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ARTICLE 280 - LIGHTNING ARRESTERS

A. Industrial Stations

280-1. Where Required. Lightning arresters shall be provided in industrial stations in locations where thunderstorms are frequent and adequate protection against lightning is not otherwise provided.

For lightning arresters in hazardous locations, see Articles 500-517.

280-2. Number Required. A lightning arrester shall be connected to each ungrounded overhead conductor entering or leaving the station, except that where there is more than one circuit, a single set of arresters may be installed on the station bus where means are provided to protect circuits that may remain disconnected from the bus.

280-3. Where Connected. The arrester shall be connected on the line side of all connected station apparatus.

B. Other Occupancies

280-11. Utilization Equipment. Lightning arresters installed for the protection of utilization equipment may be installed either inside or outside the building or enclosure containing the equipment to be protected. Arresters, unless isolated by elevation or made otherwise inaccessible to unqualified persons, shall be enclosed, and where the operating voltage of the circuit exceeds 750 volts between conductors they shall be inaccessible to unqualified persons.

Secondary lightning protection devices may reduce damage to wiring and equipment caused by lightning disturbances. (See Section 502-3.)

C. General

280-21. Location - Indoors. Arresters installed indoors shall be located well away from other equipment, passageways and combustible parts of buildings, and where containing oil shall be separated from other equipment by walls meeting the requirements of Section 450-42.

280-22. Location - Outdoors. Where arresters containing oil are located outdoors, provision shall be made to drain away any accumulation of oil.

Oil may be drained away by ditches and drains or the oil may be absorbed and danger of spreading removed by paving the yard with cinders or other absorbent material to a depth of several inches.

280-23. Connectors - Size and Material. The connections between the arrester and the line wire or bus, and between arrester and ground shall be of copper wire or cable or the equivalent, and, except as provided on secondary services in Section 250-131, shall not be smaller than No. 6, and shall be made as short and as straight as practicable, avoiding as far as possible all bends and turns, especially sharp bends.

280-24. Insulation. Lightning-protection accessories such as gap electrodes, and choke coils where used, shall have an insulation from ground or from other conductors at least equal to the insulation required at other points of the circuit.

280-25. Switch for Isolating Arrester. Where isolating switches or disconnecting devices are used, they shall withstand, in full open position, a voltage test between live parts 10 per cent in excess of the maximum voltage test they will withstand to ground.

280-26. Grounding. Lightning arresters shall be grounded in the manner prescribed in Article 250, except that grounding conductors shall not be run in metallic enclosures unless bonded to both ends of such enclosures.