

of branch-circuit conductors entering the bottom of the cabinet that will connect to overcurrent protective devices (OCPDs) installed on the panelboard.

*Exception No. 1: Grounding electrode conductors or supply side bonding jumpers or conductors shall be permitted within service raceways.*

*Exception No. 2: Load management control conductors having overcurrent protection shall be permitted within service raceways.*

**Δ 230.8 Raceway Seal.** Where a service raceway enters a building or structure, it shall be sealed in accordance with 300.5(G) and 300.7(A). Spare or unused raceways shall also be sealed. Sealants shall be identified for use with the cable insulation, conductor insulation, bare conductor, shield, or other components.

Sealant, such as duct seal or a bushing incorporating the physical characteristics of a seal, is required to be used to seal the ends of service raceways. The intent is to prevent water — usually the result of condensation due to temperature differences — from entering the service equipment via the raceway. The sealant material should be compatible with the conductor insulation and should not cause deterioration of the insulation over time. See Exhibit 300.9 for an example of a sealing bushing.

**230.9 Clearances on Buildings.** Service conductors and final spans shall comply with 230.9(A), (B), and (C).

**(A) Clearances.** Service conductors installed as open conductors or multiconductor cable without an overall outer jacket shall have a clearance of not less than 900 mm (3 ft) from windows that are designed to be opened, doors, porches, balconies, ladders, stairs, fire escapes, or similar locations.

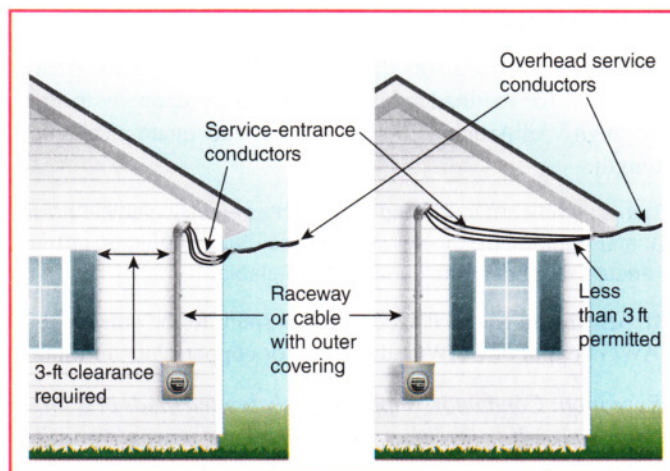
*Exception: Conductors run above the top level of a window shall be permitted to be less than the 900 mm (3 ft) requirement.*

The 3-foot clearance applies to open conductors, not to a raceway or to a cable assembly that has an overall outer jacket, such as Types SE, MC, and MI cables. This distance protects the conductors from physical damage and persons from accidental contact with the conductors. The exception permits service conductors, including service-entrance conductors, overhead service conductors, and service-drop conductors, to be located just above window openings, because they are considered out of reach, as illustrated in Exhibit 230.14.

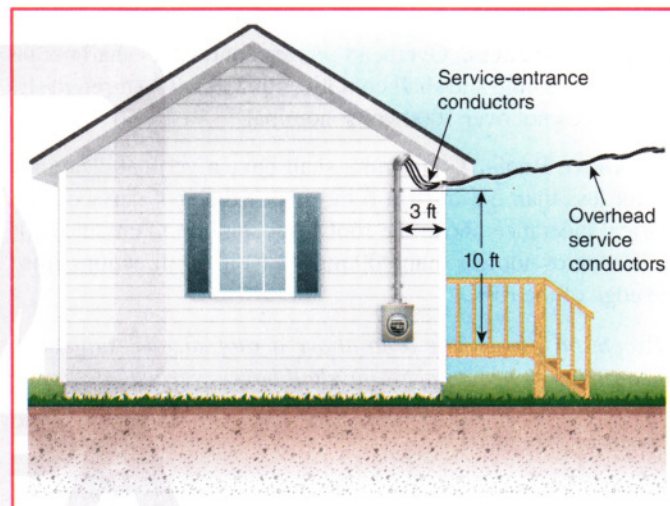
**(B) Vertical Clearance.** The vertical clearance of final spans above, or within 900 mm (3 ft) measured horizontally of platforms, projections, or surfaces that will permit personal contact shall be maintained in accordance with 230.24(B).

Service conductors must not be located where a person could reach and touch them. The amount of vertical clearance required depends on the location and voltage of the overhead conductors.

Exhibit 230.15 illustrates an installation where the 10-foot clearance is based on the conditions described in 230.24(B)(1).



**EXHIBIT 230.14** Required dimensions for service conductors located alongside a window (left) and overhead service conductors above the top edge of a window designed to be opened (right).



**EXHIBIT 230.15** Required dimensions for service conductors located above a stair landing.

**(C) Building Openings.** Overhead service conductors shall not be installed beneath openings through which materials may be moved, such as openings in farm and commercial buildings, and shall not be installed where they obstruct entrance to these building openings.

**230.10 Vegetation as Support.** Vegetation such as trees shall not be used for support of overhead service conductors or service equipment.

## Part II. Overhead Service Conductors

**230.22 Insulation or Covering.** Individual conductors shall be insulated or covered.

*Exception: The grounded conductor of a multiconductor cable shall be permitted to be bare.*