

# Guest Room Energy Management Controls

**TECHNICAL DATA SHEET**

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**E**nergy costs represent the second largest operating expenditure in the lodging industry, after labor and benefits. Heating and cooling guest rooms, operating televisions and lights and maintaining common areas such as swimming pools and business centers contribute to energy bills. When all of these uses are examined, 40 percent to 80 percent of a hotel's energy costs result from heating and cooling guest rooms. Accordingly, the lodging industry recognizes that guest room energy management represents an important cost control area. If a hotel can reduce these costs and still maintain guest comfort levels, the energy saving measures will have a direct and positive impact on operating profit margins.

A technology that is relatively new to the U.S. can help manage guest room-related heating and cooling costs: guest room energy management control systems. Guest room energy management controls have been adopted internationally in the past decade and are now being implemented here. Basically, guest room energy management controls use sensors to determine when a room is unoccupied, and then adjust the HVAC system operations to an "unoccupied" setting. When guests return, the system readjusts to meet guest comfort requirements. In short, guest room energy management controls reduce the energy wasted by heating and cooling unoccupied rooms.

## **GUEST ROOM ENERGY MANAGEMENT CONTROL OPTIONS**

The lodging industry can choose from a variety of guest room energy management control options; a number of these products are quite new. For example, many guest room controls utilize electronic sensing devices to identify

## **LODGING ENERGY FACT**

Did you know that heating, ventilation and air conditioning end-uses make up over 50 percent of the energy bill in an average lodging business?

room occupancy and reduce guest room energy use during the times a guest is not in the room. Three common types of sensing devices are available: infrared, sound activated and ultrasonic movement sensors. Sensor control systems can be installed in new and existing buildings without altering wiring configurations or disrupting the HVAC system.

Another guest room energy management system is activated by guests. The system operates through the insertion of a key, key ring tab or magnetic card into a room control panel. Typically, a guest inserts the room key into a control panel slot near the door, often by the light switch. This insertion activates the system and turns the system "on," allowing the room's HVAC system to work. Then, when the guest leaves, the key is removed, which deactivates the room's system.

## **GUEST ROOM ENERGY MANAGEMENT: A WISCONSIN CASE STUDY**

Marcus Hotels and Resorts, a Wisconsin-based division of the Marcus Corporation, owns and operates twelve hotels and resorts nationwide. Five of the locations are Wisconsin properties, which present extreme climate challenges from an energy management perspective. For some time, the company researched guest room energy management solutions that were both energy efficient and cost effective.



Recently, Craig Rambo, Director of Engineering for Marcus Hotels and Resorts, installed guest room energy management controls at four of the company's locations. Mr. Rambo immediately noticed significant run-time savings on his HVAC equipment. "Our main initiative was to reduce energy usage," he said, "And guest room energy management offers one of the primary methods to accomplish this goal."

Some guest room energy management systems can track information such as HVAC system run-time from wall thermostats. Armed with this information, a facility manager can then quantify actual savings in each guest room. The Marcus' staff monitored the rooms where guest room energy management controls were installed for real time savings. Mr. Rambo and his team tracked the behavior of the HVAC systems in individual rooms for 300 days and found that the HVAC system runs-times had been reduced significantly.

"We found that, with the room controls, we experienced an average run-time savings of roughly 30 percent per guest room," said Rambo. "This reduction met our expectations."

One new resort, the Tundra Lodge, a Green Bay hotel with an indoor water park, was designed with guest room energy management control systems in each guest room. Craig Garot, the Tundra Lodge's Chief Engineer, identified the potential savings prior to installation. He then confirmed his estimates when the lodge opened and he was able to track the guest room energy management system's actual operations.

"Industry statistics and actual in-room occupancy measurements indicate that even rented hotel rooms are empty 60 percent to 65 percent of the time," noted Garot. "So there is no reason to pay for heating or cooling energy not required by guests. The controls we installed have been working wonderfully thus far, and have required no maintenance. We figure we are saving over \$10 per room per month in guest room energy savings." Considering that the Tundra Lodge has 161 rooms, this equals a monthly savings of \$1,610 and annual savings of \$19,320, which positively impacts their bottom line.

## **NEW FINANCIAL INCENTIVE AVAILABLE FOR GUEST ROOM ENERGY MANAGEMENT CONTROLS**

If you feel that guest room energy management technology can help your lodging business manage energy costs more effectively, contact Focus on Energy's Hospitality Team for

assistance. Focus on Energy is currently offering an incentive per guest room to offset the costs of installing guest room energy management controls. To receive this incentive, you must meet the following requirements:

- You must operate a lodging business, i.e., hotel, motel, resort, inn, etc.
- The per guest room incentive is for occupancy-based guest room energy management controls.
- Occupancy control may be key-activated or sensed due to motion or body heat, and must control the HVAC system serving the room.
- The occupancy control cannot be attached to the thermostat wall unit.

## **ENERGY SAVING TIPS FOR THE LODGING INDUSTRY**

Installing a guest room energy management control systems in your facility is just one of many ways your lodging business can save money and increase energy efficiency. For example, Focus on Energy has worked with Marcus Hotels and Resorts to implement a variety of energy-saving projects at their Wisconsin facilities, including the installation of guest room energy management controls, an energy (and water) efficient laundry water reclamation system, HVAC system upgrades, low-flow, pre-rinse sprayers, daylight controls and switching to compact fluorescent bulbs.

Focus on Energy will work with you to identify a variety of energy saving options—from saving on lighting bills by switching to fluorescent lights, to installing low flow showerheads in your bathrooms.

### **Some basic tips to remember:**

- Install energy efficient rated EER=11 (or higher) packaged air conditioning units
- Retrofit incandescent lighting fixtures with compact fluorescent bulbs
- Use outside air for cooling (economizer cycle) when conditions permit
- Install T8 fluorescent lamps with electronic ballasts to replace T12s

If you are interested in learning more about guest room energy management control systems or other energy efficiency opportunities in the lodging industry, contact Focus on Energy at 800-762-7077 and ask to speak to speak with an Energy Advisor from the Hospitality Team. Or visit our Web site at [www.focusonenergy.com](http://www.focusonenergy.com).