

(B) Conductor Sizing. The power supply conductors for portable stage switchboards utilizing solid-state phase control dimmers shall be sized considering the neutral conductor as a current-carrying conductor for ampacity adjustment purposes. The power supply conductors for portable stage switchboards utilizing only solid-state sine wave dimmers shall be sized considering the neutral conductor as a non-current carrying conductor for ampacity adjustment purposes.

(C) Single-Conductor Cables. Single-conductor portable supply cable sets shall be not smaller than 2 AWG conductors. The equipment grounding conductor shall not be smaller than 6 AWG conductor. Single-conductor grounded neutral cables for a supply shall be sized in accordance with 520.54(J). Where single conductors are paralleled for increased ampacity, the paralleled conductors shall be of the same length and size. Single-conductor supply cables shall be grouped together but not bundled. The equipment grounding conductor shall be permitted to be of a different type if it meets the other requirements of this section, and it shall be permitted to be reduced in size in accordance with 250.122. Grounded (neutral) and equipment grounding conductors shall be identified in accordance with 200.6, 250.119, and 310.6. Grounded conductors shall be permitted to be identified by marking at least the first 150 mm (6 in.) from both ends of each length of conductor with white or gray. Equipment grounding conductors shall be permitted to be identified by marking at least the first 150 mm (6 in.) from both ends of each length of conductor with green or green with yellow stripes. Where more than one nominal voltage exists within the same premises, each ungrounded conductor shall be identified by system.

(D) Supply Conductors Not Over 3 m (10 ft) Long. Where supply conductors do not exceed 3 m (10 ft) in length between supply and switchboard or supply and a subsequent overcurrent device, the supply conductors shall be permitted to be reduced in size where all of the following conditions are met:

- (1) The ampacity of the supply conductors shall be at least one-quarter of the current rating of the supply overcurrent protective device.
- (2) The supply conductors shall terminate in a single overcurrent protective device that will limit the load to the ampacity of the supply conductors. This single overcurrent device shall be permitted to supply additional overcurrent devices on its load side.
- (3) The supply conductors shall not penetrate walls, floors, or ceilings or be run through doors or traffic areas. The supply conductors shall be protected from physical damage.
- (4) The supply conductors shall be suitably terminated in an approved manner.
- (5) Conductors shall be continuous without splices or connectors.
- (6) Conductors shall not be bundled.
- (7) Conductors shall be supported above the floor in an approved manner.

(E) Supply Conductors Not Over 6 m (20 ft) Long. Where supply conductors do not exceed 6 m (20 ft) in length between supply and switchboard or supply and a subsequent overcurrent protective device, the supply conductors shall be permitted to be reduced in size where all of the following conditions are met:

- (1) The ampacity of the supply conductors shall be at least one-half of the current rating of the supply overcurrent protective device.
- (2) The supply conductors shall terminate in a single overcurrent protective device that limits the load to the ampacity of the supply conductors. This single overcurrent device shall be permitted to supply additional overcurrent devices on its load side.
- (3) The supply conductors shall not penetrate walls, floors, or ceilings or be run through doors or traffic areas. The supply conductors shall be adequately protected from physical damage.
- (4) The supply conductors shall be suitably terminated in an approved manner.
- (5) The supply conductors shall be supported in an approved manner at least 2.1 m (7 ft) above the floor except at terminations.
- (6) The supply conductors shall not be bundled.
- (7) Tap conductors shall be in unbroken lengths.

Similar to the requirements for feeder taps in 240.21(B), 520.54(D) and (E) permit supply conductors for portable switchboards to be sized according to their overcurrent protection, not by the total connected load. Loads of 144 kilovolt-amperes and greater are not uncommon, even on portable switchboard equipment. Installations in the field include lighting for theatrical-type productions with large numbers of stage lighting fixtures. However, only a fraction of the many fixtures installed are used at any one time.

These rules are intended to allow one or more switchboards with smaller feeders to be connected to larger supplies (company switches). If the requirements cannot be met, properly sized fixed or portable OCPDs must be provided for each of the smaller switchboards.

Column D of Table 400.5(A)(2) can be used if the conductors are not bundled. If the conductors are bundled, column F and all applicable derating factors apply. Some devices used in the theater to terminate single-conductor cables are rated for use at 90°C. However, if single-conductor cables are terminated directly to a circuit breaker or fused switch, the temperature limitations of the terminations might be lower than 90°C.

(F) Supply Conductors Not Reduced in Size. Supply conductors not reduced in size under 520.54(D) or (E) shall be permitted to pass through holes in walls specifically designed for the purpose. If penetration is through the fire-resistant-rated wall, it shall be in accordance with 300.21.

(G) Protection of Supply Conductors and Connectors. All supply conductors and connectors shall be protected against