

Multifamily Facility Management Services

REDUCE HOURS OF OPERATION FOR LIGHTING

Description:

Considering the cost of producing light, a great deal of money (and energy) can be saved by simply reducing the hours of operation. The best way to do this is to turn off unneeded lights. This can often be done manually, but a variety of automatic options for accomplishing this task are also available. Subjecting fluorescent lamps to more frequent switching may reduce lamp life. However, according to the Lighting Research Center at Polytechnic Institute in New York, the energy costs incurred over the life of a fluorescent lamp usually greatly exceed the cost of the lamp itself. As a result, switching lamps off when they are not needed is almost always cost-effective even given the potentially lower lamp life. Below is a list of possible measures by which to reduce hours of light operation:

Reschedule Activities in Building to Reduce Lighting Use

In commercial buildings, it is sometimes useful to schedule several activities simultaneously, thereby reducing the amount of time lights are required. For example, janitorial work can be done in the building during the day rather than at night. Another example might be scheduling events consecutively on one night and shutting down the lighting on other nights.

Manually Turn off Lights in Unoccupied Rooms

Specific rooms in multifamily or small commercial buildings should have a separate switch that operates only the lighting in a particular area. Examples might include laundry rooms, storage rooms, conference rooms, public rest rooms, and individual offices. It is important to operate lights in these rooms only when necessary, manually turning lights on when the room is actually in use and turning them off again when it becomes idle.

Install Timed Switches

When manual switching of lighting is not practical, timed switches are often a good alternative. These switches are fairly inexpensive and, once energized, will shut lights off after a predetermined amount of time. This control has the advantage that it does not rely on the occupant's ability to remember to turn the lights off. Such switches work especially well in storage areas, laundry rooms, and public rest rooms.

Install Occupancy Sensor(s)

Sometimes an area cannot be served well by either manual or timed switching of lighting. In these cases an occupancy sensor is the best option for controlling lighting. An occupancy sensor uses an electronic means to determine if a room or area is occupied and automatically turns lights on or off in response. This control has the advantage that it does not rely on the occupant's ability to remember to turn the lights off. Possible applications include public rest rooms, hallways, office areas, meeting rooms, and back entrances where the light remains off until the entrance is approached.

Occupancy sensors currently use one of three sensing technologies in their designs: passive infrared sensors, motion sensors, or both. Infrared sensors use infrared body heat to confirm occupancy. A disadvantage of this method is that other heat sources (like a heating grill), can give the unit a false positive. As the name implies, motion sensors perceive movement and operate lighting accordingly. A disadvantage of this method is that the unit may turn lights off erroneously if an occupant is stationary for a certain length of time. A third technology, utilizing both infrared and motion sensors, is more expensive, but avoids both of these disadvantages since it tests for both conditions. Some newer occupancy sensors are just becoming available which are also capable of "learning" the lighting routine of the area they control. These units are more expensive, but may provide worthwhile advantages in certain applications.

Install Time Clock Switches and/or Photoelectric Cells

Time clocks and photocells are a good way to automatically control an entire lighting circuit. They eliminate the need to rely on occupant behavior and are especially useful for building and sign lights, display lighting and parking lot lights.

Time clocks turn lights on and off based on a predetermined fixed schedule. As a result, they need to be re-calibrated periodically for day length. Photocells operate lights based on the availability of adequate natural light. In that way, photocells have a distinct advantage in that they do not have to be constantly reprogrammed. However, photocells do need to be checked periodically for proper operation.

Convert to Zone Control of Lighting

Large lighting systems are often controlled by only one switch, which requires an entire floor or work area to be lit at the same time regardless of whether it is actually occupied or in use. One solution is to provide more switches so that lights can be turned on only in the zone or work area where they are needed. It is often useful to label or color code these switches to indicate what area each switch controls.

How to Implement:

Any work involving the electrical service of a commercial property should be done by a licensed electrician. This would apply to the installation of timed switches, occupancy sensors, time clocks, or photoelectric cells as well as to any rewiring to provide zoned switching. The contractor should follow any state and local building codes in completing the work.

All of these control strategies (but especially the manual control of lighting) require tenant and/or employee cooperation. As a result, it is important to discuss with building occupants the steps being taken to conserve lighting energy in the building, as well as the potential savings involved with the practice of turning out unneeded lights. That way tenants and employees can fully participate in making the control program a success.

Lighting ideas are changing rapidly, with new products being introduced all the time. As a result, it is useful to be alert to changes in lighting control strategies and to the availability of new products.