Emergency stand-by power supply E-700.09 and .10

May 25, 1962

NEW WISCONSIN EMERGENCY WIRING REQUIREMENTS

A new Wisconsin State Electrical Code became effective on December 1, 1961. This code includes a very important revision concerning sources of power for emergency lighting or emergency power. Depending upon the type of occupancy and the capacity of that occupancy, connection ahead of the service disconnecting means or a separate service is not acceptable as a source of power for emergency lighting or power. (Refer to sections E 700.09 and E 700.10 of the electrical code). This revision requires the use of a storage battery, generator set or unit equipment as a standby emergency source when the number of persons for the appropriate occupancy listed in the table under section E 700.09 is exceeded.

Because of the apparent confusion of many engineers and inspectors regarding the requirements of this revision, the Industrial Commission has found it desirable to issue the following interpretations.

A. STORAGE BATTERY OR GENERATOR SET.

1. When one service and either a storage battery or generator set constitutes the emergency supply system, the normal service supply for the emergency feeder must be obtained from the line side of the main service disconnecting means through a supplementary service disconnect providing overcurrent protection for the emergency feeder.

2. An automatic transfer switch must be provided to transfer the normal service supply to the standby auxiliary power supply in case of a power failure. Under normal operation the emergency feeder is supplied from the normal service supply.

B. UNIT EQUIPMENT.

1. It is not necessary that the normal supply feeding unit equipments be connected ahead of the service disconnecting means. This normal supply circuit may be tapped from a general wiring branch circuit. Generally, a lighting fixture supplied by a unit equipment will have two lamps, one supplied from a 120 volt

general branch circuit and the other from the low voltage unit equipment. It is recommended that the unit equipment be supplied from the same general branch circuit that supplies the 120 volt lamp in the emergency lighting fixture.

C. FIRE ALARM SYSTEMS.

1. Fire alarm systems may be connected on the line side of the main service switch regardless of the capacity of the building or any room.

2. A fire alarm system which is connected such that it will be supplied by the standby auxiliary power supply must be connected to the normal service supply for the emergency feeder during normal operation with a transfer switch provided to transfer the system from the normal supply to the standby unit upon a power failure.

3. Where unit equipments or storage batteries provide the auxiliary supply, the fire alarm system must be connected ahead of the service disconnecting means.

D. ADDITIONS TO EXISTING BUILDINGS.

1. Where the capacity of an individual room determines the acceptable emergency sources of power in accordance with the table under the note in section E 700.09, the existing portion of the building, as well as the addition, must comply with the notes under sections E 700.09 and E 700.10. Where the capacity of a room in the existing building exceeds the appropriate figure in the code table, it will be necessary to revise the existing emergency system to provide a standby auxiliary power supply.

2. Where the capacity of the entire building determines the acceptable emergency sources of power in accordance with the table under the note in section E 700.09, the capacity of the existing portion plus the capacity of the addition is to be used to determine if the occupancy is to comply with the notes under sections E 700.09 and E 700.10. If an addition which increases the capacity is made to an existing building which before the addition exceeded the number of persons capacity noted in the code table, or if the addition plus the existing portion exceeds the

allowable capacities, then the existing portion as well as the addition must comply with the notes under sections E 700.09 and E 700.10 of the code. This will likely require revising the existing emergency wiring.

3. Where the capacity of an individual room determines the acceptable emergency sources of power in accordance with the table under the note in section E 700.09 and the addition does not have an assembly area covered by this table, then the existing portion of the building does not have to comply with the notes under sections E 700.09 and E 700.10 as long as the existing emergency lighting is supplied by some emergency system recognized by the code, such as connection ahead of the service disconnecting means.

4. If the addition is separated from the existing building by a fire wall having at least a 4-hour fire rating and having Class A fire doors as the only openings in it, the addition is considered a separate building with the notes under sections E 700.09 and E 700.10 of the electrical code applying only to it and not to the existing building.

5. If emergency wiring in an existing occupancy is added so that it becomes necessary to add an emergency service or increase the size of the existing emergency service, then the notes under sections E 700.09 and E 700.10 must be complied with.

6. Where the capacity of an individual room or area requires the installation of a standby auxiliary power supply, only those emergency lights related to this area or egress from it need be connected to it. Other emergency lights, including other exit lights, must still be supplied from some emergency service which may consist of a service connected ahead of the service disconnecting means or a separate service.

E. GENERAL.

1. These new emergency wiring requirements are not intended to require any emergency lights other than those already required by other chapters of the Wisconsin Administrative Code. They only indicate how this emergency lighting is to be connected.

DETERMINING OCCUPANCY CAPACITY

The following figures shall be used to determine the capacity of buildings or parts of buildings, when deciding if the notes following sections E 700.09 and E 700.10 of the Wisconsin State Electrical Code apply.

	NUMBER OF PERSONS	OCCUPANCY	BASIS FOR CAPACITY
1.	Over 30	a. Hospitals, homes for the aged, childrens' homes, asylums, jails and similar occupancies.	Number of patients or inmate beds.
		b. Clinics.	75 sq. ft. per person.
		c. Natatoriums.	15 sq. ft. per person.
2.	Over 200	a. Assembly halls with stage, lecture halls, school auditoriums.	7 sq. ft. per person.
		b. Theaters and theater lobbies.	7 sq. ft. per person. (Theater and theater lobby must be combined to determine overall theater capacity.)
		c. Arenas and field houses.	4 sq. ft. per person. Use seated areas only.
		d. Gymnasiums and lodge halls.	6 sq. ft. per person for seated space. 15 sq. ft. per person for unseated space.
		e. Exhibition buildings, museums and art galleries.	100 sq. ft. per person.
		f. Libraries.	20 sq. ft. per person for reading rooms. 100 sq. ft. per person for balance.
		g. Church dining rooms and fellowship halls, dance halls, banquet halls, dining rooms, restaurants, taverns, night clubs, school multi-purpose rooms and similar occupancies.	10 sq. ft. per person, except bar or counter area and area behind them may be deducted.
		h. Stores (first floor & basement)	30 sq. ft. per person.
		i. Stores (second floor & above)	60 sq. ft. per person.
		j. Skating rinks	15 sq. ft. per person.
		k. Hotels, motels and rooming houses.	1 person per room.
		l. Bowling alleys.	6 persons per alley plus number of spectator seats and area for bar and dining areas in accordance with above item g.

	NUMBER OF PERSONS	OCCUPANCY	BASIS FOR CAPACITY
3.	Over 400	a. Apartment buildings.	2 persons per apartment.
		b. Dormitories including those in detention schools and convents.	Number of beds.
		c. Office buildings, banks and factories.	75 sq. ft. per person.
		d. Warehouses.	300 sq. ft. per person.

The square foot figures noted above are based on net area which would include internal room and corridor areas. The area occupied by toilets, stairwells, elevator shafts, janitor's closets, boiler and equipment rooms, and similar areas need not be included in the combined net area for the occupancy.