

Subject/Topic:	Facility Sustainability Policy – for New Construction and Major Renovation (Green Building Policy)
Topic Category:	Green Buildings/Environmental Management/Sustainability
Department Lead:	Environmental Services
Last Revised:	April 30, 2019

Summary: All County buildings and public facilities shall strive to incorporate the highest environmental performance standards using the LEED, International Living Futures Institute (ILFI), or Viridian’s Earthcraft Virginia green building rating system. This Policy was developed to support Arlington County’s mission of sustainability and to support the County’s overall greenhouse gas reduction goals.

Purpose:

- To reduce operating costs through energy and water efficiency;
- To achieve high-performing, durable, and efficient buildings that are easy to operate and maintain;
- To invest in healthy indoor environments for staff and visitors;
- To demonstrate Arlington’s commitment to environmental, economic, and social stewardship;
- To set a community standard of sustainable building practices.

Scope: Applies to all County Departments and Agencies and their contractors responsible for financing, planning, designing, developing, constructing, renovating, managing, and decommissioning County owned and leased facilities and buildings. This policy applies to new construction and major renovation projects. Incremental improvements to existing buildings should incorporate the Guiding Principles of this Policy, Arlington’s County Operations Energy Plan, and other best management practices when practicable.

Policy Detail:

Guiding Principles. The intent of the following Guiding Principles is to clearly define Arlington County’s sustainability priorities in order to build well-functioning, easy to maintain buildings and facilities with low energy demands and excellent indoor environmental quality.

- 1) **Function** - Achieve high performing and efficient building operations with systems and components that are easy to use and maintain. Ensure the building operates as intended and reduce long-term operating costs:
 - Prioritize simple, passive solutions over mechanical solutions for energy use reduction and stormwater management.
 - Minimize use of complicated sensor and control systems.
 - Design and locate building systems for ease of access and maintenance.
 - Ensure building systems are compatible with the building programming, fully functional and operate as intended before the building is accepted.
 - As new facilities are acquired or built, facilities maintenance budgets should be reassessed and planned.
- 2) **Energy** - Use integrated design and passive strategies to minimize heating, cooling, and lighting loads and reduce long-term operating costs:

- Prioritize the building thermal envelope and right-size mechanical equipment.
 - Use building orientation and daylight devices to evenly distribute daylight.
 - Avoid elements that are solely aesthetic that increase energy use.
 - Optimize solar PV exposure and vegetated roof space.
 - Efficient space utilization.
- 3) **Human Experience** - Support occupant health and well-being with:
- Fresh air and ventilation
 - Humidity control
 - Selection of low-toxicity materials
 - Evenly distributed daylight and minimal glare
- 4) **Durability** - Select quality materials, systems, and equipment to reduce maintenance, operations, and replacement costs:
- County buildings and facilities should be built to last and be flexible in their design to support occupant and community needs as they change over time.
 - Select materials that are easy to maintain and durable for the intended use and expected life of the building
 - Commission all building systems starting at the design phase and test the building enclosure for air and water infiltration

Standards. It shall be the policy of Arlington County to finance, plan, design, construct, manage, renovate, maintain, and decommission its facilities and buildings to be sustainable. As a general principle, all County owned and leased buildings and public facilities construction will strive to incorporate the highest environmental performance standards. The following outlines Arlington County's minimum sustainability targets and does not preclude pursuit of rating systems above and beyond the standards of this policy.

- 1) New County buildings, additions, and major renovations shall be designed and constructed to reduce energy use intensity below 28 kbtu/sq.ft./year and optimize solar exposure to be "Net Zero Energy Ready" as defined below in Definitions. A Power Purchase Agreement may be used to install onsite solar necessary to achieve Net Zero Energy certification through the International Living Futures Institute. Renewable Energy Credits (REC's) should remain on site, if possible.
- 2) Net Zero Energy Ready goals may be waived, as described below in (6) below, if analysis shows sufficient technical constraints such as high density or inherently high energy intensity uses such as aquatic centers or other constraint. *If determined that the project will not pursue Net Zero Energy Ready goals*, then new County buildings, additions, and major renovations will be designed and constructed to operate at or below a site energy use intensity (EUI) based on building type (in kbtu/sq.ft./yr):

Use type	Target Site EUI – New (kbtu/sq.ft./year)	Target Site EUI – Reno (kbtu/sq.ft./year)
Pre-school/Daycare	50	60
K-12 School	44	56
Joint Use	65	78
School with Pool	58	75
Community Center	40	60

Multifamily Housing	55	65
Office	50	60
Fire Station	70	80
Library	35	40
Warehouse	15	30
Other	considered on a case-by-case basis	

