection

The proposed project is located on an existing developed site thereby minimizing disturbance to undeveloped areas. The site is not located in or near floodplains, wetlands, threatened or endangered plants or species, and therefore, will not impact sensitive areas or prime undeveloped farmland.

Site disturbance has been limited to previously developed and disturbed areas to preserve existing mature trees around the perimeter of the site. The existing mature landscaping will continue to provide shade and visual buffers to the neighboring sites. Additionally, most of the parking provided will be structured below the new building to minimize site disturbance and additional heat island impact.

2.2 Connections to Existing Sites and Infrastructure

The Site is surrounded by various condominium developments to the west, east, and south, and a commercial development to the north of Florence Street. The proposed project allows for vehicular and pedestrian access to Florence Street. Water, gas, electric, telecommunications and sewer services are all available to the Site from the Florence Street right-of-way.

2.3 & 2.4 Compact Development

The project site is 1.9 acres in size with a resultant density of approximately 48 units per acre, exceeding the minimum standard for compact development project density of 15 units per acre.

2.7 Preservation of and Access to Open Space

The project site is located approximately 1,000 feet from over 3.3 acres of athletic fields and open space behind the Bowen Elementary School.

2.8 Access to Transit

The Site is located approximately 0.12 miles from access to public transportation. Massachusetts Bay Transportation Authority (MBTA) bus route no. 60 travels along Route 9, and there is a designated bus stop on the south side of Route 9 immediately to the east of the project site. A sidewalk is provided between the site and the existing bus stop. Route no. 60 travels between The Mall at Chestnut Hill (renamed The Shops at Chestnut Hill) in Newton and Kenmore Station in Boston. Connections are provided to the MBTA Green Line light rail service at Kenmore Station. Service on bus route no. 60 is provided approximately every 30-40 minutes during peak hours.

The Site is also served by the D branch of the MBTA's Green Line light rail service. The D branch of the Green Line connects Newton with Brookline and Boston and travels from Riverside in Newton to Government Center in Downtown Boston. The nearest stop to the Site on the D branch of the Green Line light rail system is Chestnut Hill, located approximately one-mile walking distance from the Site via Route 9 and Hammond Street. Service is provided approximately every 6-8 minutes during peak hours.

2.15a Access to Broadband: Broadband Ready

Comcast provides broadband service to Newton with service available on Florence Street. A telecom service connection will be provided from Florence Street to the building.

3. Site Improvement

3.1 Environmental Remediation

Phase I and Phase II Environmental Site Assessments have been completed for the subject site.

3.2 Minimization of Disturbance During Staging and Construction

The Project will disturb more than one acre of land; therefore, the EPA National Pollutant Discharge Elimination System (NPDES) Construction General Permit (GCP) requirements will need to be implemented. As required by this permitting process, a Stormwater Pollution Prevention Plan (SWPPP) will be developed and submitted for review and approval before any land disturbance begins.

3.4 Surface Stormwater Management

The proposed stormwater management system will prioritize infiltration facilities where conditions are most amenable to maximize groundwater recharge and provided water quality for at least the 60th percentile precipitation event. The stormwater management system will consist of biofiltration systems and subsurface arched infiltration systems. Runoff from the site will be collected in or passed through one or more Best Management Practices (BMPs), as described above, designed specifically to recharge groundwater and/or remove Total Suspended Solids (TSS) and phosphorus to levels prescribed by Massachusetts Department of Environmental Protection (MDEP), prior to discharging off-site.

4. Water

Sunrise is focused on providing high quality domestic water to their residents and staff as well as extending the life of appliances. A water quality test will be conducted to determine the requirements for the installation of a water conditioning system.
Domestic hot water will be heated and stored utilizing either electric water source heat pump or gas fired high efficiency (98% efficient sealed combustion) tank type condensing water heaters. The water will be stored at 140°F to prevent legionella growth. A tempering valve will be provided to temper domestic hot water to 110°F for general use. 140°F water would be distributed to selected fixtures in kitchen and laundry facility. In case of using Water source heat pump system for HVAC optional water source heat pump domestic water heaters will be specified to meet decarbonization requirements. Domestic hot water will be distributed throughout the building using an inline circulating pump to meet International Energy Conservation Code (IECC) C404; to minimize the wait time for hot water at fixtures, all piping will be insulated as required by IECC using low volatile organic compounds (VOC) adhesives.

