

IMPROVED LIGHTING CONTROLS

Lighting controls give you the flexibility to design a space for multiple use and easy access. They should be a part of the lighting plan for every room. Both manual and automatic controls can cut energy costs by making it easier to use lights only when and where they are needed.

Controls used with high-wattage incandescent bulbs are especially effective for saving energy, but they should be considered for use with any lights that might be left on when no one is using them.

Always choose controls that are compatible with the bulb and ballast. Try to obtain the best quality so the controls will perform well over time.

Types of Lighting Controls

Switches

The simple on-off switch, whether mounted on a wall or on the light fixture, should always be obvious and convenient

- On fixtures with pull-cord switches, attach an object at the end that is easy to see and grasp.
- Install multiple wall switches in areas that have more than one entrance, such as hallways, staircases, and large rooms.
- Ensure that these switches should be easy to find as well by adding devices such as oversize toggles or switch plates that glow in the dark.
- A small indicator light near a switch can signal when lights that are out of sight—in the basement or outdoors, for example—have been left on.
- If a main switch in a room controls several lights, each fixture should have its own switch so individual lights can be turned off if they are not needed.
- In rooms such as kitchens, where lights are used for different purposes, overhead ambient lights, counter, or island lights should be on separate switches.

- A three-level switch in lamps is a simple way to use one fixture for several lighting needs. When the higher levels are not necessary, switch it to the lowest level to save energy.

Photocells

A photo sensor measures the light level in an area and turns on an electric light when that level drops below a set minimum. They are most effective with lights that stay on all night long, such as some outdoor fixtures or night lights. If a light does not need to remain on throughout the night, use a timer or motion detector.

Timers

Timers are an inexpensive way to control the amount of time a light stays on inside the home or outdoors. They can be located at a light switch, at a plug, or in a socket. Some models are turned on manually and set to turn off after a designated number of minutes or hours. Others can be programmed to turn on and off at specified times. Both mechanical and solid-state timers are available, and some offer the option of a manual override. Some screw-base compact fluorescent bulbs cannot be used with timers, so check the manufacturer's recommendations.

Be careful not to set timers so a light might turn off in an area when someone could be left in the dark. Or, install a glow-in-the-dark switch plate or a very low-wattage night-light with a photosensor near the switch so it is easy to find.

Motion or Occupancy Sensors

Motion detectors, or occupancy sensors, have proven to be an excellent way to save energy, especially in bathrooms and bedrooms where lights are frequently left on. They are also popular outdoors for walkways, driveways, and as security lights.

Sensors can operate automatically to turn lights on when movement is detected, then off after a specified period of no motion, or they can have manual on or off switches. Some models feature dimmers that reduce light to a preset level rather than turn completely off when there is no movement; others come with photo sensors that turn lights on only when the light level is below a preset point and motion is detected.

Follow manufacturer's instructions for installing sensors to ensure the proper coverage area. Also be sure the lights are compatible with the sensors. Some compact fluorescents should not be used with motion detectors, nor should high intensity discharge lights because of their inability to relight quickly.

Dimmers

Dimming fluorescent lamps is not all that easy to do. If you reduce power to the lamp, the filaments will not be as hot, and will not be able to thermionically emit electrons as easily. If the filaments get too cool by dimming the lamp greatly, usually the lamp will just go out. If you force current to continue flowing while the electrodes are at an improper temperature, then severe rapid degradation of the thermionic material on the filaments is likely. To effectively, reliably, and safely dim fluorescent lamps below around half brightness or so, you need special equipment that may only work properly with a specific lamp. Such equipment typically gives some power to the filaments to keep them at a workable temperature, while the current flowing through the bulb is greatly reduced.

Manual dimming controls allow occupants of a space to adjust the light output or illumination. This can result in energy savings through reductions in input power, as well as reductions in peak power demand, and enhanced lighting flexibility.

Fluorescent lighting fixtures require special dimming ballasts and compatible control devices. Some dimming systems for high-intensity discharge lamps also require special dimming ballasts.

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