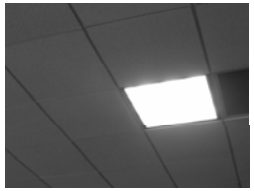
Commercial Downlights Are Expensive To Install

Most new recessed downlights in the commercial sector use compact fluorescent lamps (CFLs), but a large stock of incandescent downlights remains in operation. Replacing these incandescents with CFLs would cut energy use by about 75%, but these fixtures are often too expensive to justify the investment.

Additionally, most "small" fluorescent fixtures in hallways, lobbies, and conference rooms use full-size T-8 or T-12 lamps in a relatively large fixture that is two-foot square. Such fluorescent fixtures with full-size lamps are often considered less aesthetically pleasing compared to recessed downlights, which produce less glare and have a cleaner look. However, CFL downlights are relatively expensive to install because more fixtures are required to provide similar illumination levels.

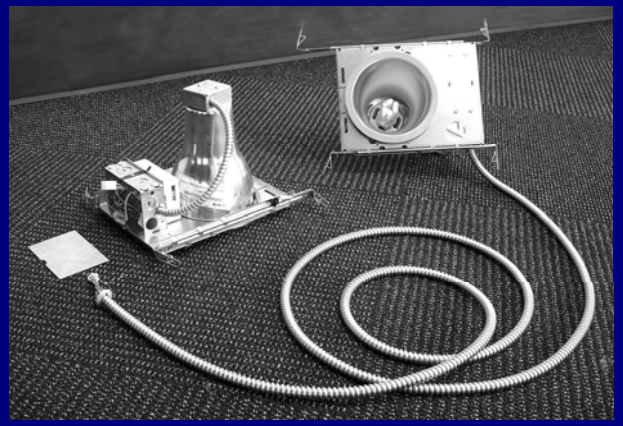


Typical "small" fixture using full-size fluorescent lamps

Researchers from the California Lighting Technology Center (CLTC) developed two prototype CFL downlight systems—one each for commercial and residential markets—that reduce both energy and installation costs while improving lighting quality.

Master-Remote CFL Downlights

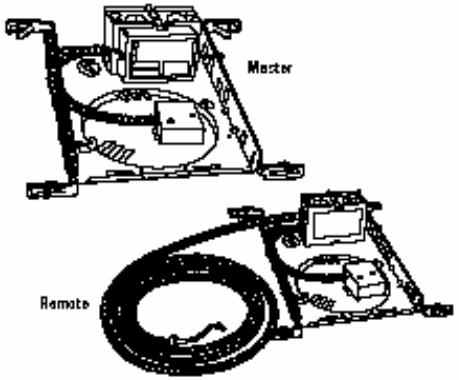
Building on a previous PIER project that developed a family of CFL downlights for residential new construction—Lithonia model CKP62—CLTC researchers worked with Lithonia Lighting to develop a new family of downlights for commercial new construction and renovation projects. The new series, comprised of models CCR62 and CCR82, uses one ballast to operate two lamps using a plug-and-play wiring system. This system cuts equipment and installation costs while reducing energy use. The research team also developed a prototype residential retrofit kit that promises to allow cost-effective replacement of incandescents.



The master-remote CFL downlighting system uses only one ballast to operate two lamps.

One Ballast Operates Two Lamps

CFL downlights have a clean look desired by many building owners and lighting designers. The new Lithonia CCR series allows building owners and lighting designers to more easily install CFL downlights at a lower cost than standard CFL downlighting systems.



Lithonia model CCR62 uses a plug-and-play wiring system to cut installation costs

Benefits

- Cuts energy use compared to standard systems:
  - 6% versus standard CFL downlights
  - 15% versus T-12 fluorescent
  - 75% versus incandescent downlights
- Plug-and-play installation cuts labor cost by about 20%
- Single ballast operates two lamps, reducing equipment cost
- Thermally-enhanced ballast configuration ensures long lamp life

INTERESTED?

Office building owners, lighting designers and specifiers, lighting equipment manufacturers, code developers, contractors, and utility staff can use the information on the CFL downlight system.

Key next steps include:

- *Building owners*—Consider replacing incandescent downlights and T-12 fluorescents with CFL downlights.
- *Utility staff*— Work with CLTC to identify and support field demonstrations.
- *Luminaire manufacturers*— Consider manufacturing plug-and-play downlight systems commercializing the residential retrofit prototype.
- *Code Developers*—Consider the impact of CFL downlights in residential applications.
- *Lighting Designers*—Consider CFL downlights in applications where full-size fluorescent lamps are typically used but a cleaner look is desired.

This project was part of the PIER Lighting Research Program. To participate in field demonstrations or to get more information on this technology, contact Erik Page at CLTC (epage@ucdavis.edu).

Additional information about this technology can be found on the following websites:

- PIER project site: www.energy.ca.gov/pier/buildings/projects/500-01-041-0-4-4_3 .html
- PIER contractor site: www.archenergy.com/lrp/products/portable.htm
- PIER researcher site: www.cltc.ucdavis.edu (under projects)

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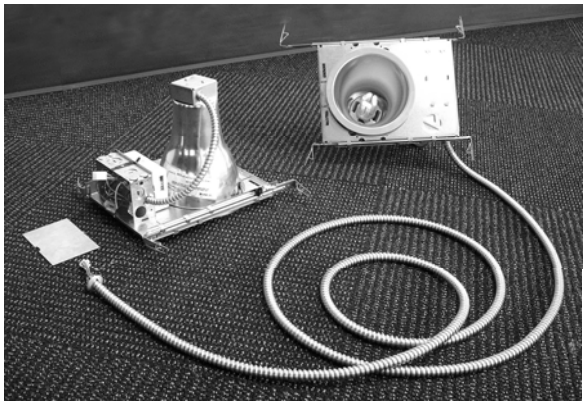
COMPACT FLUORESCENT LAMP RECESSED DOWNLIGHTS FOR COMMERCIAL BUILDINGS



EASY INSTALLATION CUTS COST

Public Interest
Energy Research