

## ENERGY STAR Design Profile

Crossfield Elementary School Renovation  
Herndon, VA 20171



The Crossfield Elementary School Renovation is a collaboration between Moseley Architects and Fairfax County Public Schools (FCPS). As the architect of record, Moseley Architects worked closely with FCPS and Strickler Associates to identify energy efficiency strategies that would deliver on FCPS's goal of achieving "**Designed to Earn the ENERGY STAR**" certification.

The school was awarded Designed to Earn the ENERGY STAR (DEES) certification in October 2021 with an ENERGY STAR Design Score of 88. This score demonstrates that the energy efficiency of the design is in the **top 12%** of K-12 schools nationwide.

As an addition / renovation to a school originally built in 1987, the design was challenged with updating the existing HVAC systems, lighting fixtures, and exterior windows to improve the school's learning environment while still maintaining a high level of energy efficiency. The resulting design solution delivers **150% more outside air** for ventilation and **160% more natural daylight** through the classroom windows while still achieving FCPS's requirement for DEES certification.

Moseley Architects performed an energy benchmarking study in early design to determine the EUI targets that would need to be met to achieve DEES certification for the renovation. This study combined data for the existing building from the owner's **Portfolio Manager** account with energy model simulations of different design options analyzed within **Target Finder**. This data was merged back into the owner's Portfolio Manager account once the design was finalized.

By utilizing these shared ENERGY STAR tools and resources throughout both design and operations, Moseley Architects and FCPS ensured that their conversations surrounding energy use were framed using a common language with easily-understood metrics and targets.

Energy efficiency strategies included in the design include the following:

- **Envelope:** enlarged window openings with insulated 1" low-e glazing, new roof with R-30 roof insulation
- **HVAC:** new variable refrigerant flow (VRF) mechanical system with dedicated outside air units (DOAU) and air-side energy recovery
- **Lighting:** new LED fixtures throughout the entire school with daylight sensors in daylit spaces



### Architect of Record:

Moseley Architects

### Engineering Firm:

Strickler Associates

### Building Owner:

Fairfax County Public Schools (VA)

**ENERGY STAR Design Score:** 88

**Percent Energy and CO<sub>2</sub> Reduction\*:** 38.1%

**Design Year/ Estimated Occupancy Date:** 2024

**Space Type:** K-12 School

**Floor Space:** 101,569 SF

**Estimated Energy Use Intensity:**  
35.2 kBtu/SF/yr (site)

**Estimated Total Annual Energy Use:** 3,577,281 kBtu (site)

**Estimated Annual Energy Cost:**  
\$62,086

### For More Information

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\*Percent Energy and CO<sub>2</sub> Reductions are based on comparison to a median building of similar type.