

# “When Your Building Concern On Energy Of Lighting & HVAC”



## Occupancy Sensors + Light Level

- meets energy codes
- sustainable building design
- economic savings
- security purpose & concern
- retrofit & new construction





Application and environment are critical to selecting the right sensor technology to optimize functionality and maximize return of investment.

## Microwave technology

- + emit low power electromagnetic waves with 5.8GHz high frequency,
- + detect motion based on changes in sound waves (Doppler principal),
- + no line-of-sight required,
- + excellent for detecting small movement,
- + potential obstruction detection is possible through non-metal low intensity materials (plastic, wood, fiberglass, cloth and glass).



## Ultrasonics technology

- + emit low power electromagnetic waves with 32.7kHz frequency,
- + detect motion based on changes in sound waves (Doppler principal),
- + no line-of-sight required,
- + excellent for detecting small movement.



## + Light Level feature



- + holds lights off upon initial occupancy if adequate ambient light exists. It will turn the lights off if enable.

## Dual technology

- + combine both PIR and ultrasonic technology,
- + ensure maximum sensitivity and coverage in tough application.



## Passive infrared technology

- + senses occupancy by detecting the difference between heat emitted from human body in motion and the background space,
- + use segment lens divides the coverage area into zones, movement between zones is then interpreted as occupancy,
- + required unobstructed line-of-sight,
- + excellent for detecting small movement.

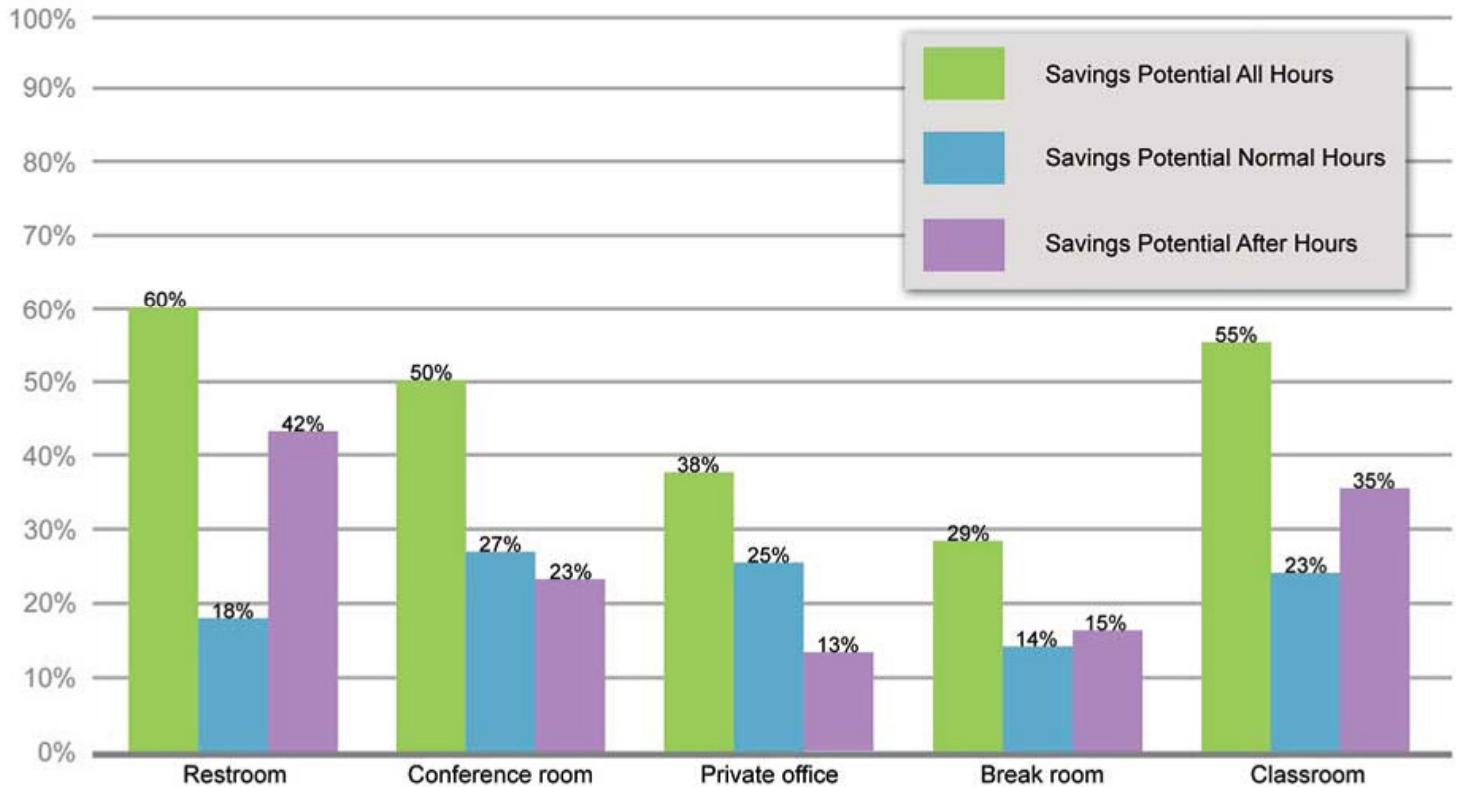




# Potential Energy Savings by Application Type



In 1997, researchers studied energy savings potential for occupancy sensors in buildings in 24 states representing a cross-section of commercial building types\*. The study monitored occupancy and the number of hours the lights were on in 158 rooms, including 37 private offices, 42 restrooms, 35 classrooms, 33 conference rooms and 11 break rooms. Potential energy savings for these spaces types were calculated as follows.



## Conclusion:

People do not occupy spaces for a large percentage of time, and are not diligent about controlling the lighting in their spaces both during the workday, and after hours and weekends. This applies to both public spaces as well as personal spaces.

## References:

Bill VonNeide\*\*, Dorene Maniccia\*, Allan Tweed\*, "An Analysis of the Energy and Cost Savings Potential of Occupancy Sensors for Commercial Lighting Systems", \*Lighting Research Center, \*\*U.S Environmental Protection Agency (ENERGY STAR Buildings Program)



Reduce Energy Consumption



Save Money



Reduce Carbon Footprint

# Where Should Occupancy Sensors Be Used?



Occupancy sensors are the most effective to unpredictable traffic of occupant. Control lighting based on space occupancy, ON when space is occupied and OFF when space is vacant.

## Application Types

- ✓ Restrooms
- ✓ Stairwells
- ✓ Hallways
- ✓ Libraries
- ✓ Lunch & break rooms
- ✓ Office rooms
- ✓ Stockrooms & storage
- ✓ Warehouses
- ✓ Open office spaces
- ✓ Lobbies
- ✓ Classrooms
- ✓ Utility rooms
- ✓ Conference or meeting rooms
- ✓ Gymnasiums
- ✓ Banquet rooms

## Facility Types

- ✓ Offices
- ✓ Schools
- ✓ Warehouses
- ✓ Health care
- ✓ Retail
- ✓ Government
- ✓ Hotels
- ✓ Athletic facilities
- ✓ Financial services
- ✓ Industrial buildings
- ✓ Correctional facilities
- ✓ Houses of worship
- ✓ Hospitals

## Operation Benefits



Touch-free operation  
increases hygiene

Cost-effective energy  
saving control

Automatic switching for  
sterile areas

Comfort and safety for  
occupants

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\*\* All data in this brochure is subject to change without notice.



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