

MEASURE 9.5.5 Where lighting can be turned off after a fixed interval, install timed-turnoff switches.

RATINGS		
New Facilities	Retrofit	O&M
B	B	

Timed-turnoff switches are the least expensive type of automatic lighting control. In some cases, their low cost and ease of installation makes it desirable to use them where more efficient controls would be too expensive.

Types and Features

The oldest and most common type of timed-turnoff switch is the “dial timer,” a spring-wound mechanical timer that is set by twisting the knob to the desired time. Typical units of this type are vulnerable to damage because the shaft is weak and the knob is not securely attached to the shaft. Some spring-wound units make an annoying ticking sound as they operate.

Newer types of timed-turnoff switches are completely electronic and silent. Electronic switches can be made much more rugged than the spring-wound dial timer. These units typically have a spring-loaded toggle switch that turns on the circuit for a preset time interval. Some electronic models provide a choice of time intervals, which you select by adjusting a knob located behind the faceplate.

Most models allow occupants to turn off the lights manually. Some models allow occupants to keep the lights on, overriding the timer.

Timed-turnoff switches are available with a wide range of time spans. The choice of time span is a compromise. Shorter time spans waste less energy but increase the probability that the lights will turn off while someone is in the space. Dial timers allow the occupant to set the time span, but this is not likely to be done with a view toward optimizing efficiency. For most applications, the best choice is an electronic unit that allows the engineering staff to set a fixed time interval behind the cover plate.

Avoid “On” Overrides

As a rule, do not select units that have an “on” switch to override the automatic turn-off. Occupants will eventually select the “on” option, effectively eliminating the efficiency benefit of the control. If activities occur in the space that require an “on” override, then a timed-turnoff switch is not the appropriate control method.

Safety Limits Applications

Time switches turn off lights without regard to whether anyone is in the space. If they are used inappropriately, they may create a safety hazard, or at least annoyance. The most dangerous situation occurs when one person turns on the lights and then leaves. A

SUMMARY

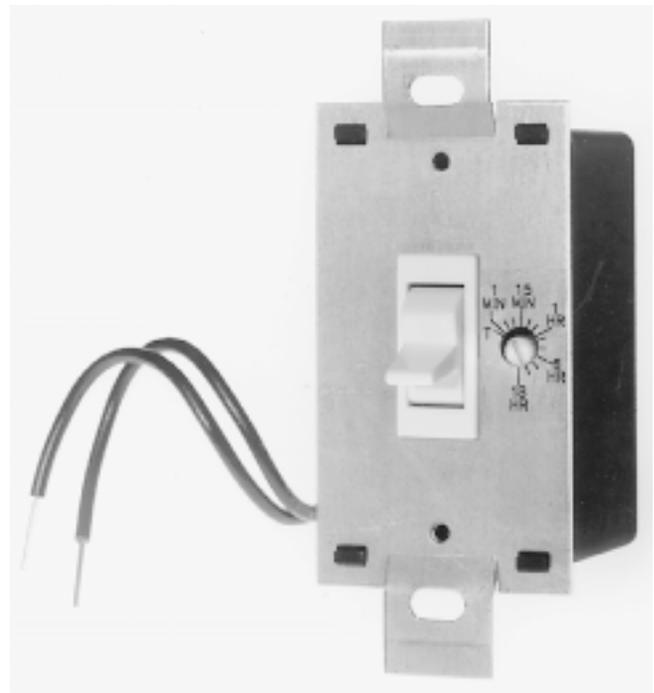
An inexpensive and reliable way to provide brief periods of lighting. Limited to spaces that cannot trap people in the dark.

SELECTION SCORECARD

Savings Potential	\$	\$		
Rate of Return, New Facilities	%	%	%	%
Rate of Return, Retrofit	%	%	%	%
Reliability	✓	✓	✓	
Ease of Retrofit	☺	☺	☺	

second person enters the space while the lights are still turned on, but the lights turn off unexpectedly while the second person is still in the space. For this reason, time switches are desirable primarily for spaces that are used sporadically, especially by one person or one group at a time.

Because of the hazard of unexpected darkness, do not use time switches for lighting unless:



Paragon Electric Company, Inc.

Fig. 1 Timed-turnoff switch Pressing the toggle upward starts a timer that keeps the lights turned on for a fixed period. Pressing the toggle downward turns off the lights if they are on. On this unit, the time interval is adjustable from one minute to 18 hours. This wide range makes it difficult to tune the time interval for greatest efficiency.

- ***the space is so small that the exit is easily within reach.*** Storage rooms and janitor closets are typical applications.
- ***the space has adequate emergency lighting.*** For example, you can use timer switches to provide lighting for cleaning crews who work in large office spaces late at night. The timer switch overrides a timeclock or key switch that is used to turn off the lights after hours. The emergency lighting is bright enough to provide safe access to the timer switch.
- ***a minimum lighting level is provided by adjacent lighted spaces.*** For example, you could safely use timed-turnoff switches for individual stacks in a library, or for individual stock shelves in a warehouse, where individual areas are used only occasionally and for short periods. Even here, timer switches would be unsatisfactory if the lighted spaces are visited frequently. Exploiting this kind of opportunity is likely to need light circuit modifications and installing the switches in unconventional locations, such as from overhead fixtures.

Timed-Turnoff Switch or Occupancy Sensor?

Personnel sensors (Measure 9.5.4) are effective in many of the same applications where time switches are appropriate. Personnel sensors can match lighting to occupancy more accurately than time switches, and they avoid the problem of unexpected loss of lighting. On the other hand, time switches are cheaper, often easier to install, and they are immune from false triggering.

Warn Occupants

Timed-turnoff switches may turn off lights unexpectedly. This makes it especially important to install conspicuous placards at the entrances to tell occupants how the lights are controlled. See Reference Note 12, Placards, for details of effective placard design, materials, and installation.

ECONOMICS

SAVINGS POTENTIAL: *Usually more than 50 percent of controlled lighting. Lamp cost and replacement labor may be reduced by a similar percentage.*

COST: *Spring-wound units cost less than \$20, electronic units less than \$30. Installation usually takes only a few minutes if replacing an existing light switch. Subdividing light circuits to provide localized control is much more expensive.*

PAYBACK PERIOD: *Less than one year, if replacing existing switches. Several years, typically, if rewiring is needed.*

TRAPS & TRICKS

CHOICE OF METHOD: *Use this type of switch only where it cannot cause safety or convenience problems.*

SELECTING THE EQUIPMENT: *These switches are subject to abuse, so select them for ruggedness and ease of use. Select the appropriate time interval for each location. Do not install units with an "on" override.*

INSTALLATION: *An effective placard is essential for this type of switch.*