- 3) New County buildings, additions, and major renovations eligible for LEED for New Construction certification must achieve at least LEED Silver certification to demonstrate and communicate comprehensive sustainability to the public, including management of energy, water, materials, indoor environment, and sustainable sites. Projects may achieve Viridiant’s Earthcraft Commercial or Residential certification as applicable in lieu of LEED Silver certification.
- 4) Buildings to be constructed or renovated with less than 5,000 sq. ft. GFA, buildings leased by the County with less than 8,000 sq. ft. GFA or an initial lease term 8 years or less, and buildings without climate-control systems may be exempt from these Policy Standards but will follow the Guiding Principles.
- 5) If analysis shows that a major renovation does not include the scope of work necessary to pursue the Net Zero Energy Ready goal, the target energy use intensity, and/or is ineligible for LEED or Earthcraft certification, then it shall be determined that this policy has been met if applicable Guiding Principles have been incorporated.
- 6) Each County project will be evaluated on a case-by-case basis. Waiver of Net Zero Energy Ready goals will be determined by the Director of Environmental Services or designee. Unless the County Manager determines the application of this Policy to a particular building or facility is not in the County’s best interest (for example, because of time urgency or lack of funding), all County buildings and facilities will be constructed or renovated in accordance with this Policy.

Procedures and Responsibilities

- 1) The Directors of all County Departments whose responsibilities include planning, designing, developing, constructing, renovating, managing, and decommissioning County-owned and leased buildings facilities shall be responsible for ensuring that facilities and buildings comply with this Policy.
- 2) Budget planning should include life cycle cost analysis to support implementation of this Policy.
- 3) Include stakeholders in the scoping, design, and construction process *as noted in Attachment I* in order to effectively implement this Policy, including a post occupancy survey to identify lessons learned.
- 4) When selecting design teams, include a competitive preference for design and construction professionals experienced in ultra-low energy buildings.

- 5) Agencies shall include in their calculations for maintenance costs for new or renovated buildings an adjustment in cost per square foot to support new buildings.
- 6) County staff must have LEED and building science training appropriate for their level of involvement in the project/s.

Related Information:
Definitions

Passive Strategies: A set of design principles used to attain a rigorous level of energy efficiency within a specific quantifiable comfort level. Passive design employs continuous insulation throughout the entire building envelope without thermal bridging. The building envelope is very airtight, preventing infiltration of outside air and loss of conditioned air and employs high-performance windows and doors. Solar gain is managed to exploit the sun's energy for heating purposes in the heating season and to minimize overheating during the cooling season. Daylighting is used to reduce demand for electric lighting.

Net Zero Energy Certification and Net Zero Energy Ready: The International Living Future Institute's (ILFI) Zero Energy Building (ZEB) Certification™ was created to allow projects to demonstrate zero energy performance. One hundred percent of the building's energy needs on a net annual basis is supplied by on-site renewable energy. "Net Zero Energy Ready" describes a high performance building so energy efficient that a renewable energy system can offset all or most of its annual energy consumption. It also has been designed for optimum solar exposure and provisions for connecting future solar to the interior electrical system with minimal additional roof penetrations.

LEED: LEED stands for Leadership in Energy and Environmental Design, and is a voluntary, consensus-based, market-driven green building rating system developed by the U. S. Green Building Council (USGBC).

Sustainable Buildings: Sustainable buildings incorporate a variety of practices, building materials and methods that promote environmental quality, economic vitality, and social benefit through the design, construction and operation of the built environment. Sustainable buildings merge sound environmentally responsible practices into one discipline that looks at the environmental, economic and social effects of a building or built project as a whole. Sustainable design encompasses the following broad topics: efficient management of energy and water resources, management of material resources and waste, protection of environmental quality, protection of health and indoor environmental quality, reinforcement of natural systems, and integrating the design approach.

Sustainable buildings are optimally integrated on all parameters— initial affordability, timeliness of completion, net life-cycle cost, durability, functionality for programs and persons, health, comfort, safety, accessibility, beauty, maintainability, energy efficiency, and environmental sustainability. For example, the design team should pursue energy efficiency strategies that don't diminish, but rather enhance health, comfort, safety, and delight of the building occupants.

Site Energy Use Intensity: the annual amount of annual energy per square foot (kbtu/sq.ft./year) delivered to the building by the utility.

Attachment I – Implementation of the Facility Sustainability Policy

Sustainability Stakeholders

PM – Project Manager in FDC, FMB, or DPR

Energy – Arlington Initiative to Rethink Energy

Program staff - DPR, FIRE, etc

FM – Facilities Maintenance

Community – E2C2 (EA 4.4)

This diagram is intended to illustrate how the project manager (PM) can involve stakeholders to best implement the Facility Sustainability Policy.

Prior to project conception the PM and Energy team will work together to review the scope of work to determine the applicability of the policy and inform the project’s procurement documents. Throughout the project, the PM, Energy team, FM, and Program staff works together to ensure sustainability goals, operational needs, and program needs are satisfied.

After project completion, the PM will complete a post-occupancy survey and work with FM, program staff, and the Energy team to identify lessons learned and inform new project developments.

