POLICY ON BUILDING EFFICIENCY STANDARD REQUIREMENTS FOR ALL NEW MUNICIPAL CITY CONSTRUCTION AND RENOVATIONS

Introduction and Purpose

- Incorporate green building standards into all facilities constructed and owned by the City of Hendersonville to demonstrate the City's commitment to sustainable building design in its own building practices and policies;
- Reduce energy costs by maintaining energy efficiency standards; and
- Take advantage of federal tax credits and utility rebates available for energy efficient buildings.

Requirements

Exterior Design and Construction

- Associated parking lots shall be constructed to be electric vehicle supply equipment (EVSE) capable. This includes:
    - Electric panel capacity, dedicated branch circuit that is not less than 40-ampere and 208/240-volt, and continuous raceway both underground and surface mounted to enable the future installation of electric vehicle supply equipment.
    - Building and associated area shall be designed as solar PV ready. This includes:
    - Adequate electrical conduit from the roof, ground, or parking lot to the electrical room to accommodate roof, ground mounted, and/or parking lot solar;
    - Designate space in electrical panel for future solar interconnection;
    - Designate space outside or in electrical room for PV system equipment such as inverters and transformers; and
    - Design roof to accommodate additional load requirement for PV system.

- At least two bike racks are required per building.

- The solar reflex index, SRI for the roof must have a minimum SRI value of 82 for a low-sloped roof (less than or equal to 2:12 slope) or SRI value of 39 for a steep-sloped roof (greater than 2:12 slope) to reduce the heat island effect and reduce energy use.

- Design landscaping in a way that reduces water use, manages stormwater, and enhances biodiversity which may include but is not limited to:
    - Native and drought-tolerant plants;
    - Utilize smart irrigation instead of spray;
    - Source trees with larger canopy to increase wildlife habitat potential; or
    - Minimize sod/turf to decrease water and maintenance.

Interior Design and Construction

- Lighting
    - All interior and exterior lighting is LED
    - /*requently visited communal area.

- Heating & Cooling
    - HVAC
        - Units shall have a minimum 16 SEER rating.
        - Procurement process shall prioritize efficient electric equipment such as conventional heat pumps and mini split heat pumps.
        - Units shall have low-impact refrigerants or no refrigerants where possible.
    - Where economically feasible, boilers shall not be used with a preference for solar hot water heaters and on demand water heaters where practical.
    - Smart thermostats are required in areas that enable personal preferences in temperature control.
    - Prior to procurement, a 5 year cost analysis shall be completed to consider the overall cost savings and environmental impacts either by the contractor or Sustainability Manager.

- Windows shall have a minimum U factor of ≤ 0.30

- Insulation shall have a minimum R-value which includes:
    - Attics: R38 to R60
    - Walls: 2x4: R13 to R15 or 2x6: R19 to R21
    - Floors: R25 to R30
    - Crawlspaces: R25 to R30

- Plumbing
    - Plumbing fixtures shall not exceed the following flow rates:
        - Water closets = 4.8 L / flush
        - Urinals = 0.5 L / flush
        - Lavatory faucets = 1.9 L / min
        - Kitchen faucets = 5.7 L / min
        - Showers = 5.7 L / min.

- Ambient and indoor air quality
    - Paint shall not exceed 50 g/l of volatile organic compounds, VOC's. Industrial maintenance safety coatings shall not exceed 480 g/l of VOCs.

Note: Standards were derived from best practices stated in Leadership in Energy and Environmental Design, LEED and U.S. Department of Energy: Energy Efficiency and Renewable Energy.