Water conservation and overall water reduction is one of the design goals. Low-flow plumbing fixtures will be specified as follows:

- Water closets: Floor-mounted, water closets with 1.28 gallons per minute (gpm) flow rate with an accessible height seat and controls.
- Lavatories:
    - Resident Units: Accessible operation, set in vanity, large wrist blade handles with an 1.5 gpm flow rate.
    - Public Toilet Rooms: Accessible operation, undermount with sensor faucet, with an 0.5 gpm flow rate. Also included will be an under lavatory mixing valve conforming to ASSE 1070.
- Showers: Accessible operation, ADA 5'-0" roll-in design with a built-in trench drain and 3'-0" ADA side transfer types will be used. The latter design will include a 1/4" threshold, stainless steel trench grate, pre-plumbed mixing valve, single-lever handle, hand-held shower with an 1.5 gpm flow rate. Also included will be a slide bar, shower rod, grab bars with full wall blocking for attachment of accessories as part of design.

5. Operating Energy

Sunrise's commitment to environmental stewardship is demonstrated by efficient energy management in their communities. They are committed to the environment by making energy-conscious decisions and executing cost effective improvements to their buildings and community operations. Sunrise takes pride in their leadership not only in the future of senior care but also in the fact that they are leading the field in energy efficiency.

Since the EPA created "Senior Living Community" as a property type for Energy Star Certification, Sunrise has more than forty (40) Sunrise communities in the senior living community's category certified every year in this EPA ENERGY STAR award program. This certification solidifies their commitment to maintaining highly efficient communities. Over two hundred (200) Sunrise communities are enrolled in the Energy Star program. The water, gas, and electric bills for all Sunrise senior living communities in the United States are submitted monthly and rated against other Energy Star participants. Sunrise was the first senior living operator to enroll and achieve this certification, and they continue to have the most certifications. The ENERGY STAR certification signifies that these buildings perform in the top 25 percent of similar buildings nationwide for energy efficiency and meet strict performance levels set by the EPA. These communities use an average of thirty-five percent (35%) less energy and release thirty-five percent (35%) less carbon dioxide than typical communities.

It is not just the initial building program that is considered when a community, such as Chestnut Hill, is constructed. This is a living program. Sunrise conducts a "battle of the buildings" internal competition nationwide where each building is evaluated year over year to determine which one saves the most energy over the previous year. This creates awareness and engages all community team members to try to reduce energy consumption. Additionally, behavioral training for community team member staff reinforces Sunrise's commitment to their energy saving policy. Staff receive guidelines for day-to-day lowering of energy consumption in numerous ways. Staff is educated and awareness of specific operational behaviors is promoted focusing specifically on implementing best practices for efficiency.

All Sunrise communities have a comprehensive maintenance program in place to maintain equipment and conserve energy costs focusing on best practices for efficiency in the areas of kitchen and laundry operations, lighting and Heating Ventilation Air Conditioning and Refrigeration (HVAC&R) maintenance and management.

Mechanical System

To help put the HVAC system selection process in context, the following characteristics of the building, as currently designed, have an influence on the system selection:

- There are ninety-five (95) Assisted Living (AL) and Memory Care (MC) units located in this 5-story building.
- The building will be constructed of a concrete structure and will be designed with a low-slope roof.

- Energy efficiency is a significant controlling factor in Heating Ventilation Air Conditioning (HVAC) system selection and design.
- The building will be configured for utility metering by providing a single meter for each of the following: Electric; Water/Sewer; and (optional) Natural Gas.
- Resident areas will be mechanically ventilated and continuously exhausted 24/7 using Energy Recovery Units (ERU) which incorporates the use of a heat recovery enthalpy wheel.
- Occupants' temperature comfort, indoor air quality, and acoustic disturbance within each resident unit are of primary importance when designing the mechanical systems.

Given the criteria above, Sunrise has identified two possible HVAC systems for the resident units in the Chestnut Hill building.

