

## POLICY ON BUILDING EFFICIENCY & SUSTAINABILITY 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;
    - Designated space in electrical panel for future solar interconnection or for 2<sup>nd</sup> electrical panel or sub-panel;
    - Designated space outside or in electrical room for PV system equipment such as inverters and transformers for adequate cooling; and
    - Design roof to accommodate additional load requirement for PV system.
    - Solar orientation (direction and angle) should be included as a building design consideration for new construction.
  - For renovations: When installing, ensure the existing roof is in a condition to adequately support the PV system's full lifespan without needing repairs or replacement that would require disassembling the PV system.
- 20% of the total area of new parking lots shall be constructed with pervious pavement/paver systems
- Must install at least 1 bike rack for every 1,500 square feet of building area.
- Roof must be EnergyStar certified

- Design landscaping in a way that reduces water use, manages stormwater, and enhances biodiversity which may include but is not limited to:
  - o Plants specified on the Tree Board's Recommended Landscape Species List;
  - Invasive plants prohibited;
  - Utilize smart irrigation instead of spray;
  - Where possible, source trees with larger canopy to increase wildlife habitat potential; or
  - Minimize sod/turf to decrease water and maintenance.
  - Utilize green infrastructure in site design to mimic the predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain stormwater runoff on-site.
- Incorporate rainwater harvesting systems into all new facilities that will require irrigation or have equipment/vehicle washing stations on-site.

## Interior Design and Construction

- Lighting
  - All interior and exterior lighting is LED
  - Exterior lighting for new construction shall be Dark Sky compliant.
  - Motion sensing lighting required at frequently visited communal areas such as but not limited to public restrooms and/or kitchens.
  - Consider lighting controls that allow for automatic or remote turn off or dimming when not needed.
- Heating & Cooling
  - HVAC
    - Units shall have minimum rating that includes:
      - Central AC: 15 SEER rating or higher
      - Heat pump: 10.5 Heating Seasonal Performance Factor, HSPF or higher
      - Gas Furnace: 94 HSPF or higher
      - Boiler and/or oil furnace: 90 Annual Fuel Utilization Efficiency, AFUE or higher
    - 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  $\leq 0.30$  and SGHC  $\leq 0.40$  unless deemed as a historic building.
- Insulation shall have a minimum R-value which includes:
  - Attics: R38 to R60
  - Floors: R25 to R30
  - Walls: 2x4: R13 to R15 or 2x6: R19 to R21

- Crawlspaces: R25 to R30
- Plumbing
  - $\circ$   $\;$  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.
- Appliances
  - o Dishwashers, refrigerators, and washing machines must be EnergyStar certified
- 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, U.S. Department of Energy: Energy Efficiency and Renewable Energy, and Bicycle Parking Ordinances for Top Bicycle Friendly Cities