Technical Report 2
25 October 2006

Power Distribution System

Executive Summary

The following report contains a general analysis of the existing electrical system at Boston University Arena and Recreation Center. The complex consists of three unit substations; two of which power the Arena and another for the Recreation Center. Because of the magnitude of the electrical system throughout the site, the report will look into further detail exclusively for the Recreation Center power distribution and communication systems. Included with the report are descriptions of the different components within the electrical systems, such as the utility service entrance, various voltage systems, transformers, emergency power systems, overcurrent protection devices, lighting systems, general locations of switchgear and motor control centers and important design requirements.

In addition the report includes tables of the Recreation Center mechanical, lighting, receptacle and elevator loads. The individual loads were used to calculate the total building electrical load, which help determine the size of the main feeder, distribution panel, and transformers. Electrical loads were also determined in order to check the size of the feeders off the main distribution panel. The National Electric Code (2005), equipment schedules, and electrical drawings were referenced throughout the calculation process.

Another component of the report is the utility rate structure, which is yet to be determined. As of now, I have contacted several site operating managers but do not have the utility rate structure information yet. Also, within this document there is a general overview of the different communication systems. The Recreation Center implements an advanced fire alarm, telecommunication, and security systems. At the end of the report there is a single-line diagram of BU Recreation Center electrical system beginning with the utility service and ending with low voltage panelboards.