16XXX - LOW-VOLTAGE SWITCHGEAR.

1.1 GENERAL

1.1 SECTION INCLUDES.

Installation and testing of the low-voltage (600v) and medium voltage switchgear.

1.2 SUBMITTALS.

A. A short circuit and coordination study shall be performed by a registered professional engineer in accordance with ANSI/IEEE Standard 242-1986, “Recommended Practices for Protection of Industrial and Commercial Power Systems.

B. The short circuit study shall be computer generated. The calculations shall utilize interrupting duty faults that are modeled using multipliers to modify rotating machine subtransient impedances (positive sequence) as outlined in ANSI standards C37.010-1979 and C37.5-1979. Negative sequence impedances are modeled using rotating machine subtransient impedances without multipliers.

Interrupting ratings shall not be compared directly to absolute fault current values. The comparative device short circuit test values (X/R ratios) shall be used to increase or decrease the absolute calculated short circuit value.

The short circuit report shall include a text based report with all inputted impedance values, all short circuit values and a comparative report that juxtaposes the ANSI multiplier (X/R) modified short circuit levels alongside the device interrupting ratings. In addition, two single-line diagrams shall be included. Drawing one, shall indicate short circuit levels at all nodes. Drawing two, shall indicate those protective devices that have inadequate interrupting ratings and the percentages by which the rating has been exceeded. These drawings shall be permitted to be 8-1/2" X 11" if readable. In addition, a floppy based DXF file of each drawing shall be furnished with the study.

C. The Coordination Study shall be computer generated and displayed on a log-log time current curve background. The study shall include a separate drawing for each unique device combination. Similar series relationships do not require a separate drawing.

The study shall include the transformer protection point for transformers greater than 500 kva. Also included on each drawing shall be the starting curve for the largest motor if greater than 50 horsepower.

For fusible systems, coordination plots shall not be required. For fusible systems a text based report shall be supplied. That report shall list the actual series (device)

ratios juxtaposed against the manufacturers published coordination ratios for the necessary devices. For systems employing non-adjustable circuit breakers, only the service entrance devices are required to be plotted.

(END SECTION)