PART 1 - GENERAL

1.1 DESCRIPTION
A. This section specifies the requirements of the Electrical System Protection Device Study.
B. A short circuit study shall be prepared for the electrical over current devices to be installed under this project to assure proper equipment and personnel protection.

1.2 RELATED WORK
A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements that are common to more than one section of Division 26.
B. Section 26 24 16, PANELBOARDS: Low voltage panelboards.
C. Section 26 24 11, DISTRIBUTION SWITCHBOARDS: Low voltage distribution switchboards.
D. Section 26 23 00, LOW-VOLTAGE SWITCHGEAR: Low voltage switchgear.

1.3 SUBMITTALS
A. In accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, submit the following:
B. Complete short circuit study as described herein.
C. Protective equipment shop drawings shall be submitted simultaneously with or after the protective device study. Protective equipment shop drawings will not be accepted prior to protective device study.
D. Certification: Two weeks prior to final inspection, submit four copies of the following to the COTR/Resident Engineer:
   1. Certification by the Contractor that the protective devices have been adjusted and set in accordance with the approved protective device study.
1.4 QUALIFICATIONS

The protective device study shall be prepared by the design engineers.

1.5 REQUIREMENTS

A. The complete study shall include a system one line diagram, and short circuit and ground fault analysis.

SPEC WRITER NOTES: On small rehab-projects modify the scope to describe the proper extent of the study.

B. One Line Diagram:

1. Show, on the one line diagram, all electrical equipment and wiring to be protected by the overcurrent devices installed under this project. Clearly show, on the one line, the schematic wiring of the electrical distribution system.

2. Also show on the one line diagram the following specific information:

   a. Short circuit values at each bus.
   b. Breaker and fuse ratings.
   c. Generator kW and Transformer kVA and voltage ratings.
   d. Voltage at each bus.
   e. Identification of each bus.
   f. Conduit material and feeder sizes.

C. Short Circuit Study:

1. Systematically calculate the fault impedance to determine the available short circuit and ground fault currents at each bus. Incorporate the motor contribution in determining the momentary and interrupting ratings of the protective devices.

2. The study shall be calculated by means of a computer program. Pertinent data shall be incorporated in the drawings.

3. Present the data determined by the short circuit study on the drawings. Include the following:

   a. Device identification.
   b. Operating voltage.
   c. Protective device.
   d. Device rating.
   e. Calculated short circuit current.
1.6 ADJUSTMENTS, SETTINGS AND MODIFICATIONS

A. Necessary final field adjustments, settings and minor modifications shall be made to conform with the protective device study without additional cost to the Government.

B. All final circuit breaker and relay settings and fuse sizes shall be made in accordance with the recommendations of the protective device study.