

Executive Summary

Sustainability was not of great importance with the construction project of Pasadena Elementary School. In the following report sustainability issues will be analyzed.

The first is the research topic of how the building could have been LEED Certified. It was researched which measures could have been taken for the building's certification and was concluded that the project could have earned anywhere between 29 and 46 LEED credits which could have been either a Certified, Silver or Gold rating.

A greenroof could have aided in many of the LEED credits that could have been earned. Originally a conventional roof was designed for the elementary school, but a system of green blocks that are placed directly on the designed roof was looked into. It was found that at an increased cost of \$111,125 greenblocks could have been placed on the northwest wing of the building. This greenroof could have saved 15% in energy use of that part of the building and could have collected 80% of the stormwater over a 2 year period which reduces total potable water use. A structural breadth analysis determined that the trusses original to the design of the building would not have been able to support the additional load that the greenroof would add.

The savings in both energy and cost that the use of solar lights in the parking lots could have had was researched. Solar lights use renewable energy from the sun which is a great alternative to the lights in the building's original design. It was found that monthly savings of \$149.24 in the electric bill could have been attained. The lifetime expectancy of the proposed solar lights is 22 years. The monthly savings would have paid off the initial investment within 26 years of use of the lights, only a few years after their full like expectancy.

Finally the topic was studied on what the impact would be of renovating the original school building would have been instead of demolishing the existing elementary school and completely constructing a new building. No additional costs were found and it was found that the schedule could have been reduced. Although if this option was chosen, the school building occupants would have had to been relocated for at least one school year. This was probably the deciding factor when the owner originally made the decision on how to update the elementary school.