

Be an Energy Genius ↩

Brevard Public Schools Case Study

* The Challenge

Brevard Public Schools was looking to move beyond benchmarking to assess their buildings and identify measures to improve energy performance. They wanted a tool to assist with this work and to store energy data over time. They also needed a process that would deliver the best learning experience for their students while minimizing the impact on our planet without overly taxing the limited resources available for this task.



* The Solution

Brevard Public Schools (BPS) collaborated with the ASHRAE Florida Institute of Technology (Florida Tech) ASHRAE Student Branch and the Space Coast ASHRAE chapter to conduct ASHRAE Level 1 Energy Audits on a middle school and two elementary schools. Using the Building EQ Portal which follows Standard 211 Energy Audit procedures, the students received hands-on experience in energy performance assessment. The work, done under the supervision of a licensed Professional Engineer from the local ASHRAE chapter, delivered professional results with actionable recommendations to present to the school board.

* The Outcomes

The major findings of the process included five EEMs covering the lighting systems, on-site power generation and HVAC systems. Implementation of all five EEMs would result in a total of 58% reduction in the schools' energy costs. While the lighting measures had the most attractive payback periods, the ice storage tank was eligible for a generous rebate from the local utility. The Building EQ Portal allows BPS to reassess their buildings' performance over time.

Recommended Energy Efficiency Measures	Average Payback
Replace T8 lights with 12WLED lighting	1.77 years
Install occupancy sensors in interior rooms and hallways with intermittent schedules	4.53 years
Replace existing exterior security lights with 9.5W LED lights and install new photosensors to schedule lights to turn on at low outdoor light levels	0.29 years
Install 47 thermal energy storage (TES) ice tanks to shift electrical demand loads to off-peak hours	6.6 years
Install rooftop solar photovoltaic (PV) panels on all three schools to reduce electrical consumption by 50% after implementation of measures 1-3	13.2 years

* For More Information:

- Energy Efficiency Improvement in K-12 Schools: A Case Study in Florida, <https://asmedigitalcollection.asme.org/sustainablebuildings/article-abstract/2/1/011001/1089071/Energy-Efficiency-Improvement-in-K-12-Schools-A>
- The Rise of Building EQ: Educational Facility Case Studies in Central Florida, <https://ashraem.confex.com/ashraem/sessiontechprogram.cgi?username=28756&password=363860&wrfredirect=0>
- ASHRAE Building EQ Empowers Schools, Teaches Students, ASHRAE Journal Article, January 2022 Issue (Volume 64, No.1), <https://technologyportal.ashrae.org/Journal>

Check out the Building EQ Portal at ashrae.org/BuildingEQ.

