Executive Summary

Masonic Village at Sewickley is a campus dedicated to elderly retirement facilities. In September of 2010, the client chose to double the number of beds spaces in their existing nursing facility from 64 to 128 beds. Expansions lead to 66,455 SF of additions as well as 40,000 SF of major renovations. The final report begins by detailing in-depth *technical research* on the overall project. A thorough knowledge of the building lead to the following 4 research analyses, which are intended to strengthen the final quality of the building and construction processes:

Analysis #1: Masonry Acceleration

Masonry is undoubtedly one of the most critical factors driving the project's schedule. Finding ways to speed up masonry construction provides huge advantages for the project schedule. Analysis #1 outlines 3 possible alternatives for achieving this goal; adjusting critical path elements, mortar mixing procedures, and scaffolding options. Removing floor slabs from being an integral part of the wall was indisputably the largest accelerator for masonry at a savings of 26 days. The sum of all three masonry acceleration techniques provided a grand total time savings of 36.1 work days.

Analysis #2: Façade Dimensioning

The outer perimeter of the building's façade is made up of 116 dimensional elements. 64 of these "walls" were simply not designed to be compatible with 16" increments friendly to masonry work. Adjusting all measurements on a scale of inches, such that no block needed to be cut, created a huge cost reduction. Savings' were researched in material waste, time, and manpower. Small changes in designed wall lengths contributed a cost savings of $74,394.

Analysis #3: Value Engineered Façade

With so much brick being utilized on site, the implementation of brick block provides an opportunity to nearly cut masonry costs in half. Brick blocks are CMU's embossed with a running bond pattern of standard 8" brick. The pattern provides the illusion of an actual "brick" façade and eliminates the need for veneer. Although higher unit costs, coloring options, and insulation are all more expensive, savings benefits of having no veneer far outweigh these expenses in the grand scheme of construction. Even after such additional expenses have been deducted, a brick block façade would ultimately save the project team $249,200.

Analysis #4: Masonry Sustainability

The abundance of masonry on site ultimately lead to seeking methods of utilizing the material from a sustainability standpoint. The facility has already earned a rating of LEED Silver with a total of 55 points. Earning just 5 additional points would upgrade the project's status to LEED Gold. Masonry has the ability to earn LEED points in 3 different categories; sustainable sites, energy and atmosphere, and materials and resources. Various suggested techniques added 1 LEED point in each of the first two categories and 3 in the final one. Employing the techniques outlined in Analysis #4 would not only earn 5 additional LEED points for the project but also transform the building from LEED Silver to LEED Gold.