

Executive Summary

This report details the lighting/electrical system of our team's elementary school design for submission in the 2013 ASCE Charles Pankow Foundation Architectural Engineering Student Competition. The elementary school was designed through an integrated approach, which allowed factors affecting the lighting/electrical system to be addressed by the entire project team.

The lighting/electrical design can be summarized by the following statements:

- Combined heat and power (CHP) is utilized with four (4) 65 kW on-site natural gas microturbines, totaling 260 kW peak electric power and 1,100 MBH of peak collectable waste heat.
- School is designed to apply for LEED Gold under LEED 2009 for Schools New Construction and Major Renovations. Energy models predict that the building uses 29% less energy than the ASHRAE 90.1 2007 Appendix G Baseline model and is anticipated to receive an EnergyStar Rating of 85.
- Lighting design that is cost effective and easy to maintain while still remaining visually interesting and comfortable as a school and as a community center.
- Reliable power system with available off-grid electric generation (microturbines) for the safe and effective function of the building as a natural disaster shelter.
- Multi-tiered 24/7 security system to prevent possible threats to school children and aid the building staff in maintaining a safe environment for the community.