**Section 390.2740 Electrical Systems**

a) General Electrical System Requirements

1) All material including equipment, conductors, controls, and signaling devices shall be installed to provide a complete electrical system with the necessary characteristics and capacity to supply the electrical facilities required by these standards. All materials shall be listed as complying with available standards of Underwriters' Laboratories, Inc. or other similarly established standards. (B)

2) All electrical installations and systems shall be tested to show that the equipment is installed and operates as planned or specified and be in accordance with these standards. (A, B)

b) Switchboards and Power Panels. Circuit breakers or fusible switches that provide disconnecting means and overcurrent protection for conductors connected to switchboards and panelboards shall be enclosed or guarded to provide a dead-front type of assembly. The main switchboard shall be located in a separate enclosure accessible only to authorized persons. The switchboard shall be convenient for use, readily accessible for maintenance, clear of traffic lanes, and in a dry ventilated space free of corrosive fumes or gases. Overload protective devices shall be suitable for operating properly in ambient temperature conditions.

c) Panelboards. Panelboards serving lighting and appliance circuits shall be located on the same floor as the circuits they serve. This requirement does not apply to emergency system circuits.

d) Lighting

1) All spaces occupied by people, machinery, and equipment within buildings, approaches to and exits from buildings, and parking lots shall have lighting.

2) Resident's rooms shall have general lighting. There shall be lighting for the use of staff. At least one light fixture shall be switched at the entrance to each resident room. All switches for control of lighting in resident's sleeping areas shall be of the quiet operating type.

e) Receptacles (Convenience Outlets)

1) Each resident bed room shall have duplex grounding type receptacles as follows: One located each side of the head of each bed, crib or bassinet; one for television if used; and one on another wall. (B)

2) Resident bathrooms shall have at least one duplex receptacle.

3) See Article 517 of National Fire Protection Association Standard 70 for grounding requirements.

4) All receptacles shall be of the child safety type or shall be protected by five milliampere ground fault interrupters.

5) Duplex receptacles shall be installed approximately 50 feet apart in all corridors and within 25 feet of ends of corridors.

f) Door Alarm System. Each exterior door shall be equipped with a signal that will alert staff if a resident leaves the building. Any exterior door that is supervised during certain periods may have a disconnect device for part-time use. If there is constant 24 hour a day supervision of the door, a signal is not required. (B)

g) Nurses' Calling System

1) Each resident room shall be served by at least one calling station to be used by staff to summon additional assistance. Call shall register at the nurses' station and shall activate a visible signal in the corridor at the resident's door and in the nurse's station. In multicorridor nursing units, additional visible signals shall be installed at corridor intersections. In rooms containing two or more calling stations, identifying lights shall be provided at the nurses' station. (B)

2) An accessible nurses' call station shall be provided at each resident's watercloset, bath, and shower room or area. (B)

h) Fire Alarm System

1) A manually and automatically operated fire alarm system shall be installed. (A, B)

2) Automatic smoke detectors shall be installed in all resident sleeping rooms and at 30 feet on center in all corridors other than sleeping area corridors. (A, B)

i) Emergency Electrical System

1) To provide electricity during an interruption of the normal electric supply, an emergency source of electricity shall be provided and connected to certain circuits for lighting and power. The emergency system shall consist of the life safety branch and the critical branch. (B)

2) The source of this emergency electric service shall be an emergency generating set or an approved dual source of normal power. (B)

3) Life Safety Branch, Automatic Transfer ten Seconds.

A) Illumination of means of egress as necessary for corridors, passageways, stairways, landings and exit doors, and all ways of approach to and through exits. (A, B)

B) Exit signs and exit directional signs. (A, B)

C) Sufficient lighting in dining room and recreation areas to provide illumination to exit ways. (A, B)

D) Fire alarms activated at manual stations, by electric water flow alarm devices in connection with sprinkler systems, and by all automatic detection systems. (A, B)

E) Communication systems, where these are used for issuing instructions during emergency conditions. (A, B)

F) Task illumination and selected receptacles at the generator set location. (B)

4) Critical Branch, Automatic Transfer Ten Seconds

A) Task illumination and selected receptacles in the nurse's station including the medication preparation area. (B)

B) Sump pumps and other equipment required to operate for the safety of major apparatus including associated control systems and alarms. (B)

C) Elevator cab lighting and communication systems. (B)

D) Nurses' call system (B)

5) Critical Branch, Automatic or Manual Systems

 Heating equipment to provide heating for patient rooms. EXCEPTION: Where the facility is served by two or more electrical services supplied from separate generators or a utility distribution network having multiple power input sources and arranged to provide mechanical and electrical separation so that a fault between the facility and the generating sources is not likely to cause an interruption of more than one of the facility service feeders. (B)

6) Details

A) The life safety and critical branch shall be in operation within ten seconds after the interruption of normal electric power supply. (B)

B) Receptacles connected to emergency power shall be distinctively marked. (B)

C) Where fuel storage facilities are provided on the site, the fuel tank shall have minimum capacity for 24 hour operation of the generator. (B)

(Source: Amended at 13 Ill. Reg. 6301, effective April 17, 1989)