

Lessons Learned from Farm Wiring Inspections

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NEC 110.9

Interrupting Rating

The beginning value must be obtained from the supplying utility in order to properly select the service and any adjacent standby power transfer equipment

NEC 110.24(A)

Available Fault Current Field Marking

The interrupting rating obtained from the utility plus any motor contribution must be totaled and marked on the service equipment including marking date the calculation was performed

NEC 110.22(C)

Tested Series Combination Systems Field Marking (Specific Language)

Where fuses or circuit breakers are applied as a series rated system to achieve compliance with NEC 110.9 the equipment shall be labeled to indicate this series rating

NEC 110.16

Arc-Flash Hazard Warning

The language is similar to NEC 110.26(A)
“Working Space”

Electrical equipment (other than dwellings) that is likely to require examination, adjustment, servicing, or maintenance while energized requires front working space and an arc-flash hazard warning label

NEC 110.11

Deteriorating Agents

In damp or wet locations

Supports the Scope of 547.1

Unless identified for the use in the operating environment, no conductors or equipment shall be located in damp or wet locations; where exposed to agents that have a deteriorating effect

NEC 110.3(A)(1)

Suitability for installation and use in conformity with the provisions of the code

Similar requirement to that of NEC 110.11 without limitation to only damp & wet locations.

Provides support to NEC 547 wiring methods

NEC 110.28

Enclosure Types

Supports NEC 312.2, 314.15, 547.5 & more
NEC 312.2 requires ($\frac{1}{4}$ ") air space behind metal cabinets installed any damp or wet locations is similar to 300.6(D) which applies to metal enclosures installed in indoor wet locations

NEC 110.21

Marking

Similar to 409.110 w/ marking suitable for the environment

Manufacturer's name, supply voltage, number of phases, frequency, full load current of each supply, identification of all disconnects supplying the control panel, short-circuit rating, enclosure type

NEC 110.27(B)

Prevent Physical Damage

Unless identified or located where not subject to physical damage all wiring and equipment is required to be protected to prevent such damage

NEC 225.30

Outside Branch Circuits and Feeders Number of Supplies

The base requirement says, only one branch circuit or feeder is permitted to supply a building or structure

NEC 225.31 Disconnecting Means

NEC 225.32 Location

An outdoor branch circuit or feeder is required to have disconnecting means located outside or nearest the point of entrance to a building

NEC 225.36

Suitable for Service Equipment

Similar to 230.70(C), the outdoor branch circuit or feeder building disconnect is required to be suitable for use as service equipment

NEC 408.4(B)

Field Identification

Source of Supply

A panelboard supplied by a feeder is required to be identified to correspond with the supply source disconnect label and the location of the supply source is required to be marked on the feeder panelboard

NEC 547.9(B)(2)

Conductor Installation

Conductors supplied from a site isolation device are “Overhead Service Conductors” installed with a feeder wiring method so to require compliance with 547.9(B)(3) and the 250.32(B)(1) required equipment grounding conductor

NEC 547.9(C)

Service Disconnecting Means and Overcurrent Protection at the Distribution Point

Where the farm distribution point is an Article 230 service (rather than a 547.9(A) site-isolating device), overcurrent protection is required per NEC 230.91 prior to installing conductors overhead or underground

NEC 250.32(B)(1)

Supplied by a Feeder or Branch Circuit

Both 547.9(B)(3) & (C) require the installation of a 250.32(B)(1) equipment grounding conductor from the distribution point to and between buildings or structures

NEC 250.142(B)

Use of Grounded Circuit Conductor for Grounding “Load-Side Equipment”

Like NEC 250.32(B)(1), Except for existing installations where there are no parallel grounding paths present, the grounded circuit conductor cannot be used for grounding of equipment

NEC 110.7

Wiring Integrity

“Completed wiring installations shall be free from short circuits, ground faults, **or any connections to ground other than is required or permitted elsewhere in this code**”

NEC 300.5(J) Earth Movement NEC
352.30 Securing & Supporting NEC
352.44 Expansion Fittings NEC
300.7(B) Expansion Fittings

Continuous underground PVC raceways require provisions for ground movement where they emerge; Secure within 3' of enclosures & conduit bodies; Support to allow for movement from expansion & contraction at required intervals and the installed expansion fittings where movement exceeds $\frac{1}{4}$ "

NEC 300.7(A) Sealing Raceways Exposed to Different Temperatures

NEC 225.27 Raceway Seal

Seal the interior of all branch and feeder circuit raceways that enter a building from underground and where a raceway passes through a wall or ceiling with a temperature differential from side to side

Questions ???

Thank You,
For your interest in farm wiring