

Energy Savings

Although shades can provide protection from solar heat gain, the primary energy benefit of automated shades is lighting energy savings.

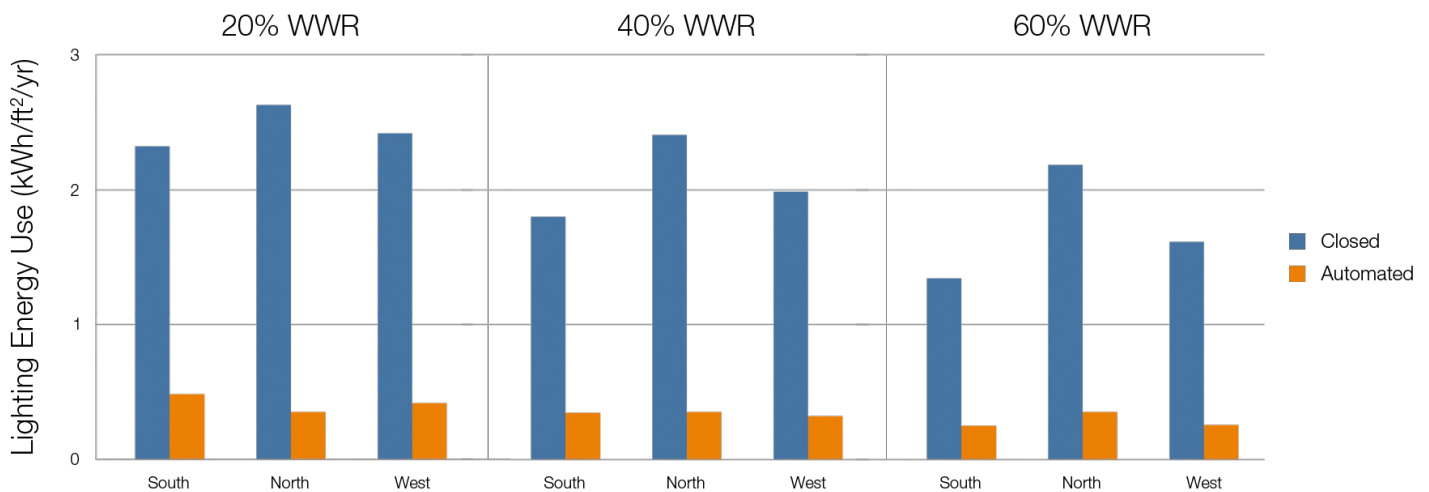
Purdue University (2010) conducted daylight harvesting simulations for a typical private office with different window to wall ratios and shade fabrics to show the benefit of Lutron Hyperion® automated shades on lighting energy.

The simulation was performed for a perimeter private office with a lighting power density of 0.9 W/sq.ft and standard double pane clear glass windows. The research showed that automated shades can provide an additional 65% daytime lighting energy savings beyond a system where the shades remain closed. Significant lighting energy savings was found across different window-to-wall ratios and facade orientations.



Image 1: Private Office

Lighting Annual Energy Use



Project Summary

Location: Philadelphia, USA	Fabric visible transmittance (Tv): 5%
Room dimensions: 13.3ft x 13.3ft x 10ft (4m x 4m x 3m)	Work hours: 9 AM-5 PM
Room characteristics: Medium surface colors	Lighting power density: 0.9W/sq.ft (10 W/sq.m)

Sources:

Link to simulation validation paper: www.ibpsa.org/proceedings/BS2013/p_1064.pdf

Chan Y., Tzempelikos, A. Impact Of Shading Control And Thermostat Set Point Control In Perimeter Zones With Thermal Mass. 2013. 13th Conference of International Building Performance Simulation Association