

Building Energy Asset Score: Building Upgrade Guide¹

LIGHTING CONTROL SYSTEMS

With proper controls, simply relying on natural light can decrease energy consumption by dimming or turning off lights that are not needed.

Asset Score Report Recommendations:

Add Daylighting Sensors for Perimeter Spaces

Cost: \$\$

Daylighting sensors reduce artificial lighting in response to the amount of daylight entering the building. There are different types of dimming controls: continuous and stepped. Dimming systems continuously adjust the light output by signaling dimming ballasts. ON/OFF switching turns lighting on or off respectively when the daylight contribution becomes sufficient or diminishes. Use of continuous dimming controls will maintain a more constant light level and reduce distraction of the occupants, when compared with simple on-off or bi-level switching controls. However, dimming ballasts are more expensive and less efficient than the most efficient non-dimming ballasts, using approximately 20% more energy than constant output ballast to produce equivalent light level.

Add Toplighting Controls

Cost: \$\$

Toplighting is an effective source of daylight recommended for use in occupied spaces that have no access to sidelight. Toplighting is best used in circulation areas and contiguous spaces that are used for reception areas or lobbies.

The design of such a daylight harvesting system should account for sensor location, sensor orientation, and number of sensors. During installation, the light sensitivity settings should be adjusted so that the desired lighting level is maintained in the space. Also, the system should be tested for proper functionality. Dimmable ballasts are typically also required as part of a daylighting strategy.

Install Occupancy Sensors for Interior Lighting Control

Cost \$\$

Occupancy or motion sensors are devices that turn lights and other equipment on or off in response to the presence (or absence) of people in a defined area. A complete sensor unit consists of a motion sensor, an electronic control unit, and a controllable switch/relay.

Source: <http://www.doi.gov/greening/energy/occupancy-sensors.cfm>

¹ The complete Asset Score Building Upgrade Guide is available at:

https://buildingenergyscore.energy.gov/assets/energy_asset_score_recommendations_guide.pdf