

National Electrical Safety Code Committee, Accredited Standards Committee C2

National Electrical Safety Code®

Interpretation

Section 23. Clearances

Rule 234D2 Guarding Trolley-Contact Conductors Located Under Bridges (13 September 1999) IR 518

1. Please clarify if Rule 234D2 applies only to a current collection system using trolley poles.

Another overhead current collection device, a pantograph (a typical pantograph commonly used in the States has a head width of about 6.5 ft), which collects current from a catenary system consisted of messenger and contact wires, could only touch the bridge structure under two scenarios: a) when both the contact wire and the messenger wire broke, resulting in the rise-up of the pantograph to make contact with the bridge, provided the bridge is within reach of the spring up pantograph; b) the rail car is derailed to the degree that the pantograph comes off the contact wire and springs up to touch the bridge. In both scenarios, the pantograph could not make contact with the catenary wires and the bridge structure at the same time.

2. Footnote 5 of Table 234-2 states that “Where conductors passing under bridges are adequately guarded...” Please clarify if “adequately guarded” refers to the guard requirements set forth in Rule 234D2 or any other means as long as it can prevent unauthorized persons from touching the live wire.

Interpretation

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

“Rule 234D2 applies to current-collection systems using trolley poles. Pantographs are not covered in this rule. In the absence of specific requirements, please see Rule 012C.

Guarding is defined; see Section 2, Definitions. Footnote 5 of Table 234-2 is general in nature. The footnote covers any type of a conductor passing under a bridge; it is not limited to trolley or train contact conductors or catenary. The objective of the footnote is to prevent contact by unauthorized persons when reduced clearances are used. The objective of the guarding requirement in Rule 234D2 is to prevent simultaneous contact of the trolley pole with both the trolley-contact conductor and the bridge structure. A properly designed guard can serve both purposes.”