



LEED v4 for BD+C: New Construction

Project Checklist

Project Name: 2025 Fairfax | 2025 Fairfax Dr. Arlington, VA 22201

Date: 02/14/2022 Goal: LEED Gold

Y ? N				Notes	Green Building Incentive Policy Appendix I and Appendix II Compliance
1			d Credit 1 Integrative Process	1 - Simple Box energy model	
13 2 1			Location and Transportation Possible Points: 16		
-	-	-	d Credit 1 LEED for Neighborhood Development Location	16	
1			d Credit 2 Sensitive Land Protection	1 - Land has been previously developed	
	1	1	d Credit 3 High Priority Site	2 10% of units priced up to 60% AMI	
4	1		d Credit 4 Surrounding Density and Diverse Uses	5 2pt for 1/4 mile radius = 22,000sqft per acre OR FAR = 0.5 3pt for 1/4 mile radius = 35,000sqft per acre OR FAR = 0.8 1pt for 1/2 mile walking to 4-7 POIs 2pt for 1/2 mile walking to 8+ POIs	
5			d Credit 5 Access to Quality Transit	5 - Weekday = ___ stops - Weekend = ___ stops *Require 360 Weekday stops and 216 Weekend stops for 5pts	
1			d Credit 6 Bicycle Facilities	1 Migrate to LEED v4.1 for this credit 1 per 2.5 units.	
1			d Credit 7 Reduced Parking Footprint	1 - LEED v4.1 = 30% below baseline - 1.5/DU for 1st bedroom - 0.25 spaces for each extra bedroom - Den = bedroom if has closet 0.15 spaces per unit for visitors LEED v4.1 requires this project to have fewer than ___ spaces baseline = ___ 2025 Fairfax has 135 spaces	
1			d Credit 8 Green Vehicles	1 - Electric charging for 10% of all spaces - Electric charging infrastructure for 50% of all spaces - Electric charging infrastructure for 50% of all spaces is one of three credits from ARLCo's Attachment 2 document **Use Form v4.1	Appendix 1 - Requirements exceeded. Appendix II - This credit is being pursued as part of the project's Green Building Initiative.
7 3 0			Sustainable Sites Possible Points: 10		
Y			c Prereq 1 Construction Activity Pollution Prevention	Required	
1			d Credit 1 Site Assessment	1 Must include: Topography; Hydrology; Climate; Vegetation; Soils; Human Use; Human Health Effects.	
	2		d Credit 2 Site Development--Protect or Restore Habitat	2 - Financial support = \$0.40/sqft of site area - 30% of site area restored to native vegetation	
	1		d Credit 3 Open Space	1 - >30% of total site area - >25% of the 30% must be vegetated	
3			d Credit 4 Rainwater Management	3 - 2pts 95th percentile - 3pts 98th percentile LEED v4.1 = 85th percentile for 2pts and 90th for 3pts	
2			d Credit 5 Heat Island Reduction	2 [Area of nonroof measures / 0.5] + [Area of High-reflectance roof / 0.75] + [Area of vegetated roof / 0.75] > Total site paved area + total roof area - OR >75% of parking undercover	
1			d Credit 6 Light Pollution Reduction	1 Follow the BUG Rating Method	
4 2 5			Water Efficiency Possible Points: 11		
Y			d Prereq 1 Outdoor Water Use Reduction	Required	
Y			d Prereq 2 Indoor Water Use Reduction	Required	Appendix 1 - WaterSense label for all toilets, bathroom faucets, and showerheads.
Y			d Prereq 3 Building-Level Water Metering	Required	
1	1		d Credit 1 Outdoor Water Use Reduction	2 2pts = No Irrigation (100% reduction) 1pt = 50% reduction	
2	1	3	d Credit 2 Indoor Water Use Reduction	6 1pt = 25%; then up by increments of 5% Projecting 30%	
		2	d Credit 3 Cooling Tower Water Use	2	
1			d Credit 4 Water Metering	1 Irrigation, Indoor plumbing fixtures and fittings, Domestic hot water, Boiler, Reclaimed water, Other process water	
14 14 5			Energy and Atmosphere Possible Points: 33		
Y			c Prereq 1 Fundamental Commissioning and Verification	Required	
Y			d Prereq 2 Minimum Energy Performance	Required	
Y			d Prereq 3 Building-Level Energy Metering	Required	
Y			d Prereq 4 Fundamental Refrigerant Management	Required	

