(45)

Woodmont
Chapel Hill, North Carolina
Energy Management Plan

Woodmont is a mixed use project located on N.C. 54. This Energy Management Plan is submitted in order to support the Town of Chapel Hill policy for energy efficiency and for promoting carbon reduction. Specific quantitative data describing the phasing, the number of square feet committed to each land use, the number of buildings and the detailed site information are found on the "C" series drawings that accompany this proposal. This Energy Management Plan (EMP) will be binding on the Owner.

Woodmont EMP Goals

A. Support the Town goal of reduction of carbon emissions by 60% by the year 2050.

B. Utilize sustainable energy in the construction and operation of Woodmont.

C. Utilize sustainable strategies in the construction and operation of Woodmont.

Woodmont EMP Objectives

A. This Energy Management Plan is intended to result in a minimum energy efficiency that meets or exceeds 20% over ASHRAE 90.1, 2004.

B. This Energy Management Plan will give consideration to using alternative fuels and technologies that represent sustainable energy technology.

C. This Energy Management Plan will give consideration to the purchase of carbon offset credits and/or green power production through coordination with a designated, recognized greenpower program.

D. This Energy Management Plan will include elements that help ensure a high level of indoor air quality, adequate access to natural lighting and other indoor environmental quality attributes.

Woodmont EMP General Elements

The component parts of this energy plan will be specific and selected for building and type of use. All parts of the plan will give consideration to the following general elements. Please see the Woodmont EMP specifics below for elements and strategies chosen for specific building types. This is a list of design considerations we will evaluate to meet the 20% requirement; the final systems selection and calculations will be provided on the building permit drawings'.

1. High performance motors; Day lighting; High Performance Elevators; Enhanced insulation; weatherstripping, and other building shell features; Alternative Fuels; Solar Thermal; Photovoltaic Panels; Carbon Offset/ Greenpower Credits; Purchase credits from a Greenpower source or broker;Indoor

Environmental Quality; Air filtering; Fresh air make up air in living units; Enthalpy wheels; Daylighting strategies; Light balanced indoor lighting;Use of Low Emitting materials;

Woodmont EMP Specifics

For all buildings including residential, office and commercial uses, Woodmont will provide engineering calculations, product specifications and narrative to support the specifics listed in this plan. The engineering calculations, product specifications and narrative will be signed by an engineer licensed to practice in North Carolina.

A. For Residential Buildings the specific plan elements will include the following features:

1. Provide 15 SEER heat pumps, which are 30-35% more efficient than minimum required by code.

2. Install programmable thermostats in all areas.

3. Provide high efficiency compact fluorescent lighting with space sensor controls in common areas, as appropriate.

4. Provide high efficiency site and parking garage lighting with space sensor, photocell and/or timer controls, as appropriate.

5. Provide insulation R values that average 10% above those required by code.

6. Install Energy Star windows with low-e glazing.

7. Provide architectural daylight with daylight factor equal to 2% average in apartments and, where possible, in common areas.

8. Install Energy Star rated refrigerators, dish washers and washing machines.

9. Install master switch for normally hot receptacles in Bedroom and Living Room to allow TVs, computers, and other electronic equipment to be turned fully off when not in use.

10. Woodmont will include convenient, easy to use recycling and solid waste "chutes" on each floor of all buildings. Materials will be delivered to collection and storage bins in the under-building parking locations. The homeowners association will cause the recycled materials to be disposed of through recognized recycling channels.

11. Institute CFL (compact fluorescent lamp) common area replacement program.

12. Provide education in use of programmable thermostats, and carbon footprint awareness to all residents.

B. For Commercial Buildings the plan will include the following features:

1. Renewable Energy: The project will install an 8-10KW grid-connected photovoltaic array under the NC Green Power program. Signed and sealed engineering drawings and specification for the installation will be submitted with our building permit application.

2. Building overall energy efficiency is to be 20% more than ASHRAE 90.1-2004, the basis for NC Energy Code Performance. Calculations to be provided with building permit application.

3. Developer will provide calculations for Service Water Heater performance and Compliance to Code with performance better than required Energy Factor. Must be over 20 gallon and have recovery system. Calculations provided with building permit application.

4. Provide and construct Building envelope with increase R values for thermal components that exceed NC Building Code by 20% for this particular type of building. Products and R values will be provided with building permit application.

5. Provide rooftop mounted HVAC equipment with an EER of at a minimum of 12 and a 100% fresh air economizer cycle. EER of 11 is typical Code requirement. Product data to be provided with building permit application.

6. Provide energy calculations for total Conditioned Area and show demand performance. Calculations provided with building permit application.

7. Provide energy summary for end use of each major electrical item such as lighting, Space heating, Space cooling, pumps, heat rejection exhaust and ventilation fans, Service Water Heater, elevators. Calculations provided with building permit application.

8. Provide electronic/programmable thermostats in all public and back of house areas.

9. All exterior lights to have photo cells, sensors and timers for lighting controls.

10. Provide lighting Compliance Documentation proving a Lighting Power Density of less than 1.0 W/ft^2. Calculations provided with building permit application.

11. Exterior lighting will have minimum Lumens to meet Building Code requirements for area covered.

12. Woodmont EMP for ongoing sustainable savings in commercial buildings

    a. Maximize day lighting with window size and placement while encouraging tenants to plan for day lighting with office wall placements and low partition furniture while planning tenant upfits.

    b. Use coolants for the HVAC equipment that are Chlorofluorocarbon (CFC) free, this will be documented at time of construction permit application.

    c. Provide / certify that the fire protection systems at this project do not contain any Chlorofluorocarbon (CFC).

    d. Provide ongoing education to tenants of building operating systems and of building sustainable attributes such as amount of construction materials quarried and manufactured within five hundred miles of site.

e. A recycling program will be implemented during building construction to provide for at least 50% of construction waste to be recycled. Receipts from Waste Management Company will be at job site for review.

f. Owner and developer will utilize materials with recycled content when possible, structural steel, miscellaneous steel and steel decking will be approximately 90% recycled scrap. Concrete will have flyash / manufacturing process residue of equal weight to cement ratio. Aluminum frames for window walls will contain recycled Aluminum of approximately 50%.

g. Paints, adhesives and finish materials will be VOC free-low emitting materials.

h. Owner will provide for handling of tenant recycling program, onsite storage containers, sorting and collection by outside agency.

i. Owner will purchase green power production through coordination with the NC Green Power Program or through other sources for wind credits, hydroelectric power or other green power agencies.

C. For the site development the Woodmont EMP will include the following:

1. Storm water storage on-site with reuse for irrigation.

2. Plant materials for landscaping shall be indigenous plants suitable for local climates and requiring lower water/irrigation rates.

3. Utilize water saving fixtures that will save an amount of potable water at least 20% less than required per NC Building/Plumbing Codes.

Suggested Stipulations

A. For the ZCP for the specific building(s) within each phase, the applicant shall provide calculations, signed by a professional engineer, to support all ASHRAE based EMP specifics.

B. For the ZCP for the specific building(s) within each phase, the applicant shall provide cut sheets or manufacturer's specifications for all mechanical equipment to be used for compliance with this plan.

C. For the ZCP for the specific building(s) within each phase, the applicant shall provide a matrix indicating other EMP specifics incorporated in that phase.

D. For the ZCP for the specific site design within each phase, the applicant shall provide civil engineering drawings with calculations describing how the storm water storage devices meet this EMP.

E. For the ZCP for the specific building(s) within each phase, the applicant will provide forward evidence of Green Power purchasing.