1. Variable Refrigerant Volume (VRV) often synonymous with Variable Refrigerant Flow (VRF) for resident units and smaller public spaces. Ducted return with MERV-8 return filter grill will be specified to improve Indoor Air Quality (IAQ). The system will have roof mounted condensing heat pumps known as Heat Recovery Units (HRU) capable of providing simultaneous heating and cooling year around in every resident unit. Each fan coil will be controlled via programmable thermostat connected to simple VRF control panel. The set points will be set for night set back temperatures to save energy.
2. Water Source Heat Pump (WSHP) often synonymous with Hydronic 2-pipe system for resident units and smaller public spaces. Stacked type heat pump with built-in MERV-8 return filter grill will be specified to improve Indoor Air Quality (IAQ). The system will have roof mounted cooling tower and electric or gas fired boiler. Set of VFD driven pumps will distribute condenser water thru the building. Set of small inline pumps will inject the heat from the boilers in wintertime. This system is capable to provide simultaneous heating and cooling in every resident unit year around. Each heat pump will be controlled via programmable thermostat. The set points will be set for night set back temperatures to save energy.

For both systems high efficiency gas-fired (or electric heat pump) 100% outside air Energy Recovery Units (ERUs) will be used to provide conditioned, code required ventilation air in every resident room and continuous exhaust from all bathrooms and toilet rooms. These units will be able to operate in the ventilation and heating mode during loss of power via an emergency generator. ERUs will be equipped with MERV-13 pre-filter, UV light and final MERV-8 filter. Also, the units' operation modes (heating, cooling, dehumidification, economizer) will be controlled with programmable thermostat and humidistat.

For large public spaces for both systems, high efficiency Roof Top Units (RTUs), gas fired energy recovery units (or electric heat pumps, or water-cooled heat pumps) will be specified. These units will be equipped with MERV-8 filters, UV light, demand ventilation control with CO2 sensor in the high occupancy spaces to reduce energy use. The set points will be set for night set back temperatures to save energy and carbon pollution. All ERUs and RTUs will be connected and monitored, set points and status, thru simple control panel accessible by building operation employee.

Insulation Requirements

- All ductwork, piping, plenums, and equipment with be insulated with IECC required or higher R-value insulation using low VOC adhesives and sealants.

Testing, Adjusting, Balancing, (TAB), Commissioning

- Testing, Adjusting, Balancing, (TAB), will be performed for all air and water systems/equipment in accordance with Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB) requirements.
- The Testing, Adjusting and Balancing (TAB) agency will be certified by AABC or NEBB.
- Report of final measurements and equipment operational performance data will be reviewed by design of record and owner.
- Project Commissioning is anticipated.

Electrical System

Electrical Service and Distribution

Power service to the building will be from a pad-mounted utility company transformer. The service will be 208/120 volt, three-phase, four-wire. The main switchboard will have three sections. There will be an incoming section, a main section, and a distribution section. The switchgear will be in a dedicated electrical room in the garage. The larger custom, centralized HVAC equipment will be fed from main switchgear or dedicated distribution panelboards.

Charging Stations

Per Newton's Zoning Ordinance, a minimum of 10% of the parking spaces will have access to electric vehicle charging stations, and an additional 10% of parking spaces will be electric vehicle charging station ready, meaning that electrical systems and conduit are existing for expanding the number of charging stations as needed.

Renewable Energy

If possible and there is sufficient area on the roof, there will be infrastructure present for the potential installation of photovoltaic solar panels.

Emergency Power

Sunrise's primary goal is to keep residents and staff safe and comfortable in the building during a power outage. The building will have an emergency generator designed within a weatherproof enclosure. The emergency generation system will have two Automatic Transfer Switches (ATS). One ATS will be dedicated to life safety (NEC 700) as required by the National Electrical Code (NEC). These loads will include exit and egress lighting, the fire alarm system, and any emergency communications systems. The other ATS (NEC 702) will serve optional standby electrical loads including non-egress area lighting, communications, and security systems, one elevator, HVAC heating and ventilation for select areas, kitchen coolers/freezers, computer systems and other loads as deemed necessary.

If a fire pump is determined to be necessary, it will have its own ATS, which will be connected directly to the utility and to the emergency generator output circuit breaker. The size of the generator will be determined based upon the need for a fire pump and the number of building systems to be served.

Lighting

Lighting in the building will primarily be specified as high efficiency LED fixtures. The residential units will have a ceiling mounted fixture in the wet-bar area and a vanity light over the mirror in the toilet area. A night light will be provided in each resident bedroom and bathroom. These night lights will also be LED.

Corridors shall be a minimum of 15 foot-candles of illumination levels during the day and 7.5 foot-candles at night. Resident rooms shall have minimum illumination levels of 7.5 foot-candles as general lighting, and a minimum of 30 foot-candles at the designated reading areas (bed/chair area) and/or in the toilet/bathroom area.

