

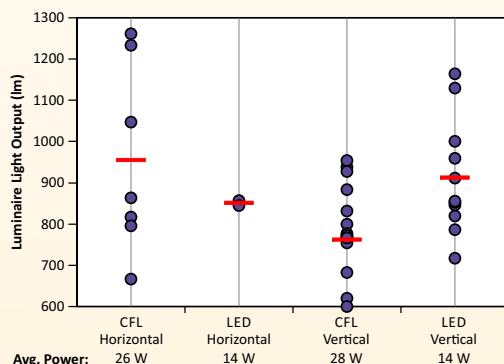
Pin-base LED Lamp Investigations

CFL recessed downlights with 4-pin G24/GX24 lamps are typically used in commercial spaces and operate using electronic ballasts in the luminaire. Numerous pin-base LED lamps (sometimes referred to as “CFLEDs”) are available that can replace these pin-base CFLs by simply plugging the LED lamp into the original socket. The original CFL ballast continues to operate the replacement pin-base LED lamp.

The LRC tested eight models of pin-base LED lamps from five manufacturers for photometric performance, temperature during operation, electromagnetic compatibility, and illuminance and uniformity in a typical hallway application. Products were purchased from March 2015 to March 2016.

The LRC found that:

- Luminaire light output was sufficient to replace most 26 W CFLs and may be sufficient to replace 32 W CFLs. Light output was not sufficient to replace 42 W CFLs.
- The LED lamps decreased luminaire power demand by an average of 49% compared to downlights with 26 W CFLs and compatible ballasts.



Downlight light output with various lamp/ballast/ luminaire combinations. The CFL data include 26 W lamps tested for this study as well as data from previous testing from the LRC’s National Lighting Product Information Program (NLPIP) and the Lighting Analysts’ InstaBase. The LED data are from this study. The red bars indicate the average for each column.

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Eight pin-base LED lamp models were tested for this study.

- The LED lamps met IESNA uniformity recommendations in a simulated hallway.
- CRI ranged from 82 - 85.
- Specifiers need to identify the existing ballast and determine if it is compatible with the LED lamp manufacturer’s ballast specifications.
- The payback period for pin-base LED lamps is about two years. The payback period will be shorter if financial incentives are available.

Consider an LED retrofit kit instead if:

- There are concerns about CFL ballast compatibility;
- The existing CFL ballast is near its end of life;
- Magnetic CFL ballasts are currently in use;
- Existing CFLs are greater than 32 W;
- The lamps are being installed in an insulated ceiling (IC) application or a lensed luminaire.

The pin-base LED lamp replacement guide can be found here: www.lrc.rpi.edu/programs/energy/pdf/PinBaseLEDLamps.pdf

