

Green Buildings in Arlington, Virginia



MWAQC Strategic Planning Session

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- What is green design?
- How to measure success with LEED
- Air Quality benefits of green design
- Arlington's Green building programs
- Green Roofs and Air Quality

What is “Green” Design?

Design and construction practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants in five broad areas:

- Sustainable site planning
- Safeguarding water and water efficiency
- Energy efficiency and renewable energy
- Conservation of materials and resources
- Indoor environmental quality

Environmental Impact of Buildings*

- **65.2% of total U.S. electricity consumption**
- **> 36% of total U.S. primary energy use**
- **30% of total U.S. greenhouse gas emissions**
- 136 million tons of construction and demolition waste in the U.S. (approx. 2.8 lbs/person/day)
- 78% (36 billion gals/day) of potable water in the U.S.
- 5 billion gallons/day for toilet flushing
- 40% (3 billion tons annually) of raw materials use globally

* Commercial and residential



Leadership in Energy & Environmental Design

A leading-edge system for designing, constructing, and certifying the world's greenest buildings.

- Whole-building approach encourages and guides a collaborative, integrated design and construction process
- Optimizes environmental and economic factors
- Four levels of certification
 - LEED Certified 26 - 32 points
 - Silver Level 33 - 38 points
 - Gold Level 39 - 51 points
 - Platinum Level 52+ points (69 possible)

Transportation Emission Reduction

- Encourage public transit
- Encourage bicycle use
- Encourage carsharing (FlexCar and ZipCar)
- Encourage carpooling
- Use local and regional materials (reduce transport)

Energy and Atmosphere Credits

- Basic building commissioning
- Minimum energy performance
- CFC Reduction
- Optimize energy performance
- Renewable energy sources
- No HCFCs or halons
- Green power
- Energy Star Appliances for residential
- Use low-emitting materials (paint, carpet, adhesives)

Urban Heat Island Effect

- Reduce impervious area (parking underground)
- Use light colored building materials
- Incorporate shade (trees)
- Use light colored roofing materials
- Install vegetated “green” roof

Private development projects complying with LEED conditions in Arlington



- 1 million square feet office (4 buildings)
- 3,450 residential units (16 buildings)
- Six striving for LEED certification (4 office and 2 residential)



- Specify number of LEED credits in site plan condition
- LEED reports due at specific permit applications
- If LEED requirements not met, County withholds permits

Energy Star Appliances and Equipment

- For high-rise residential projects, Energy Star appliances must be installed
- Clothes washers, dishwashers, refrigerators, ceiling fans, exit signs, etc.



Green Building Incentive Program



- Any site plan project may apply for bonus density
- Includes density awards for all levels of LEED (certified, silver, gold and platinum)
- FAR bonus ranges from .15 for Certified to .35 for Gold/Platinum

- If developer does not apply for LEED certification from USGBC, the project contributes to Arlington's Green Building Fund
- Contribution calculated at \$0.03 per square foot
- Fund to be used for green building education and outreach

Langston-Brown
School and Community
Center



Green Home Choice for Single Family

- Expedited Plan Review
- Focuses on energy efficiency
- Green Home Fair, Seminars, and Tours



Green Roofs and Air Quality

- Reduce heat island effect (ground level ozone production)
- Mitigate air pollution (NO_x, SO_x, CO, ozone, PM)
- Increased energy efficiency for the building

- Noise reduction
- Stormwater retention
- Aesthetics



- **Portland, Oregon**
 - Offers 1 sq ft of additional density for each sq ft of green roof installed on private projects

- **Chicago**
 - Green roof requirements for public and private projects
 - Specific green roof and Energy Star roof coverage outlined for all building types
 - Residential 25% or more green roof
 - Large office 50% or more green roof
 - Schools, community center, hospitals 25% or more

Arlington County Green Building Program Information



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