Executive Summary

The purpose of this document is to report and discuss results from a whole building block load energy analysis describing predicted energy use (and associated values) for Manassas Park Elementary School. Associated values include predicted energy costs and total building pollutant outputs. These results have been compared to values proposed by professional design engineers from MPES, as well as to various expected values from a comparable baseline building. The whole building block load energy analysis described in this report was originally conducted in Technical Report 2, and was created using an energy modeling software called Trane Trace 700. The values that were reported from the professional engineers at 2rw Consultants were calculated from an energy modeling software called eQuest.

The results from the block building analysis performed for the Technical Report 2 discussion are reasonable; they fall within a range between the values calculated by professional design engineers and the values of a comparable baseline building. The total energy consumption calculated for Manassas Park Elementary School is 7003.7 mmbtu/year, with 4,632.4 mmbtu/year coming from natural gas and 2371.3 mmbtu/year (equivalent) coming from electricity.

This report also includes a total mechanical cost breakdown of Manassas Park Elementary School. The grand total cost of the mechanical system (including the geothermal fields) was $8,516,552. The school received a $50,000 grant for the sustainable aspects of its mechanical systems; this grant was used to purchase informative plaques which teach the building occupants about the sustainable strategies that the school employs. Additional indirect costs due to the mechanical room area proved to be insignificant; however, the roofs structure was significantly fortified to support the weight of the mechanical penthouses.

The school fared well on a mechanical system LEED study, achieving 19 out of 32 applicable credits.