

Executive Summary

The Wentz Concert Hall and Fine Arts Center is an exhibitional and educational facility constructed at North Central College in 2008. Located in Naperville, Illinois, the building is approximately 30 miles west of Chicago. It was designed to meet the needs of the college's educational programs, as well as to promote the arts in the wider Naperville community. This report will examine several aspects of the building and propose alternative design options.

The main focus of this study is a lighting and power redesign of four parts of the building: the main lobby, the concert hall, the music rehearsal room, and the façade. For the concert hall, it also includes studies of the space's architectural and acoustical aspects. For the lighting designs, an overarching theme is developed to help unify the spaces with each other and the overall architectural style. In the main lobby, I've performed a computer rendering using Radiance techniques learned in Flux Transfer Theory. The designs are performed with a focus on energy efficiency in what is traditionally an energy intensive building type.

Additionally, this report considers the alternative of a reduced number of transformers to serve its 120/208 V electrical loads, and the addition of a roof mounted solar array. A short circuit study of the electrical system is included, as is a protective device coordination study for a portion of the building.