5	1
8	10
1	1
	2
1	2
1	
2	

c Credit 1	Enhanced Commissioning	6	- 3pts for Enhanced Commissioning - 2pts for Envelope Commissioning - Envelope Commissioning one of three credits from ARLCo's Attachment 2 document
d Credit 2	Optimize Energy Performance	18	1pt = 6%; then up by increments of 2% Aiming for 20%.
d Credit 3	Advanced Energy Metering	1	All whole-building energy sources and any individual end uses that are more than 10% of the annual energy use for the building
c Credit 4	Demand Response	2	Enroll in min 1-yr program and create a demand response comprehensive plan.
d Credit 5	Renewable Energy Production	3	1% = 1pt; 5% = 2pts; 10% = 3pts MUST generate or purchase 2.0 watts per sqft of rooftop space.
d Credit 6	Enhanced Refrigerant Management	1	
c Credit 7	Green Power and Carbon Offsets	2	Green Power RECs 50% = 1pt; 100% = 2pts 5 year min contract

Appendix I - CxA must oversee the on-site refrigerant charging process. For commercial and multifamily buildings, meet the criteria for central ventilation exhaust testing and performance as required by Energy Star Multifamily High-Rise certification.
Appendix II - Envelope commissioning is being pursued as part of the project's Green Building Initiative.

7	4	2
Y		
Y		
2	1	2
1	1	
1	1	
1	1	
2		

Materials and Resources		Possible Points: 13
d Prereq 1	Storage and Collection of Recyclables	Required
c Prereq 2	Construction and Demolition Waste Management Planning	Required
c Credit 1	Building Life-Cycle Impact Reduction	5
c Credit 2	Building Product Disclosure and Optimization - Environmental Product Declarat	2
c Credit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
c Credit 4	Building Product Disclosure and Optimization - Material Ingredients	2
c Credit 5	Construction and Demolition Waste Management	2

May require life cycle assessment expert (LCA)
Suggest Baumann Consulting Engineers
- Option 4: Whole-building life-cycle analysis

- Use 20 products from 5 diff manufacturers with Environmental Product Declarations (EPDs)
- Use products that comply with one of the criteria for 50%, by cost, of the total value of permanently installed products in the project
- Products sourced (extracted, manufactured, purchased) within 100 miles of the project site are valued at 200% of their base contributing cost.
- Structure and enclosure materials may not constitute more than 30% of the value of compliant building products

- Use 20 products from 5 diff manufacturers with publicly released raw material supplier reports
- Self-declared reports are valued at (1/2) of a product
- Use products that meet at least one of the approved extraction criteria for at least 25%, by cost, of the total value of building products for an additional point

- Use 20 products from 5 diff manufacturers with an approved program to demonstrate the chemical inventory of the product to at least (1000ppm)
- Use products that document their material ingredient optimization using an approved path for at least 25%, by cost, of the total value of permanently installed products

- Reduce waste by 50% in 3 waste streams = 1pt
- Reduce waste by 75% in 4 waste streams = 2pts

Appendix II - LEED v4.1 Credit Tier 2 = Solar/Wind farm built in the last 5yrs
Procure 10% of total site energy use for 10yrs

Appendix II - Whole-building LCA is being pursued as part of the project's Green Building Initiative. The project will conduct a life cycle assessment (Option 2 Path 1) and Conduct a life cycle analysis and demonstrate a 5% reduction in at least three of the key impact categories (Option 2 Path 2)

9	6	1
Y		
Y		
2		
2	1	
1		
2		
1		
1	1	
2	1	
1		
1		
1		
1		
1		

Indoor Environmental Quality		Possible Points: 16
d Prereq 1	Minimum Indoor Air Quality Performance	Required
d Prereq 2	Environmental Tobacco Smoke Control	Required
d Credit 1	Enhanced Indoor Air Quality Strategies	2
c Credit 2	Low-Emitting Materials	3
c Credit 3	Construction Indoor Air Quality Management Plan	1
c Credit 4	Indoor Air Quality Assessment	2
d Credit 5	Thermal Comfort	1
d Credit 6	Interior Lighting	2
d Credit 7	Daylight	3
d Credit 8	Quality Views	1
d Credit 9	Acoustic Performance	1

Pay close attention to the strategies listed in LEED Guidelines
- 10ft entryway systems; cross-contamination prevention; filtration; CO2 monitoring
*MERV-13 | Chemical Isolation |

Seek to be fully-compliant = 5 compliant categories
(1) Interior paints/coatings; (2) adhesives & sealants on-site; (3) Flooring; (4) Composite wood; (5) Insulation
Need to be mindful of flooring in particular

IAQ mgmt plan. Proper material storage while onsite. No tobacco products during construction. Only MERV8 filters during construction, etc.

