

Chapter E 560

FARM AND RURAL WIRING

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E 560.01 General. Farms and other rural locations contain a variety of conditions ranging from dry to corrosive and are generally located in areas where it is difficult to obtain low resistance grounds. The housing and handling of animals, feed and machinery present problems which may not be covered adequately in other sections of the code. Other rules in this code are applicable to farm and rural wiring when not in conflict with this chapter

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 560.02 Service. The electric service at a farm or other rural location shall be installed in accordance with subsections (1), (2) or (3).

(1) **DISCONNECTION OF CONDUCTORS.** It is recommended that an isolating means be provided at the point where the electric utilities service conductors terminate and be arranged to disconnect all ungrounded conductors from the service. The operating means for the disconnect shall be accessible from the ground. The isolating means recommended by this section may be the service disconnect specified in subsection (2) (a) or some other device such as a pole-top isolating switch.

(a) **Exception.** A water pump may be connected in such a way that opening of other than its own circuit protection will not interrupt service to the pump. A service disconnect for a water pump shall not be counted as one of the 6 disconnects referred to in subsection (2) (a).

(2) **SERVICE EQUIPMENT AT ONE POINT.** The electric service may be brought to one point or building and complete service equipment including disconnecting means placed at that point.

(a) The service disconnecting means, located at one point, shall consist of no more than 6 fused disconnect switches or circuit breakers except for the residence which shall have a single main disconnecting means. In addition, a disconnecting means shall be placed at each building to permit disconnecting the entire supply to the building with no more than 6 operations of the hand. The building disconnecting means shall be grouped at one point.

Note: A pole-top isolating switch is not approved as service equipment and cannot take the place of the service disconnecting means required by this subsection.

(b) Overhead supply conductors to other buildings or structures shall be treated the same as service drops with respect to clearances and conductor size and insulation. Conductors on the load side of

the service disconnecting means, whether overhead or underground, shall be protected against overcurrent in accordance with Wis. Adm. Code sections E 240.05 and E 240.15.

(3) **SERVICE EQUIPMENT AT DIFFERENT POINTS.** (a) The electric service may be brought to one point and metered but with service disconnecting means located at other points on the premises and installed in accordance with the requirements of chapter E 230.

(b) Overhead conductors from a central metering point to other buildings or structures are considered service drops and shall comply with chapter E 230, part C, except they shall be sized not smaller than No. 8 copper or equivalent. Underground services from a central metering point to other buildings or structures shall comply with chapter E 230, part C, and section E 310.06.

Note 1: Directly buried conductors running from central metering point are service conductors and must be type USE. Type UF cable is not permitted.

Note 2: Separate service conductors are permitted to be run to silos even though they may be attached to other buildings.

(4) **FARM OR RURAL DWELLINGS.** The service or supply to a farm or rural dwelling shall comply with chapter E 230.

(5) **ADDITIONAL SERVICE.** An additional service of the required size may be installed to supply a device for converting single phase power to multi-phase power.

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E 560.03 Farm feeder and service load calculations. (1) **FEEDERS.** Feeders supplying farm buildings (excluding dwellings), structures or loads consisting of 2 or more branch circuits shall have a minimum capacity computed in accordance with the following table:

TABLE E 560.03 (1)
DEMAND COMPUTATION FOR FARM BUILDINGS,
STRUCTURES OR LOADS

LOAD IN AMPERES AT 230 VOLTS	Percent of Connected Load
Loads expected to operate without diversity, but not less than first 60 amperes.....	100
Next 60 amperes of all other load.....	50
Remainder of other load.....	20

Note 1: The feeder load to a farm dwelling shall be based on Wis. Adm. Code sections E 220.02 to E 220.07 with a 100 ampere minimum.

Note 2: For service at main point of delivery to farmstead, see sections E 560.03 (2) and (3).

(2) **SERVICE AT ONE POINT** (See section E 560.02 (1)). Minimum capacity of service conductors and service equipment at the main point of delivery to farms (including dwellings) shall be determined in accordance with the following formula:

100% of the largest demand computed in accordance with subsection (1) plus;

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75% of the second largest demand computed in accordance with subsection (1) plus;

65% of the third largest demand computed in accordance with subsection (1) plus;

50% of the demands of remaining loads computed in accordance with subsection (1).

Note 1: Consider as a single computed demand the total of the computed demands of all buildings or loads having the same function.

Note 2: The demand of the farm dwelling, if included in the demands of this formula, should be computed in accordance with Note 1 of Table E 560.03 (1).

(3) **SERVICE AT EACH BUILDING** (See section E 560.02 (2)). Service equipment and service entrance conductors for individual farm buildings or structures (excluding dwellings) shall have minimum capacity computed in accordance with subsection (1).

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E 560.04 Grounding. (1) The neutral conductor shall be grounded at the entrance of each building housing livestock, equipment required to be grounded or utilizing 2 or more branch circuits. The ground connection shall be made to a metallic underground water piping system, if one is available. If the buried portion of the water piping system is less than 50 feet, excluding wall casings or has a resistance to ground of more than 3 ohms, the water system shall be augmented at each service by at least 2 grounding electrodes recognized in Wis. Adm. Code section E 250.083.

(2) Any metal raceway system shall be bonded to the neutral at the entrance to the building. In addition, a separate grounding conductor shall be carried back from metal enclosures of electrical equipment to the point where the neutral is grounded. The ground for non-current carrying metal parts and the neutral shall be tied together at the grounding point.

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E 560.05 Wiring. The wiring methods for farm and rural locations shall be in accordance with the following subsections.

(1) In spaces where livestock is housed, milk houses, pump houses, root cellars, silos and poultry house, types NMC, UF or other non-absorbent nonmetallic sheathed cable shall be used. In addition, insulated boxes, lampholders, ducts and bushings should be used. If some metal boxes must be used they shall be mounted on insulating material out of contact with the masonry.

Note: It is recommended that at least a $\frac{3}{4}$ inch clearance be maintained between the insulating material and masonry.

(2) In dwellings, workshops, storage sheds, shelters or tobacco sheds, any type wiring system recognized by this code may be used.

(3) In hay mows and granaries, any type wiring system recognized by this code may be used. All lamps shall be installed in a vertical position and protected with a dust-tight fixture. Switches and receptacles shall be a type designed to prevent the entrance of dust. All electrical equipment shall be arranged or enclosed to keep hay and grain away, and ducts if used shall be arranged to reduce condensation and drain.

(4) All electrical equipment installed outside of a building or in extremely wet locations, such as silo rooms, shall be of weather-proof construction.

(5) The wiring of a gasoline dispensing pump shall comply with the appropriate sections of chapter E 514.

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E 560.06 Disconnect for power units. A disconnecting means shall be installed within 3 feet of the power units of silo unloaders and be wired to disconnect all power to the units.

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