

EXECUTIVE SUMMARY

This Architectural Engineering senior thesis report comes as a result of a detailed study of the construction of Ambridge Area High School. This report is broken down into four main sections.

The beginning section of this report is to provide a reader with the background information needed to better understand the analyses in further sections of this report. It contains overviews of the project design, delivery, and team, a look at the existing conditions of the site, as well as other project specific details. Most of this information was composed in the fall semester before technical analyses began.

Next is a summary of the research conducted in the spring semester into the barriers public school districts have to building green schools and seeking LEED certification. The intent of this study was to provide schools with a tool to educate students on the benefits and advantages of green construction hoping to make the demand for green construction greater. The results of this study as well as the lesson and tools created are contained in the second section of this report.

The final two sections contain technical analyses whose intents were to provide the Ambridge Area High School with alternative systems and methods to increase end quality and lower construction durations. A redesign of the exterior façade comes first which aims provide a better thermal assembly and lower the construction schedule. The structural impacts of incorporating this system are also part of this analysis. Finally a reconfiguration of the structural steel and façade erection sequence used looks to reduce the overall schedule of the project utilizing 4 dimensional modeling of the Ambridge Area High School.