Occupancy sensors will be provided in offices, meeting rooms and other areas for energy efficiency.
Exit lights will be LED type, located in all paths of egress. Emergency/night lighting will be provided by un-switched branch circuits.

Exterior lighting shall have egress illumination levels as required by National Fire Protection Association (NFPA) 101. Only the portion of the exterior discharge that is immediately adjacent to the building exit discharge door will incorporate required emergency illumination and not the entire exterior discharge path to the public way. All fixtures will be sharp cut-off type and select fixtures will utilize house side shields to minimize the light trespass.

6. Materials

6.4 Healthier Material Selection

Low VOC products for Interior paints, coatings, primers, adhesives, sealants, etc. will be specified for this project.

6.6 Bath, Kitchen, Laundry Surfaces

Sunrise has consistently, and will in this project, use non-porous surfaces that are easily cleanable in all their residential bathrooms and kitchen, as well as the laundry areas. The shower enclosures are one piece fiberglass enclosures.

6.8 Managing Moisture: Foundations

The foundation at the underground garage will have a foundation waterproofing system with a drainage plane.

6.10 Construction Waste Management

Sunrise will work with the selected Contractor to develop a waste management plan that will implement recycling and salvaging non-hazardous construction waste.

7. Healthy Living Environment

7.1 Radon Mitigation

The Chestnut Hill site is in the Radon Mitigation Zone 1. Sunrise will install a radon mitigation system.

7.3 Combustion Equipment

Design goal is to provide a high level of indoor air quality, maintaining appropriate temperature and humidity levels and building free of combustion equipment. Therefore, Minimum Efficiency Reporting Value (MERV)-8 filters will be specified in addition to MERV-13 filters in 100% fresh air units. Programmable thermostats and humidistat will constantly monitor space temperature and humidity and adjust HVAC system operation to meet space requirements.

7.5 Integrated Pest Management

Sunrise has a complete integrated pest management plan for each of their communities. All wall, floor and joint penetrations will be sealed with low-VOC materials to prevent pest entry. Additionally, the underground garage will be fully isolated from the living spaces above with a continuous insulating air barrier system. Pest management will prohibit migration into the living spaces.

7.6 Smoke-Free Policy

Sunrise has a smoke free policy within and around the perimeter of their buildings. No smoking is allowed, and the smoke free policy is enforced.

7.11 Active Design: Promoting Physical Activity

Sunrise provides dedicated exterior recreation space for the seniors who reside there, both at grade level and at exterior balconies.

7.12 Beyond ADA: Universal Design

Requirement: Select and implement at least one of the Options with at least three different strategies in at least seventy-five percent (75%) of units.

- Option 1: Create welcoming and accessible spaces that encourage equitable use and social connections.
- Option 2: Create spaces that are easy and intuitive to use and navigate.
- Option 3: Promote safety and create spaces that allow for human error.
- Option 4: Create spaces that can be accessed and used with minimal physical effort.
- Option 5: Create spaces with the appropriate size and space to allow for use, whatever the user's form of mobility, size, or posture.

Because of the nature of the population that resides in Sunrise communities, options 1 to 5 are very important. Spaces are either universally accessible or have accessible areas within them. Spaces are easy and intuitive to use and navigate. Safety is important at all times, and spaces will be designed considering residents' safety. Little to no physical effort is required to use all the common spaces and units. Dining areas, Bistro and Activity spaces are universally welcoming, generous and function well.

8. Operations, Maintenance + Resident Engagement

A Building Operations & Maintenance Manual (O+M Manual) and Plan will be developed over the course of the project by the design/development team and the general contractor, and the mechanical, electrical, and plumbing subcontractors. At a minimum, it will address the list of topics noted in the Enterprise Green Communities (EGC) criteria under section 8.1.

Every Sunrise Senior Living community has an extensive Emergency Management Manual which addresses responses to various types of emergencies and how to sustain the housed community throughout an emergency. The manual covers the emergencies having the greatest probability of negatively affecting the project down to the least likely emergency to affect the project. It includes a communication plan for staff and residents, important contact information, infrastructure and building procedures if the building is required to be shut down, and the emergency power backup system.

A Resident Manual will also be developed to provide a guide for all residents in the community explaining the "intent, benefits, use, and maintenance of their" community's green features and practices. It will encourage the green and healthy activities.

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