(2) Shields of cables for fire alarm, security, signaling systems, and emergency communications shall be arranged in accordance with the manufacturer's published installation instructions.
(3) Optical fiber cables shall be used for connections between two or more buildings on the property and under single management.
(4) A listed primary protector shall be provided on all communications circuits. Listed secondary protectors shall be provided at the terminals of the communications circuits.
(5) Conductors for all control circuits rated above 50 volts shall be rated not less than 600 volts.
(6) Communications, fire alarm, and signaling circuits shall use relays with contact ratings that exceed circuit voltage and current ratings in the controlled circuit.
(7) All cables for fire alarm, security, emergency communications, and signaling systems shall be riser-rated and shall be part of a listed 2-hour fire-resistive cable system or protected by a listed 2-hour electrical circuit protective system.
(8) Control, monitoring, and power wiring to HVAC systems shall be part of a listed 2-hour fire-resistive cable system or protected by a listed 2-hour electrical circuit protective system.

Part III. Power Sources and Connection

708.20 Sources of Power.

(A) General Requirements. Current supply shall be such that, in the event of failure of the normal supply to the DCOA, critical operations power shall be available within the time required for the application. The supply system for critical operations power, in addition to the normal services to the building and meeting the general requirements of this section, shall be one or more of the types of systems described in 708.20(E) through (H).

Informational Note No. 1: Assignment of degree of reliability of the recognized critical operations power system depends on the careful evaluation in accordance with the risk assessment.

Informational Note No. 2: See IEEE 3006.5–2014, *Recommended Practice for the Use of Probability Methods for Conducting a Reliability Analysis of Industrial and Commercial Power Systems*, for guidance about determining degree of reliability.

(B) Fire Protection. Where located within a building, equipment for sources of power as described in 708.20(E) through (H) shall be installed either in spaces fully protected by an approved automatic fire protection system or in spaces with a 2-hour fire rating.

(C) Grounding. All sources of power shall be grounded as a separately derived source in accordance with 250.30.

Exception: Where installed in accordance with 708.10(C) and 708.11(B), equipment containing the main bonding jumper or system bonding jumper for the normal source and the feeder wiring to the transfer equipment shall not be required to be grounded as a separately derived source.

(D) Surge Protection Devices. Surge protection devices shall be provided at all facility distribution voltage levels.

(E) Storage Battery. An automatic battery charging means shall be provided. Batteries shall be compatible with the charger for that particular installation. Automotive-type batteries shall not be used.

(F) Generator Set.

(1) Prime Mover-Driven. Generator sets driven by a prime mover shall be provided with means for automatically starting the prime mover on failure of the normal power source. A time-delay feature permitting a minimum 15-minute setting shall be provided to avoid retransfer in case of short-time reestablishment of the normal source.

(2) Power for fuel transfer pumps. Where power is needed for the operation of the fuel transfer pumps to deliver fuel to a generator set day tank, this pump shall be connected to the COPS.

(3) Dual Supplies. Prime movers shall not be solely dependent on a public utility gas system for their fuel supply or municipal water supply for their cooling systems. Means shall be provided for automatically transferring from one fuel supply to another where dual fuel supplies are used.

(4) Battery Power and Dampers. Where a storage battery is used for control or signal power or as the means of starting the prime mover, it shall be suitable for the purpose and shall be equipped with an automatic charging means independent of the generator set. Where the battery charger is required for the operation of the generator set, it shall be connected to the COPS. Where power is required for the operation of dampers used to ventilate the generator set, the dampers shall be connected to the COPS.

(5) Outdoor Generator Sets.

(a) *Permanently Installed Generators and Portable Generators Greater Than 15 kW.* Where an outdoor housed generator set is equipped with a readily accessible disconnecting means in accordance with 445.18, and the disconnecting means is located within sight of the building or structure supplied, an additional disconnecting means shall not be required where ungrounded conductors serve or pass through the building or structure. Where the generator supply conductors terminate at a disconnecting means in or on a building or structure, the disconnecting means shall meet the requirements of 225.36.

(b) *Portable Generators 15 kW or Less.* Where a portable generator, rated 15 kW or less, is installed using a flanged inlet or other cord-and plug-type connection, a disconnecting means shall not be required where ungrounded conductors serve or pass through a building or structure.