- Flush-out = 1pt
- Testing = 2pts

Thermal comfort design & thermal comfort control from LEED 2009 (with some changes)

- Lighting control = 1pt
- Lighting quality = 1pt

Spatial Daylight Autonomy?

Achieve a direct line of sight to the outdoors via vision glazing for 75% of all regularly occupied floor area.

Discuss with acoustic consultant

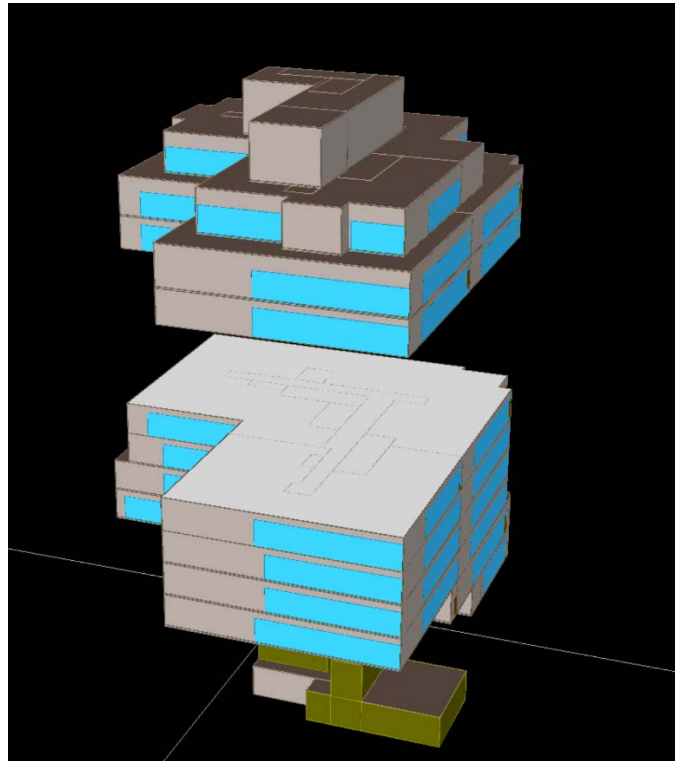
5	1	0
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Innovation	Possible Points: 6
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ENERGY MODEL REPORT
2025 Fairfax Drive, Arlington, VA

July 25, 2022



Prepared by: Brian Stanfill, MaGrann Associates

NJ • NY • PA • CT • MA • MD • DC • VA • OH

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I. EXECUTIVE SUMMARY

This report presents the projected energy usage of the 2025 Fairfax Drive project to be built in Arlington, VA. The building consists of 12 stories over 4 levels of parking and will contain 166 residential dwelling units. The garage levels include mechanical, storage, and amenity areas. Floors 1 through 12 consist of residential dwelling. The project will be pursuing LEED certification. The building is approximately 146,640 gross square feet.

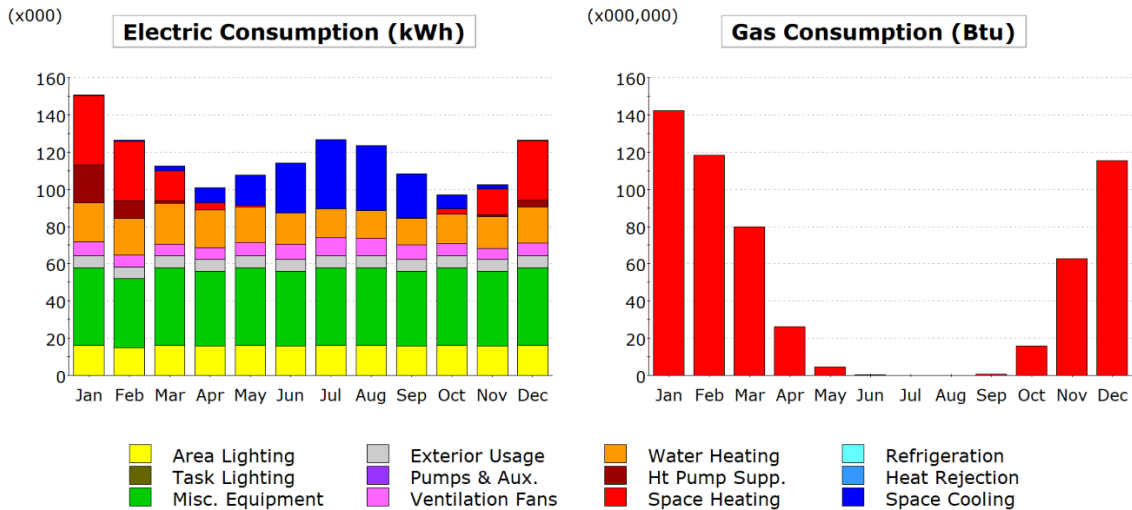
The simulations for the project have been developed using eQuest v3.65 software. The modeling performed was done at schematic stage of the design. The results are expected to change throughout the design process as more clarity on design decisions are implemented and the model is updated. The results presented in this report are based on a simulation and may not reflect the actual performance of the building once it is built and operating.

