

Executive Summary:

This report develops a detailed energy analysis of South Jefferson High School. Several different approaches to examining the buildings energy compliance are employed.

The U.S. Green Building Council's LEED for New Construction version 2.2 rating system is used to look at all possible green aspects of South Jefferson High School. Although it was not designed to meet the LEED criteria, the evaluation shows it would be possible to receive 28 out of a possible 69 points obtaining enough points for the building to be LEED Certified.

ASHRAE Standard 90.1-2004 is another non-mechanical energy performance baseline to help building energy efficiency. South Jefferson complies with the envelope, lighting, and mechanical system criteria.

The total amount of lost rentable space was determined to be less than 7% of the total building floor area. The mechanical system first cost was calculated next. At a total cost of almost \$4.22 million, this equates to \$20.98 per square foot.

Trane's TRACE 700 was used as the energy modeling software to calculate the design loads and perform an energy analysis on South Jefferson High School. The results of this energy analysis showed that the building would use 1,756,057 kWh of energy each year.

Finally, an emissions analysis was performed on the school with its large yearly consumption of electric. The quantities of off-site pollutants of carbon dioxide emissions associated with on-site electricity use.