

## *Executive Summary*

Technical Assignment 2 involved a study of the existing electrical distribution systems within The School of Forest Resources Building. The first step in analysis was breaking down the system paths and understanding how the power is distributed throughout the building. Utilizing the building drawings I created a One-Line diagram which documented the paths from the MDS in the basement to the distribution panels located on all floors.

A narrative of the equipment types is included. Panelboards are found throughout the building at both 480Y/277 and 208Y/120V. Dry-type transformers are used to step down the voltage. Circuit breakers are the most common over-current protection devices, though some panels are main lugs only. Two automatic transfer switches are used for emergency power to labs and life-safety loads in the building. Lighting systems in the building were found to be primarily 277V fluorescent.

The next examination was of the building loads. Both lighting and power systems were analyzed floor by floor to calculate a total building demand load. Factors from the National Electrical Code were used to de-rate or increase demand as required. The building demand load was calculated to be less than the actual load allowed on the main building feeders. Room for system growth was supplied by an additional conduit left open for a potential new feeder if necessary.

The final required section of the report was to examine the utility loads of the building, however this data was not available as the building is not yet in operation.