II. RESULTS

Energy Model Iteration	Projected Energy Usage From Model				
	Electricity (kWh)	Natural Gas (therms)	Total Site kBTU	kBtu/Sq Ft/yr	% Savings over 90.1-2010
Schematic Phase Design	1,396,778	5,660	5,331,807	36.36	20.0%

In addition to the results shown below, the Base Case results were entered into EPA’s Portfolio Manager to produce an ENERGY STAR Score of 92 which would meet the designed to Earn ENERGY STAR threshold of 75 or higher. A copy of those results can be found at the end of this report. Each iteration was ran against a 90.1-2010 baseline model as well and those results are included in the table above.

Schematic Phase Proposed Design



III. MODELING SPECIFICATIONS

SCHEMATIC PHASE PROPOSED ENERGY MODEL ASSUMPTIONS

Input Summary	Proposed Case
Roof Insulation	R-25 rigid insulation on top of roofdeck, U-0.039
Above Grade Wall Insulation	2x6 metal stud walls with R-21 cavity insulation and R-7 exterior insulation, U-0.061
Floor over Garage	R-25 insulation on underside of concrete floor, U-0.036
Swinging Doors	U=0.700
Residential Windows	U=0.40 SHGC= 0.40
Storefront Windows/Glazing	U=0.40 SHGC= 0.40
Plumbing Fixtures	Showerheads: 1.5 gpm @ 80 psi Bathroom Faucets: 1.2 gpm @ 60 psi Kitchen Faucets: 1.50 gpm @ 60 psi
Residential Appliances	Refrigerator: ENERGY STAR Labeled Stove: Electric Dishwasher: ENERGY STAR Labeled In-unit Washers: Non-ENERGY STAR Labeled In-unit Dryers: Non-ENERGY STAR Labeled
Plug Loads	Residential: 0.5 W/Sf Corridors, Stairs and Restrooms: 0.2 W/Sf Other Public and Common Areas: 0.5 W/Sf
Domestic Hot Water	0.93 UEF, In-unit electric water heaters
Lighting LPD (Space by Space method)	20% reduction of values by space shown in ASHRAE 90.1-2010
Dwelling Unit Ventilation	ENERGY STAR labeled bathroom exhaust fan running continuously
Common Area Ventilation	Central dedicated outside air supply system sized to meet ASHRAE 62.1
Temperature Setpoints	Cooling: 75° F Heating: 72° F

In-Unit Heating/Cooling System	Air Source Heat Pumps, 15 SEER / 8.5 hspf
Amenity Heating/Cooling System	Air Source Heat Pumps, 15 SEER / 8.5 hspf
Corridor Heating/Cooling System	Gas Fired, DX Cooling, Dedicated Outside Air System, 80% AFUE, 10.6 EER
Stairwell Heating System	Electric Resistance Space Heaters
Mechanical Rooms	Electric Resistance Space Heaters

IV. STATEMENT OF DESIGN ENERGY DESIGN INTENT



ENERGY STAR[®] Statement of Energy Design Intent (SEDI)¹

2025 Fairfax Drive

LEARN MORE AT
energystar.gov

92

Primary Property Type: Multifamily Housing
Gross Floor Area (ft²): 146,640
Estimated Date of Certification of Occupancy: _____

Date Generated: July 25, 2022

ENERGY STAR[®]
Design Score²

1. This form is required when applying for Designed to Earn the ENERGY STAR recognition. It was generated from ENERGY STAR Portfolio Manager.

2. The ENERGY STAR 1 – 100 Score is based on total annual Source Energy. To be eligible for Designed to Earn the ENERGY STAR recognition you must score at least 75.

