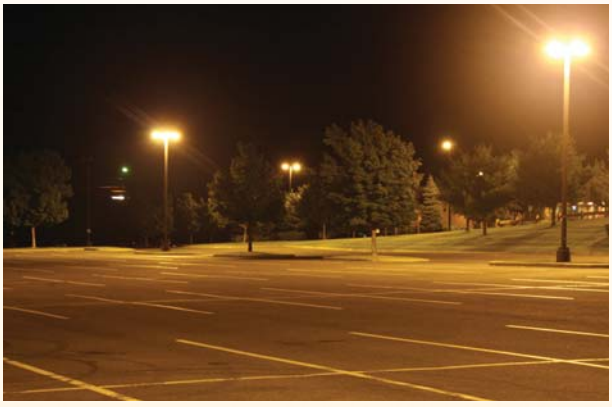
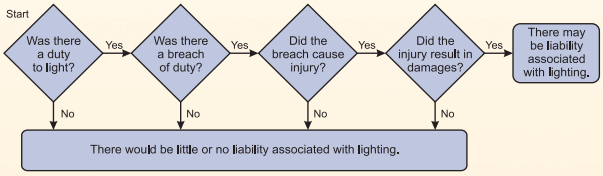
Lighting Answers: Dynamic Outdoor Lighting

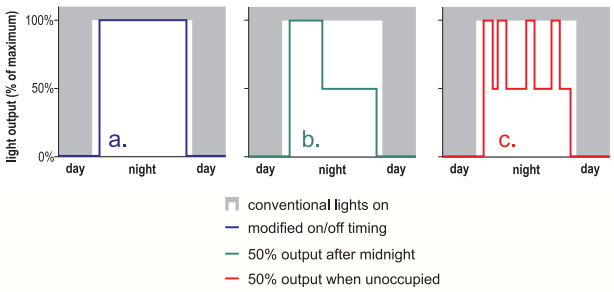
Dynamic outdoor lighting varies light level (or other characteristics) automatically and precisely in response to factors such as vacancy of an outdoor space. Dynamic outdoor lighting is becoming more common in parking lots, parking garages, outdoor walkways, and streets because enabling technologies are becoming more cost-effective and because it has the potential to reduce energy use and light pollution. With the goal of finding why dynamic outdoor lighting is not used more widely, NLPIP examined strategies for implementing dynamic outdoor lighting installations, technologies used, energy, environmental and cost benefits, and potential liabilities and barriers.



Outdoor lighting systems that provide full light output during periods of little or no occupancy waste energy.



Factors associated with the legal liability of outdoor lighting (based on Pinsonneault et al. v. Merchants and Farmers Bank and Trust Company et al. 2002).



Relative light output for three examples of outdoor lighting strategies: a) a conventional photosensor- or timer-based strategy with modified on/off timing, b) a dynamic strategy with reduced light output during periods of expected low use, and c) a dynamic strategy with reduced light output during periods of vacancy.

An NLPIP survey illustrated that lighting specifiers see dynamic outdoor lighting as beneficial because of the potential for increased energy efficiency, reduced operating costs, and reduced light pollution. However, increased initial costs, increased liability, decreased safety and security and lack of technologies were perceived barriers to implementing dynamic outdoor lighting.

Depending on the control scheme used, research shows that the amount of money saved by dynamic outdoor lighting in terms of energy use is usually significant enough to create a net savings, despite higher initial costs, even with conventional lighting technologies. Studies have shown that dynamic outdoor lighting can result in 20-50% energy savings. The legal liability associated with reducing light levels when spaces are unoccupied vary according to jurisdiction; building owners should consult with an attorney before installing dynamic outdoor lighting to ensure that local requirements are met.

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