Columbia Street Annex
Chapel Hill, NC
Special Use Permit Application, April 2018

Energy Management Plan

Description of how project will be 20% more energy efficient than ASHRAE Standards

The Columbia Street Annex project has been planned to be as near Carbon Zero as possible. The building envelope including its materials and windows will contribute to its efficiency. All windows will use low-E glazing and will possibly be triple glazed in order to provide the best possible energy control, but still allowing operable glazing for fresh air. Insulating units throughout will be designed to exceed ASHRAE standards for heat transmission. Each unit's heating and cooling will be handled by its own high efficiency heat pump unit, exceeding current minimum standards.

Description of how project will ensure indoor air quality, adequate access to natural lighting, and allow for proposed utilization of sustainable energy

The residential levels of the Columbia Street Annex have been designed so that each dwelling unit has access to natural light and ventilation on two opposing ends of each unit. This is a strategy that allows the use of natural cross-ventilation, minimizing the need for air conditioning in warmer months.
This generous access to natural light will also minimize the use of electricity for lighting during daylight hours. Each unit in the building will have its own fresh-air intake louver integral into a high-efficiency heat pump unit, ensuring fresh air exchange in all seasons.

Description of utilization of sustainable forms of energy (Solar, Wind, Hydroelectric, and Biofuelus)

From its inception, Columbia Street annex has been conceived with the implementation of sustainable energy as a core design feature. The roof will allow space for a solar array of approximately 6,000 sf, generating up to 60KW of energy. This amount of power would supply the building's entire power needs during most hours of daylight, and would likely be contributing excess power to the regional grid during peak sun hours when power needs of the building will be low.

Description of how project will maintain commitment to energy efficiency and reduced carbon footprint over time

The building's roof will hopefully house photovoltaic panels. PV panels could supply electric power. Perhaps more importantly, the in-town location of the building and the density of housing provided are the primary means by which the building serves as a model of reduced carbon footprint, allowing many occupants to forego the use of cars as part of the daily commute.

Description of how the project's Transportation Management Plan will support efforts to reduce energy consumption as it affects the community

The Columbia Street Annex site is uniquely situated for its proximity to bus lines serving Chapel Hill and the region. In addition to public transit availability, the site's convenient location relative to UNC Chapel Hill and

the UNC Hospitals is a great opportunity for pedestrian and bicycle commuting, eliminating the need for fossil-fuel based transit for many residents of the complex. The realistic opportunity for walking/biking commuting as an alternative to automobile commuting encourages a decrease in auto use and auto ownership, reducing pollution, energy consumption, and vehicular traffic. Further CSA will provide:

- 2 vehicle charging stations (to service 4 parking spaces)
- Conduit installed during construction to allow for future charging stations to serve at least 20% of parking spaces