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## Introduction

This thesis is a culmination of an academic's year worth of research and analysis. The focus of my investigation is on the Boll Family YMCA located in Detroit, Michigan. The notion of making this building my subject of analysis began in July of 2005, during my internship with Barton Malow.

The foundation of this project began with the collection of background information. Everything from who the owner was to how much the project cost. This background information will be the first topic covered in this report.

Following the background information, comes the highlight of my research. The main theme of all my research topics is to find solutions to current problems so that the building operates with a better system while saving money.

The first system analyzed is the foundation. My proposal deals with changing the current strip footings to a mat slab. Cost, schedule, and quality are a big issue regarding this proposal, and through my research I was able to reach a feasible conclusion.

Next, the handrails in the building are evaluated. This topic was suggested to me by the project manager. The central argument surrounding this topic was mainly about aesthetics vs. cost.

The third topic deals with the mechanical room and its layout. A majority of the information for this topic came from talking personally with a mechanical contractor and examining drawings. I found this topic to be most interesting because of the method taken to find an alternate solution.

Lastly, focusing our attention away from the different building systems, I present my research investigation. I learned much about this topic and gained a genuine interest when I had the opportunity to attend a PACE roundtable conference. I collected my information by interviewing the different head entities of the project and I also read different research papers regarding this topic and used information from the best/most relevant two papers.