DEPARTMENT OF LABOR AND INDUSTRY

Flexible cords used for connecting luminaires

The use of flexible cord for the connection of luminaires has been debated for several years. The National Electrical Code (NEC) has specific requirements that allow for the installation to be made. However, the product standard, UL 1598 – Luminaires, allows the product manufacturers to require, through the installation instructions provided, how the connection can be made to the building's permanent wiring system. The scenarios illustrated below are the department's interpretation on using flexible cord for connecting luminaires that are consistent with the requirements of UL 1598.

For the following three scenarios:

- NEC 400.10(A)(2) allows flexible cord to be used for connecting a luminaire.
- The luminaire is required to be listed (410.2)
- If the luminaire is installed independent from the outlet box, the installation would be required to comply with NEC 410.24.

  **NEC 410.24 refers the installer to NEC 410.62(B) if adjustable, and 410.62(C) if permanently mounted.

- Assuming the fixture is not adjustable, NEC 410.62(C)(1) states: The luminaire or listed assembly shall be installed so the cord is directly below the outlet box, visible the entire length, has strain relief, and won't be exposed to physical damage. If all the conditions are met, the cord is allowed to be connected by one of the following means in (a) through (c).
  a) Grounding type attachment plug
  b) Luminaire assembly with strain relief and canopy
  c) Listed luminaires utilizing a manufactured wiring system

Scenario No. 1: Luminaire is shipped without a pre-wired factory-supplied cord, and the installer wishes to use cord as the wiring method. What options does the installer have?

In this case, since the luminaire didn't come as a luminaire assembly (prewired factory-supplied cord with the fixture), the cord shall terminate in a grounding type attachment plug according to 410.62(C)(1)(a).

Scenario No. 2: Luminaire with a pre-wired factory-supplied cord assembly. However, the manufacturer's instructions don't mention the canopy or how to terminate the cord. What options does the installer have?

In this situation, because the luminaire was manufactured with a cord assembly, either NEC 410.62(C)(1)(a) or (b) would apply. Under part (a), the luminaire cord could terminate in a grounding-type attachment plug. Alternatively, part (b) would allow the cord to be field installed with strain relief through an outlet box cover (4 square or bell box blank cover), a field installed generic decorative canopy, or an optional accessory canopy or canopy assembly supplied by the manufacturer.

Scenario No. 3: Luminaire with a pre-wired factory-supplied cord assembly. The manufacturer's instructions allow the cord to terminate in the side of the field installed outlet box.

If the manufacturer's instructions clearly allow for the installation to be done by entering in the side of an outlet box with strain relief, the installation will be considered to be in compliance with the NEC and the manufacturer's installation instructions as outlined in section 110.3(B).