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## Executive Summary

The following report analyzes the existing electrical distribution system in the Hawthorn Building, as well as evaluating the electrical consumption calculations according to the NEC 2002 edition building loads. Existing documents including: riser diagrams, panel board schedules, transformer schedules, mechanical schedules, and floor plans were examined to perform this analysis. The report also examines overcurrent protection, emergency lighting systems, motors, and utility rate analysis.

Analysis shows that the electrical system that was designed for the Hawthorn Building is adequate, but greatly oversized. An expansion for the building is already in plans, so this may have something to do with the oversized distribution system. Since the building was built within the last 2 years, no power factor correction is used for the system.

There are a few additional concerns that may be worth checking into, however. First, the pad-mounted transformer is located somewhat far away from the building due to a previous contract. This means that there could be some voltage drop issues that need to be looked into. Also, the path that the conduit takes to get to the Hawthorn Building is somewhat strange. It goes under the building in the rear wing. It may be cheaper to have a transformer closer to the Hawthorn Building, and save on materials running across campus to power the building. A final issue is that there could be a problem involving harmonics due to the large computer lab areas.