

DO-IT-YOURSELF JOB INVESTIGATION

A technician was at a private residence to determine why an air conditioner was not operating. The technician connected a tester into an electrical receptacle and the tester failed to operate. The technician connected a second tester into the same electrical receptacle and the second tester failed to operate. Investigation revealed that the home owner had installed the receptacle designed for 120 volts with connections to clothes dryer's 240 volt circuit. The two testers required power supply replacement.

OFFICE BUILDING ELECTRICITY EVALUATION

A 24 story office building approximately 35 years old lost all electrical service suddenly. Initial investigation revealed that the insulation on electric feeder cables had melted within metal conduit from the electric switchgear to the various electrical breaker panels throughout the building resulting in electrical shorts between the now bare copper wire and the metal conduit which is connected to electric ground. Further investigation revealed that the office spaces use had changed from general offices with small electric demand to include 8 radio stations, 5 television stations, and a collection agency that occupied 2 floors with large amounts of electronic equipment with heavy electric demand. The root cause was installing additional switchgear to meet the electric demand and not increasing or replacing the feeder electric cables with larger diameter copper wire to accommodate the increase in electric current, resulting in the wires overheating and melting the wire insulation.

LIGHTNING DAMAGE INSPECTION OF COMMUNICATIONS STATION

A newly constructed cellular telephone station located on a mountaintop stopped operating immediately after the passing of a rain and lightning storm. Inspection of the equipment in the station showed that a ground grid in the earth under the station and the electronic equipment inside the building were properly installed. However, the connections between the ground grid and outside metal equipment (antenna, antenna cable ground shield, antenna tower, etc.) were installed using the improper materials. The improper ground connections allowed some energy spikes from the lightning to pass inside the stations and damage microchips within several electronic units.