

Trinity Court

Conditional Zoning Application

07 February 2022

Energy Management Plan

Revised

The current Town of Chapel Hill Energy Management Plan section of the Conditional Zoning application list of requests are itemized below with accompanied support responses in italics.

1. **Description of how the project will be 20% more energy efficient that ASHRAE Standards**

- a. *Design of the project proposes to incorporate the following elements:*
 - i. *Sealed building envelope design with high insulation values at walls, ceilings and floors.*
 - ii. *Energy recovery and high SEER energy efficient air source heat pump HVAC systems*
 - iii. *High-efficiency domestic hot water systems*
 - iv. *Low-emissivity, ENERGY STAR rated Windows with high visible light transmittance and low solar heat gain.*
 - v. *Use of ENERGY STAR appliances and equipment; low flow toilets*
 - vi. *Use of vegetation to lower energy consumption and reduce the heat island effect*
 - vii. *Preservation of the existing tree canopy*
- b. **Lighting Design**
 - i. *LED lighting for buildings and site*
 - ii. *Low-emissivity, ENERGY STAR rated Windows with high visible light transmittance and low solar heat gain.*
 - iii. *Bright interior finish colors to improve daylight harvesting and reduce the need for electric lighting during daytime hours*
 - iv. **Occupancy sensors will be installed, where appropriate, in public areas.**
- c. *The project will also participate in Duke Energy's New Construction Energy Efficiency Design Assistance program (NCEEDA). This program provides the design team with information on different energy efficiency strategies that can be used to achieve the 20% savings target. Participating in the program will also defray some of the upfront costs for these strategies through a rebate from the utility company.*

2. **Description of utilization of sustainable forms of energy (Solar, Wind, Hydroelectric, and Biofuels).**

- a. *Wind, solar, and biofuels have all been evaluated on recent projects but are either unavailable at the proposed site or currently outside of the project budget*
- b. *Each building will be constructed as "PV-ready", with the infrastructure in place*

to accommodate the installation of photovoltaic panels in the future

3. Participation in the NC GreenPower program

- a. *The project does not currently plan to participate in the NC GreenPower program as a customer. However, the “PV Ready” provisions mentioned above will allow the building to eventually become a generator with this same program.*
- b. *The project proposes to review opportunities to meet requirements of other sustainable, residential, “green” programs in lieu of the NC GreenPower program*

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

- a. *All paints, sealants, fabrics, and finishes will contain low VOC content to ensure good indoor air quality.*
- b. *All bedrooms will contain operable windows allowing natural ventilation and light to interior environments.*
- c. *A balanced supply of outdoor air and exhaust, utilizing an energy recovery unit, will support better indoor air quality.*
- d. **All regularly occupied spaces will have direct access to a reasonable amount of natural light through operable windows.**

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

- a. *The Trinity Court community proposes a strong commitment to energy efficiency and reduction of the carbon footprint within the primary goal of providing quality affordable residential housing options for the community of Chapel Hill. While the project will not be LEED certified, it does propose to incorporate sustainable design goals within all aspects of the project for design, construction and occupancy.*
- b. *Community Housing Partners has an extraordinary legacy of occupant education through their Resident Services program, and will continue that legacy here at Trinity Court with an ongoing resident education program that emphasizes both the economic and environmental benefits of energy efficiency and a reduced carbon footprint.*
- c. *The project proposes to create a community of environmental equity and culture by:*
 - i. *Providing positive environmental health impacts for residents*
 - ii. *Providing access to natural resources for recreation*
 - iii. *Promoting a sense of community*
 - iv. *Providing stewardship opportunities*
- d. *The project proposes to collaborate with the Town of Chapel Hill Department of Parks and Recreation to provide opportunities to engage the surrounding park land and access the nearby Tanyard Branch Trail.*
- e. ***Concrete (a high-albedo material) is specified for walkways, curbs, gutters, and the ADA-compliant parking dropoff zone. Site is situated amongst dense, mature vegetation, providing shade on the buildings and site.***
- f. ***No permanent irrigation will be provided. Building footprints are optimized for solar orientation and mature trees provide significant shading to the site.***
- g. ***The site is a greyfield redevelopment, constructed on the footprint of an existing, abandoned housing project to be demolished as part of this new***

project.

- h. Durable materials (fiber cement panels and brick or cultured stone veneers), high efficiency mechanical and plumbing equipment, and no permanent installation of an exterior irrigation system will all lead to increased energy, reduced greenhouse emissions, and a reduced life-cycle carbon footprint.*
- i. Primary building axes are on an east/west axis, providing a majority of glazing on south and north elevations.*
- ii. Lifecycle energy costs are minimized in two separate ways:*
 - Sourcing of materials – timber framing is locally sourced (the southeast is a significant source of dimensional lumber) and also a carbon sequestering construction material, masonry is also a locally sourced materials as shipping costs are significant.*
 - Durability of materials – The use of very durable materials , such as masonry and cementitious siding will make sure that carbon expended in the extraction, manufacturing, transportation, and installation of building materials will be accounted for over a long period of time.*

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

- a. In addition to the nearby Tanyard Branch trail, the project proposes a network of interconnected sidewalks.*
- b. The project proposes to create a transit loading zone outside of the community spaces in Building A to provide access to public transportation to the residents of the site and neighboring communities.*
- c. The project proposes to provide bicycle parking throughout the site so that it is conveniently utilized by all residents.*
- d. The project proposes to follow the Town's policy specific to EV charging station count and will review opportunities to provide a minimum of 3% of parking spaces covered by EV stations with conduit laid to reach an additional 20% of total parking spaces.*