

## Executive Summary

The Susquehanna Center, located in Bel Air, Maryland is an expansion and renovation to the practice facility for the men's basketball team for Harford Community College. The Center will serve as the main hub for the sports community on campus. The expansion includes the addition of a 5,000 seat arena and a college sports program weight training room. Also, the Center upgraded its practice facilities and domestic swimming complex located in the basement. The building is LEED certified which, will create an interesting blend of energy efficiency in the exciting and festive sports world.

This report looks into the past two semester's research in its aid to redesign four spaces with the Susquehanna Center. The four spaces to be redesigned are the building façade, the main lobby, the Auxiliary Gymnasium, and the Fitness and Weight room. The main focus of the report is the redesign of the lighting and electrical systems within the four spaces. The lighting design concept was to accentuate the message that this Center is the hub of the sports community and to invoke the exciting nature that surrounds the thrill of watching college athletics.

The electrical depth of this reports looks into the branch circuitry and control systems used for the new lighting design. It also contains a comprehensive study on the protection of all electrical devices and the coordination between those devices. The protection entails a short circuit calculation by hand, a SKM power tools model to confirm short circuit calculations and an arc flash study to determine the hazards of working on certain pieces of equipment.

The mechanical and structural breadths take another step forward in the lighting redesign of the Auxiliary Gymnasium. The redesign of the Auxiliary Gymnasium introduces day-lighting into the space by the use skylights. The structural breadth analyzes how the truss system will be impacted and the mechanical breadth analyzes how the chiller's cooling load will be impacted.