SDERC

San Diego REGIONAL ENERGY OFFICE

Lighting Controls

Technology Description:

Energy efficiency in lighting does not end with the installation of efficacious lamps and luminaires. Lighting controls offer additional potential for energy savings.

Application:

There are six basic lighting control strategies for reducing building energy consumption and peak demand:

· **Scheduling** – turn lights on only when needed.
· **Tuning** – utilize dimming strategies.
· **Daylighting** – use when natural light is sufficient.
· **Demand Limiting** – reduce light levels during peak periods.
· **Adaptive Compensation** – reduce illuminance variance between task and the background.
· **Lumen Maintenance** – increases the power delivered to the lamps over their life cycle by photocell monitors.

Potential Energy Savings:

Source: ASHRAE

Automatic Control Type	Without daylighting control	On / Off	Multiple step	Continuous dimming
Daylighting alone	n.a.	10%	20%	30%
Timer	15%	15%	25%	35%
Occupancy sensor	30%	35%	35%	40%
Lumen maintenance	10%	n.a.	n.a.	n.a.
Timer and lumen maintenance	15%	20%	30%	40%
Occupancy sensor and lumen maintenance	35%	35%	40%	45%
Occupancy sensor and timing control	35%	n.a.	n.a.	n.a.

Case Study:

The owner of a 213,500 sq. ft. building installed an enhanced lighting automation project with dimmable ballasts. The ballasts are connected via a low-voltage loop to a control panel that has three relays. Each relay corresponds to a lighting setting – the first operates at 82% of normal output, the second at 72%, and the third at 62%. The last was intended for use during emergency curtailment situations. Owners found out that they could operate the lights at this level during peak afternoon hours without disrupting occupancy comfort. During the remainder of the day the first two settings are used.

Additional Information:

Rebates are available for occupancy sensors, photocells, time clocks, and dimmable ballasts through San Diego Gas and Electric's Express Efficiency Program at **www.sdge.com**.

Considerations:

Careful planning can help ensure the success of a lighting control application. You must understand what occupants expect from their lighting, how they currently use it, when they use it, and what activities they use it for.

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