Property & Contact Information for Design Project

Property Address 2025 Fairfax Drive 2025 Fairfax Drive Washington DC, District of Columbia (D.C.) 22201	Project Architect _____ , (____)____ - _____ _____	Owner Contact _____ , (____)____ - _____ _____
Property ID: 21963681	Architect Of Record _____ _____ , (____)____ - _____ _____	Property Owner _____ , (____)____ - _____ _____

Estimated Design Energy

Fuel Type	Usage	Energy Rate (\$/Unit)
Electric - Grid	1,396,778 kWh (thousand Watt-hours)	Not Provided
Natural Gas	5,660 therms	Not Provided

Estimated Design Use Details

★ This Use Detail is used to calculate the 1-100 ENERGY STAR Score.

Multifamily Housing		Parking	
Number of Laundry Hookups in Common Area(s)	0	★ Partially Enclosed Parking Garage Size	0 Sq. Ft.
Percent That Can Be Cooled	All of it - 100%	★ Open Parking Lot Size	0 Sq. Ft.
Common Entrance	Yes	★ Completely Enclosed Parking Garage	53,556 Sq. Ft.
Resident Population Type	No specific resident population	★ Supplemental Heating	No
★ Number of Residential Living Units in a Low-rise Building (1-4 stories)	0		
★ Total Number of Residential Living Units	166		
Number of Laundry Hookups in All Units	166		
★ Number of Bedrooms	190		
★ Number of Residential Living Units in a Mid-rise Building (5-9 stories)	0		
Percent That Can Be Heated	All of it - 100%		
★ Gross Floor Area	146,640 Sq. Ft.		
★ Number of Residential Living Units in a High-rise Building (10 or more stories)	166		
Government Subsidized Housing	No		

Design Energy and Emission Results

Metric	Design Project	Median Property	Estimated Savings
ENERGY STAR Score (1-100)	92	50	N/A
Energy Reduction (from Median)(%)	-29.1	0	N/A
Source Energy Use Intensity (kBtu/ft ² /yr)	95	134	39
Site Energy Use Intensity (kBtu/ft ² /yr)	36	51	15
Source Energy Use (kBtu/yr)	13,938,554	19,671,090	5,732,536
Site Energy Use (kBtu/yr)	5,331,805	7,524,627	2,192,822
Energy Costs (\$)	175,760	248,045	72,285
Total GHG Emissions (Metric Tons CO ₂ e)	460	649	189

Designed to Earn the ENERGY STAR: Application Checklist

This section is only required if you are using this document to apply for Designed to Earn the ENERGY STAR. All design projects that achieve an EPA energy performance score of 75 or higher are eligible for this certification.

- 1) Does your [property type](#) match the function or use of a property that's eligibility to receive an ENERGY STAR design score? Yes No/Not Sure

If you are not sure your project is eligible for an ENERGY STAR design score, please describe the property's major functions or use:

- 2) Is the design project at least 95% complete with construction documents? Yes No

If no, please explain:

- 3) Is the property currently unoccupied and not yet generating energy bills? Yes No

- 4) Do energy calculations account for the whole building intended operations and all energy sources? Yes No

- 5) Is the Architect of Record (AOR) applying for ENERGY STAR partnership? Yes No

- 6) Was the design record created in the owner's Portfolio Manager account? Yes No

- 7) Are you seeking other qualifications for this design project? Yes No

If so, please select all that apply:

- AIA 2030 Commitment
- Architecture 2030 Challenge
- Federal, State or Local Disclosure Ordinance
- Green Globes
- LEED
- Other, please indicate: _____

Professional Verification

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____ Date: _____

Verifying Professional

,
(____)____ - _____



**Verifying Professional Stamp
(if applicable)**

Note: When applying for the ENERGY STAR Designed to Earn, the signature of the Verifying Professional must match the stamp.

I agree to adhere to the ENERGY STAR Identity Guidelines when using the Designed to Earn the ENERGY STAR recognition graphic in association with this project.

Architect of Record Acknowledgement

As the Architect of Record representative, I confirm that the information on this SEDI is true and accurate to the best of my knowledge. It is our best estimate for all energy use of specified systems and processes but does not guarantee the operational performance of this building. Instead, this project has been specified to achieve Designed to Earn the ENERGY STAR recognition in an effort to assist the Owner/Developer in meeting their operational performance goal for the building to earn ENERGY STAR certification.

Signature: _____

Date: _____

Building Owner/Developer Acknowledgement

As the Building Owner/Developer representative, I concur that this project be nominated for Designed to Earn the ENERGY STAR recognition. Our organization understands the importance of measuring actual energy use in Portfolio Manager after receiving the Certificate of Occupancy to verify that this property is performing as intended. We understand that once the building earns an ENERGY STAR score of 75 or higher, it may be eligible for ENERGY STAR certification.

Signature: _____

Date: _____