

## Guidelines for Installing Compact Fluorescent Lamps

There are three questions to answer before replacing incandescent bulbs with fluorescent lamps:

1. Is the replacement cost effective?
2. Will the light output meet the client's needs?
3. Will the retrofit fit into the existing fixture?

### Cost Effectiveness

Using the following information as guidance, replace incandescent bulbs with a burn time greater 1.5 hour per day with a fluorescent bulb.

### Assess the Clients Needs

The most important part of the decision of which incandescent bulbs should be replaced with fluorescent bulbs is questioning the client on their specific habits and needs. For example, you may choose not to replace an incandescent bulb in an area where residents do their reading. Also, if the client wants a lot of light in the kitchen area, a 30 watt fluorescent may be the minimum amount of light they will be satisfied with. In most cases you should exceed the fluorescent bulb's incandescent equivalency. Also consider if additional light is needed in specific areas if the client has poor eyesight.

### Determine the Replacement Size

To determine if the fluorescent light output is adequate, you can simply compare the lumen outputs. However, lumen ratings for incandescent bulbs of comparable wattage can vary greatly because incandescent and fluorescent light diffuses differently. As a general rule, you can multiply the wattage of the fluorescent by 4 to find the comparable light output of an incandescent.

Another way to compare light output is to use the following guide:

<u>Fluorescent Lamp</u>	<u>Replaces Incandescent Sizes</u>
30 Watt Circular	100 Watt and smaller bulbs.
26 Watt Spiral	Can be used for 100 Watt bulbs when a reduction in light will not be noticed
23 Watt Quad	
16 Watt Globe	Can be used for 75 Watt bulbs when a reduction in light will not be noticed
15 Watt Quad	60 Watt and smaller bulbs.
11 Watt Dual or Spiral	40 Watt bulbs.

Note: All of the compact fluorescent lamps available in this program are equipped with electronic ballasts. This means that they start faster than earlier fluorescent lamps, and they operate without a discernible flicker or noise associated with some fluorescent lamps.

While they do start more quickly, they do not have quite the instant light production of an incandescent bulb. You should inform your clients that they do not operate at maximum light output for 60 to 90 seconds.

### Recommended Applications:

- (1) Ceiling fixtures in living rooms, dining rooms, bedrooms, kitchens, hallways, and stairwells.

(2) Fixtures behind televisions, or lamps used only to provide light for watching television.

(3) Bathroom fixtures when physically possible (these lights are on longer than most people realize).

(4) Basement workshops, recreation rooms, and laundries (while use may not be daily, the length of time when used is long). Panasonic compact fluorescent bulbs are a good application in these areas, as well as enclosed porch fixtures.

Use fluorescent lamps in enclosed porch fixtures, especially if the fixture is enclosed or recessed. However, bulbs installed in cold areas will experience up to 50% in lumen reduction.

Because fluorescent bulbs last roughly 10 times longer than standard incandescent bulbs, consider installing them in hard to reach places for elderly and disabled clients.

#### **Applications to Avoid:**

(1) Avoid installations where the fluorescent is a primary source of reading light, unless a 30 watt fluorescent can be installed.

(2) Do not use in fixtures with dimmers. These compact fluorescent lamps are not dimmable.

(3) Do not install in outdoor fixtures. Fluorescent lamps do not work well in cold weather locations.

#### **Common Problems**

Common problems with fitting fluorescent bulbs into existing fixtures are the rated wattage of the fixture, and the base width and height difference of fluorescent bulbs. A safety related issue is where residents have installed bulbs that are larger than the rated wattage for the fixture. Fluorescent bulbs of comparable light output with the existing bulb should be installed where this occurs.

Harp or socket extenders will be necessary in many applications where the base or height of the fluorescent lamp will not fit the space of the fixture. With table lamp fixtures, check to make sure that the weight of the fluorescent does not make the fixture top heavy and likely to tip over.

Fluorescent lamps can suffer a dramatic reduction in life if they are subjected to excessive vibration or impact. When installing in ceiling and wall fixtures, consider the use of traffic areas and check clearance with doors. Ballasts are the weakest part of a fluorescent, and frequent on-off cycles will shorten the life of the bulb. High levels of humidity will also reduce bulb life.