



Interpretation

IR550
(20 March 2008)

Section 21. **General requirements**

Rule 215C1 Grounding of circuits, supporting structures, and equipment— Non-current-carrying parts—General (2007 Edition, page 71)

When it is found that a utility has a mix of grounded and ungrounded overhead equipment racks, do prior installations require retrofitting—either grounding or ungrounding—to comply with Rule 215C1, *EXCEPTION 1*?

Discussion: An organization operating in the state of Oregon currently has roughly half of its overhead transformer cluster mount racks grounded and half not-grounded. A point of contention arises from verbiage starting in 1977 in NESC Rule 215C1, *EXCEPTION 1*, regarding the grounding of racks:

“This rule does not apply to frames, cases, and hangers of equipment and switch handles and operating rods that are 2.45 m (8 ft) or more above readily accessible surfaces or otherwise isolated or guarded and where the practice of not grounding such items has been a uniform practice over a well-defined area.”

The state of Oregon has basically interpreted the rule as follows:

*“This rule does not apply to frames, cases, and hangers of equipment and switch handles and operating rods that **meet both of the following criteria:***

- a) are 2.45 m (8 ft) or more above readily accessible surfaces or otherwise isolated or guarded, and*
- b) where the practice of not grounding such items has been a uniform practice over a well-defined area.”*

Essentially, the state of Oregon asserts that since 1977 overhead equipment racks must either all be grounded or all be not-grounded in any well-defined area.

National Electrical Safety Code and NESC are both registered trademarks and service marks of the Institute of Electrical and Electronics Engineers, Inc. The NESC is available from the Institute of Electrical and Electronics Engineers, Inc., 445 Hoes Lane, Piscataway, NJ 08854, USA (<http://standards.ieee.org/>)

The organization operating in Oregon, on the other hand, interprets the rule’s intent to be as follows:

*“This rule does not apply to frames, cases, and hangers of equipment and switch handles and operating rods that are 2.45 m (8 ft) or more above readily accessible surfaces or otherwise isolated or guarded. **This rule also does not apply** ~~and~~ where the practice of not grounding such items has been a uniform practice over a well-defined area.”*

Therefore, the organization contends that overhead equipment racks do not have to all be grounded or all be not-grounded in any well-defined area. This interpretation is believed to be correct for the following reasons:

- NESC Rule 420D and Rule 420E require line workers to determine all existing conditions and treat all hangers of equipment as energized. Following these work rules ensures worker safety, regardless of the grounding practice in the area.
- The racks are located well above all joint-use and publicly accessible equipment and therefore pose no safety threat to communications workers nor to the general public.
- Since NESC Rule 013B2 effectively grandfathers all racks installed prior to the institution of this *EXCEPTION* in 1977, there would still not be a uniform grounding practice in place even if retroactive actions—the grounding or ungrounding of all non-grandfathered racks—were to occur.
- Corrective actions in this regard would result in virtually no safety benefits for those reasons detailed above, and would be incredibly uneconomical when contrasted to the absence of any such safety benefits.

Consideration of this issue is appreciated.

Interpretation

The Interpretations Subcommittee has considered the subject Interpretation Request for Rule 215C1 and has developed a consensus report as follows:

“The intent of Rule 215C1 is to require all new overhead transformer racks to be grounded unless *EXCEPTION 1, 2, or 3* applies. This interpretation is limited to *EXCEPTION 1*.

New transformer racks must be grounded unless **both** criteria in *EXCEPTION 1* apply (isolated or guarded in a well-defined area). In any given area, one of the following three scenarios will apply:

1. *All ungrounded transformer racks:* New rack installations must be ungrounded (unless the installation is the beginning of a change to scenario 2).
2. *Mixed ungrounded and grounded transformer racks:* Once grounding of racks within a given area starts, **all new rack installations** in the specified area must be grounded. Existing racks within the area do not have to be grounded, see Rule 013B. Note that this mixture of ungrounded and grounded racks may exist for many years.
3. *All grounded transformer racks:* All new rack installations must be grounded.

While the rules do not require retrofitting in scenario 2 (mixed ungrounded and grounded transformer racks), good practice dictates that existing ungrounded racks should be grounded as significant work is done on structures, including pole replacement.”