

# 2023 ENERGIZING EFFICIENCY CASE STUDY

## Henrico County's Highland Springs & Tucker High Schools

### OVERVIEW

In September 2021, Henrico County Public Schools opened two new high schools that replaced existing high school buildings. The original Highland Springs High School was built in 1952, and the original J.R. Tucker High School was built in 1963. The new 265,000 square foot schools utilized the same design, and both were constructed adjacent to the former schools while they were still in operation to **maintain connection to the community and continuity for the students and staff.**



Both schools are Leadership in Energy and Environmental Design (LEED) **Gold certified**. The design used for these schools focused on **creating an exemplary learning environment and a model of energy efficiency**. Examples of energy efficiency in the design include the **building envelope** (walls, windows, and roof significantly improved compared to code-minimum), a **92% efficient boiler** for space heating, and **LED interior lighting** throughout. To further offset carbon footprint, **rooftop solar systems** were installed at both schools – 885 kiloWatts (kW) at Highland Springs HS and 1004 kW at Tucker High School.

### RESULTS

The projects received the **Designed to Earn the ENERGY STAR (DEES) designation** from the US EPA, and have current scores of 72 for Tucker HS and 75 for Highland Springs HS. A score of 50 represents an average building.

The actual Energy Use Intensity (EUI) for Tucker HS is 57 thousands of British thermal units (kBtu)/SF/Year. The actual EUI for Highland Springs HS is 46 kBtu/SF/Year. The EUI for Tucker HS prior to replacement was 72 kBtu/SF/Year and for Highland Springs HS was 62 kBtu/SF/Year. **The actual EUIs represent a 20-25% reduction in total energy use per square foot for the new schools compared to the former schools.** As a benchmark, the national average for K-12 school buildings is 68.8 kBtu/SF/Year per the Commercial Building Energy Consumption Survey (CBECS) most recent published data.

Rooftop solar systems at each school became operational in April 2023, and since then have **produced 1,108,000 kWh of renewable electricity**. Live production can be viewed on public dashboards linked on Henrico County's website ([Highland Springs HS](#), [Tucker HS](#)).

The **Virginia Energy Efficiency Council**, a member-based 501c3, launched the Energizing Efficiency Campaign in 2023 to further the mission of advancing EE across the state by showcasing incredible work being done in our communities and inspiring others to act. Learn more at [VAEEC.org/Energizing-Efficiency-Campaign](https://VAEEC.org/Energizing-Efficiency-Campaign).

