

The Watt Stopper Occupancy Sensors Reduce University Library Load by 30%

The J.N. Desmarais Library had been experiencing huge amounts of waste in lighting consumption. Part of the problem was due to the use of inefficient lamps and ballasts. However, a major cause of the problem was due to lighting for the entire library being left on from the time the library opened at 7 am until the cleaning personnel completed their rounds at 1 am. During these hours, many areas within the library were unoccupied for great lengths of time yet were still lit as if they were in use.

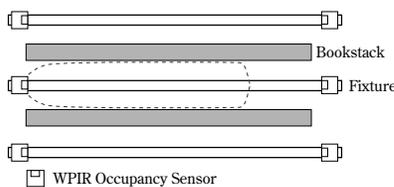
Denis Longuepee, P. E. of John R. Hamalainen Engineering Ltd Consulting Engineers, designed the lighting control system to solve the problem.

Occupancy sensors were found to be the best solution for lighting control of the library as lighting would only remain on in areas where individuals were present. Watt Stopper occupancy sensors were installed in all areas except for main walkways and lobby areas where lighting was required to be on throughout the day. With the sensors, lighting now turns on only when each area is occupied and turns off when the area is vacated.

The three major areas that received the sensors were the book stacks, conference rooms, and restrooms.

The majority of the occupancy sensors were installed in the areas of the book stacks. 530 WPIR passive infrared ceiling mount sensors were installed on beams that hold the light fixture. A WPIR was installed at the

end of each aisle to control the area between the book stacks. The sensors were placed in such a way as to detect individuals as they pass beneath the sensor and walk into the aisle. Sections of the WPIR's lens were masked so that lights would turn on only when someone was in the specific aisle and not just passing by.



50 DT-100L dual technology occupancy sensors were used in open study areas, conference rooms and lounges. Dual technology was chosen here because the combination of PIR and Ultrasonic technologies is needed to detect presence in areas of relatively low activity such as students reading or writing.

23 ultrasonic sensors were used in restrooms where lights are typically left on long periods of time when no one is present. 1 ultrasonic sensor was used in a large conference room along with a DT-100L.

The retrofit was completed in time for the start of the school year in September 1993 and proved to be very successful. Lights no longer are left on in unoccupied areas and utility costs have been cut. Also, library employees and students have not been inconvenienced by the sensors as lights go on automatically

whenever they enter an area. No manual function or computer overriding is required as might be the case with other types of lighting controls.

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Hamalainen Engineering estimates a minimum 30% load reduction as a result of the occupancy sensor installation. The sensors are controlling 114 single lamp fixtures, 1,034 two lamp fixtures, and 12 three lamp fixtures. The total load reduction is estimated at 21,196 Kw.