

Occupancy Responsive Lighting

What is this Technology?

The most common lighting design for commercial buildings is general overhead lighting, where the lighting fixtures are laid out in a grid pattern to produce relatively uniform illumination throughout the space. In occupancy responsive lighting solutions, overhead lighting is designed to meet lower general illumination requirements, and supplemental task lighting is provided to meet the needs of the individual occupant and specific tasks to be performed.

Why is GSA Interested?



ENERGY EFFICIENCY Case studies have shown that task-ambient lighting provides energy savings of 15 - 25% compared to conventional general overhead lighting. Controls and luminaires that support task / ambient lighting lend themselves to additional control strategies such as daylight harvesting and occupant control. When so combined, energy savings of up to 75% have been reported.



COST EFFECTIVENESS Task / ambient lighting is projected to be life cycle cost effective in all new construction and major reconstruction, and in retrofits with long operating hours and above average energy costs.



OCCUPANT SATISFACTION Task-ambient is the Illuminating Engineering Society of North America (IESNA) preferred design strategy for open office applications. A well designed task /ambient lighting design minimizes glare, and lights vertical surfaces to open up the visual feel of the space. Case studies have measured occupant comfort improvements of between 10% and 16%.



OPERATIONS & MAINTENANCE Task / ambient lighting typically requires fewer overhead lights, lowering relamping costs. Task lighting variations should be kept to a minimum with common lamp requirements to reduce maintenance concerns. An emerging market for LED, task lighting has significant potential to further reduce maintenance and energy costs.



APPLICABILITY IESNA recognizes task / ambient lighting as a preferred design strategy for open offices, which constitute the majority of GSA's portfolio. This project will also evaluate its applicability for private offices.

Measurement & Verification

The Green Proving Ground program has commissioned the Lawrence Berkeley National Laboratory to perform measurement and verification (M&V) on occupancy responsive lighting solutions in four California test sites. Findings from that investigation will be available in September 2012.