

Field Test DELTA: DaySwitch®

There is great public awareness about the amount of energy savings available through daylight harvesting. While manufacturers have developed dimming systems designed to reduce energy use from electric lighting when sufficient daylight is available, typical dimming systems are expensive to purchase and difficult to install and program.

The *Field Test DELTA: DaySwitch* publication details the evaluation of LRC's DaySwitch, a simple daylight-harvesting tool designed to turn off electric lights when daylight is plentiful. The DaySwitch is intended for use primarily as a low-cost retrofit product for spaces where daylight is abundant and manual switching of lights is not expected. Examples include large airport concourses, shopping malls, atriums, lobbies, glazed corridors, cafeterias, fitness centers, and lounges.

The project was designed to test the DaySwitch operation in diverse, real-world conditions on the Rensselaer campus, calculate energy savings, assess occupant



The elements of the DaySwitch (clockwise from upper left): control module, remote commissioning device, sensor module.

acceptance, and gather installation feedback from electricians. Sites included private offices, open-plan offices, and large public spaces, all with access to daylight.

Sponsor

New York State Energy Research and Development Authority (NYSERDA)

Manufacturing collaborators

Dynamic Hybrids, Lamar Lighting

View LRC Project Sheets at
www.lrc.rpi.edu/resources/newsroom/projectsheets.asp



The DaySwitch turns off a luminaire when sufficient daylight is available.

Findings

- The DaySwitch worked as intended and automatically switched off lights when sufficient daylight was available.
- Commissioning required less than 30 seconds per site.
- The DaySwitch provided the most energy savings in large open spaces with plentiful daylight, little or no blind use, minimal window tinting, and no available wall switch.
- Private offices showed little or no energy savings because of minimal daylight availability (blinds, window tinting, obstructions), low wattages, short hours of occupancy, and manual operation of a wall switch.
- The higher the electric light levels, the greater the amount of daylight required for the DaySwitch to turn off the lights.
- Most occupant feedback was neutral or positive. However, some private-office occupants objected to automatic switching of their lights.
- For best results, daylight should be present in quantities 2.5 to 3 times higher than electric light alone.