(2) Provided with Mogul-Base, Screw Shell Lampholders. Electric-discharge luminaires provided with mogul-base, screw shell lampholders shall be permitted to be connected to branch circuits of 50 amperes or less by cords complying with 240.5. Receptacles and attachment plugs shall be permitted to be of a lower ampere rating than the branch circuit but not less than 125 percent of the luminaire full-load current.

(3) Equipped with Flanged Surface Inlet. Electric-discharge luminaires equipped with a flanged surface inlet shall be permitted to be supplied by cord pendants equipped with cord connectors. Inlets and connectors shall be permitted to be of a lower ampere rating than the branch circuit but not less than 125 percent of the luminaire load current.

410.64 Luminaires as Raceways. Luminaires shall not be used as a raceway for circuit conductors unless they comply with 410.64(A), (B), or (C).

This section does not permit luminaires to be used as raceways for circuit conductors unless specifically listed and marked for this use. According to the UL *Luminaires Marking and Application Guide*, 2016, luminaires listed for use as raceways are marked "Suitable for Use as a Raceway" and also with the maximum number, size, and type of conductor permitted in a raceway. Without those markings, a row of luminaires connected end to end cannot be used as a raceway for circuit conductors other than the 2-wire or multiwire circuit supplying the luminaires. Luminaires identified for use as a raceway have been evaluated for the heat contribution caused by additional current-carrying conductors.

(A) Listed. Luminaires listed and marked for use as a raceway shall be permitted to be used as a raceway.

(B) Through-Wiring. Luminaires identified for through-wiring, as permitted by 410.21, shall be permitted to be used as a raceway.

(C) Luminaires Connected Together. Luminaires designed for end-to-end connection to form a continuous assembly, or luminaires connected together by recognized wiring methods, shall be permitted to contain the conductors of a 2-wire branch circuit, or one multiwire branch circuit, supplying the connected luminaires and shall not be required to be listed as a raceway. One additional 2-wire branch circuit separately supplying one or more of the connected luminaires shall also be permitted.

Informational Note: See Article 100 for the definition of *Multiwire Branch Circuit.*

Section 410.64(C) facilitates convenient switching and supply circuit arrangements for a physically continuous row of luminaires or a row that is made continuous via the wiring method. A single 2-wire or a single multiwire branch circuit supplying the luminaires is permitted to be run through the continuous row(s), and the luminaires are not required to be listed for use as a raceway. An additional 2-wire branch circuit is permitted to be run through the luminaires. This circuit can supply only luminaires in the connected row(s) and is commonly used to switch night lighting as an energy conservation method.

410.68 Feeder and Branch-Circuit Conductors and Ballasts. Feeder and branch-circuit conductors within 75 mm (3 in.) of a ballast, LED driver, power supply, or transformer shall have an insulation temperature rating not lower than 90°C (194°F), unless supplying a luminaire marked as suitable for a different insulation temperature.

Listed LED drivers (including the Class 2 output type) are limited to either 75°C or 90°C, depending on which standard was used to evaluate the device. In many ways, the installation rules established for discharge lighting ballasts over the years carried over to LED drivers. "LED driver" is a common industry term referring to the power supply for the LED.

See also

Table 310.4(1) for temperature ratings, along with other insulated conductor specifications

Δ **410.69 Identification of Control Conductor Insulation.** Where control conductors are spliced, terminated, or connected in the same luminaire or enclosure as the branch-circuit conductors, the field-connected control conductor shall not be of a color reserved for the grounded branch-circuit conductor or the equipment grounding conductor.

Informational Note: See 200.6 for identification of grounded conductor and 250.119 for identification of equipment grounding conductor.

Exception: A field-connected gray-colored control conductor shall be permitted if the insulation is permanently re-identified by marking tape, painting, or other effective means at its termination and at each location where the conductor is visible and accessible. Identification shall encircle the insulation and shall be a color other than white, gray, or green.

Conductors with the insulation colors reserved for branch-circuit conductors are not permitted to be used for luminaire control circuits if they share the same wiring compartment with the branch-circuit conductors. The exception permits field re-identification of field-connected gray control conductors. Some existing controls, drivers, and ballasts have integral lead wires that are purple and gray.

410.70 Combustible Shades and Enclosures. Air space shall be provided between lamps and shades or other enclosures of combustible material.

N **410.71 Disconnecting Means for Fluorescent or LED Luminaires that Utilize Double-Ended Lamps.**

N **(1) General.** In indoor locations other than dwellings and associated accessory structures, fluorescent or LED luminaires that utilize double-ended lamps and contain ballast(s) or LED driver(s) that can be serviced in place shall have a disconnecting