

Warning Ribbon Requirements for Service Conductors

Section 300.5(D) (3) of the 2014 National Electrical Code® requires a warning ribbon to identify the location of underground service conductors. Underground service conductors that are not encased in concrete and that are buried 18 inches or more below grade are required to have their location identified by a warning ribbon that is placed in the trench at least 12 inches above the underground installation.



The substantiation for this requirement is to provide a warning for persons making excavations in the vicinity of deep service installations where there often is no physical protection for the conductors and where there is no overcurrent protection on the supply end of the conductors. A warning ribbon is not required where underground service conductors are buried less than 18 inches deep and would usually be installed within a suitable raceway. It is recognized that for such installations the effectiveness of a warning ribbon would be minimized if the excavation would reach the electrical installation and the ribbon at the same time.

Section 300.5(d) is intended to apply only to 'underground service conductors' that are connected to the customer owned electrical equipment and wiring on the premises side of the 'service point'.

- It does not apply to utility-owned installations on the serving-utility side of the 'service point'.
- It does not apply to feeders and branch circuits as they are provided with overcurrent protection.

Service Conductors, Underground. The underground conductors between the service point and the first point of connection to the service-entrance conductors in a terminal box, meter, or other enclosure, inside or outside the building wall.

Informational Note: *Where there is no terminal box, meter, or other enclosure, the point of connection is considered to be the point of entrance of the service conductors into the building.*

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Service Point. The point of connection between the facilities of the serving utility and the premises wiring.

Service-Entrance Conductors, Underground System. The service conductors between the terminals of the service equipment and the point of connection to the service lateral or underground service conductors.

Informational Note: *Where service equipment is located outside the building walls, there may be no service entrance conductors or they may be entirely outside the building.*

In Summary

- Warning ribbons are required for underground service conductor installations on the premises side of the service point in accordance NEC® Section 300.5(D) (3).
- Underground service conductors that are not encased in concrete and that are buried 18 inches or more below grade are required to have their location identified by a warning ribbon.
- This requirement applies to all approved wiring methods including raceways or direct buried cables.
- The warning ribbon is required to be located at least 12 inches above the electrical installation. The warning ribbon is required for all types of installation methods, including but not limited to, open trench, plowing, and directional boring methods.

Question #2 - From the newly-installed service-rated disconnecting means at the center yard pole (distribution point), is an equipment grounding conductor required to be installed with the new 200 ampere underground feeder to the new storage shed?

Answer - Yes. NEC 547.9 states that an underground electrical supply shall comply with NEC 547.9(C). NEC 547.9(C) states that where the service disconnecting means and overcurrent protection are located at the distribution point, the underground feeder to the building or structure served shall meet the requirements of NEC 250.32 and Article 225, Parts I and II. NEC 250.32(A) states that the building or structure supplied by the feeder shall have a grounding electrode (or grounding electrode system). NEC 250.32(B) states that an equipment grounding conductor shall be run with the supply conductors to the building or structure disconnecting means and to the grounding electrode.

Question #3 – Is the existing 600 ampere non-fused, double-pole, double-throw transfer switch mounted at grade level on the center yard pole required to be replaced with equipment that provides overcurrent protection for the existing supply conductors that extend from the distribution point?

Answer – No. However, other code requirements must be considered and may require upgrading of the equipment and compliance with the current electrical code. As an example, additional load may result in the existing equipment to be undersized and require that it be replaced with equipment of adequate rating.