N **(B) Feeder Taps.** Class 1 circuit conductors shall be permitted to be tapped, without overcurrent protection at the tap, where the overcurrent device protecting the circuit conductor is sized to protect the tap conductor.

N **(C) Branch-Circuit Taps** Class 1 circuit conductors 14 AWG and larger that are tapped from the load side of the overcurrent protective device(s) of a controlled light and power circuit shall require only short-circuit and ground-fault protection and shall be permitted to be protected by the branch-circuit overcurrent protective device(s) where the rating of the protective device(s) is not more than 300 percent of the ampacity of the Class 1 circuit conductor.

N **(D) Primary Side of Transformer.** Class 1 circuit conductors supplied by the secondary of a single-phase transformer having only a 2-wire (single-voltage) secondary shall be permitted to be protected by overcurrent protection provided on the primary side of the transformer if the protection is in accordance with 450.3 and does not exceed the value determined by multiplying the secondary conductor ampacity by the secondary-to-primary transformer voltage ratio. Transformer secondary conductors other than 2-wire shall not be considered to be protected by the primary overcurrent protection.

N **(E) Input Side of Electronic Power Source.** Class 1 circuit conductors supplied by the output of a single-phase, listed electronic power source other than a transformer having only a 2-wire (single-voltage) output for connection to Class 1 circuits shall be permitted to be protected by overcurrent protection provided on the input side of the electronic power source if the protection does not exceed the value determined by multiplying the Class 1 circuit conductor ampacity by the output-to-input voltage ratio. Electronic power source outputs other than 2-wire (single voltage) shall not be considered to be protected by the primary overcurrent protection.

N **724.46 Class 1 Circuit Wiring Methods.** Class 1 circuits shall be installed in accordance with 300.2 through 300.26.

Exception No. 1: The requirements of 724.48 through 724.51 shall be permitted to apply in installations of Class 1 circuits.

Exception No. 2: Methods permitted or required by other articles of this Code shall apply to installations of Class 1 circuits.

N **724.48 Conductors of Different Circuits in the Same Cable, Cable Tray, Enclosure, or Raceway.** Class 1 circuits shall be permitted to be installed with other circuits as specified in 724.48(A) and (B).

N **(A) Two or More Class 1 Circuits.** Class 1 circuits shall be permitted to occupy the same cable, cable tray, enclosure, or raceway regardless of whether the individual circuits are alternating current or direct current if all conductors are insulated for the maximum voltage of any conductor in the cable, cable tray, enclosure, or raceway.

N **(B) Class 1 Circuits with Power-Supply Circuits.** Class 1 circuits shall be permitted to be installed with power-supply conductors as specified in 724.48(B)(1) through (B)(4).

N **(1) In Cables, Enclosures, or Raceways.** Class 1 circuits and power-supply circuits shall be permitted to occupy the same cable, enclosure, or raceway without a barrier only where the equipment powered is functionally associated. Class 1 circuits shall be permitted to be installed together with the conductors of electric light, power, non-power-limited fire alarm systems, and medium-power network-powered broadband communications circuits where separated by a barrier.

N **(2) In Factory- or Field-Assembled Control Centers.** Class 1 circuits and power-supply circuits shall be permitted to be installed in factory- or field-assembled control centers.

N **(3) In Manholes.** Class 1 circuits and power-supply circuits shall be permitted to be installed as underground conductors in manholes in accordance with one of the following:

(1) The power-supply or Class 1 circuit conductors are in metal-enclosed cable or Type UF cable.
(2) The conductors are permanently separated from power-supply conductors by continuous firmly fixed nonconductors, such as flexible tubing, in addition to insulation on the wire.
(3) The conductors are permanently and effectively separated from power-supply conductors and securely fastened to racks, insulators, or other approved supports.

Class 1 power-limited circuit conductors are permitted to be installed in manholes with wiring of power-supply conductors where one of the permanent separation requirements that follow are used:

1. Power-supply or Class 1 circuits are in metal-enclosed cable or Type UF cable.
2. Conductors are permanently separated by continuous firmly fixed nonconductors, such as flexible tubing.
3. Conductors are permanently separated by securely fastening to racks, insulators, or other approved supports.

Section 724.48(B)(1) permits Class 1 conductors to occupy the same cable, enclosure, or raceway with power supply conductors if they are functionally associated.

N **(4) In Cable Trays.** Installations in cable trays shall comply with the requirements of one of the following:

(1) Class 1 circuit conductors and power-supply conductors not functionally associated with the Class 1 circuit conductors shall be separated by a solid fixed barrier of a material compatible with the cable tray.
(2) Class 1 circuit conductors and power-supply conductors not functionally associated with the Class 1 circuit conductors shall be permitted to be installed in a cable tray