Marriott
SpringHill Suites
Richardson, TX

Automated HVAC & Lighting Energy Savings in Guestrooms

♦ New Construction
  ◊ 100 Guest Rooms
  ◊ Occupancy-based control of HVAC & lighting
♦ Wireless, Self-powered Technology
  ◊ Occupancy detected by self-powered hotel keycard switch
♦ High Guest Satisfaction
  ◊ A single-point of master control in each room provides guests an easy way to participate in energy savings and help keep room rates down

23%
Energy Savings

$9,832
Annual Energy Savings

ZENO CONTROLS

verve living systems

SpringHill SUITES ® Marriott

(312) 878-6440
info@vervelivingsystems.com

Modern Looks / Simple Energy Management

Marriott SpringHill Suites constructs hotel with a modern Euro-look and automated HVAC & lighting energy savings built-in

Occupancy Detection
Each in-room control system is centered around a self-powered, wireless keycard switch. The occupancy status of each guest room is determined by the state of the keycard - when the keycard is out of its holder, the system treats the room as unoccupied. The keycard switch controls the HVAC PTAC unit through a wireless thermostat and also controls two lighting zones - a "welcome" lighting scene and the bathroom lights (the lights most commonly left on in hotel rooms).

Wireless Communications
Wireless communications between controls are based on the EnOcean Wireless Standard. By employing EnOcean energy harvesting and wireless technologies, the Verve Keycard Switch powers itself using the motion of the keycard going in-and-out of its holder - no batteries or line-power needed.

The in-room control network heats, cools and lights rooms according to guest preferences; while turning off lights and setting back room temperatures when sold or unsold rooms are left vacant.

System Diagram - Marriott SpringHill Suites
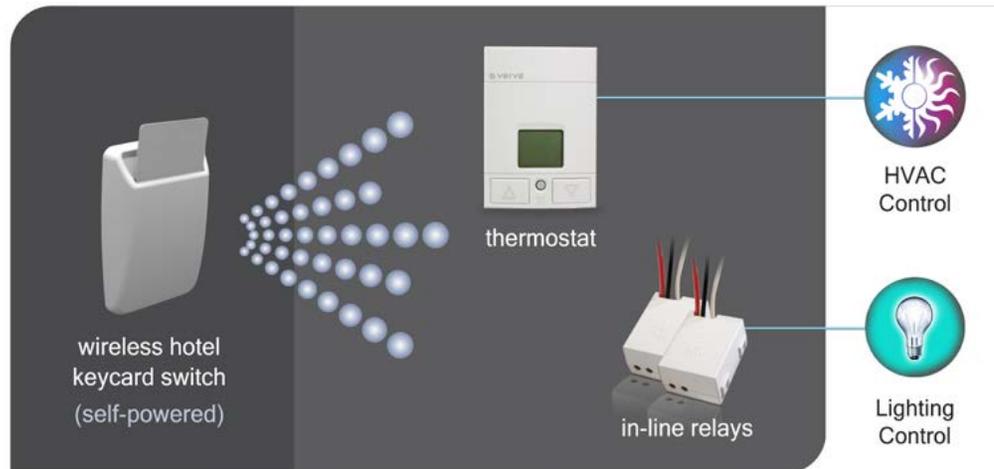
Sequence of Events

♦ When each guest enters the room, he or she inserts the keycard into the keycard holder.

◊ This triggers the transmission of a radio signal that is sent to the thermostat and in-line lighting relays - alerting the HVAC & lighting systems that they should operate according to guest preferences.

♦ Upon leaving, guests retrieve their keycard from the keycard holder.

◊ This triggers the transmission of a radio signal that alerts the thermostat and lighting relays to operate in their energy-saving "unoccupied" mode.

"At Lowen Hospitality Management, our eye is on energy conservation and being 'green,'" said Sanjay Naik, Lowen Hospitality Management vice president. "We banked on a system that has a small footprint and is easy to use by guests and staff alike. It enables our guests to be actively involved in saving the planet -- and participating is something they tell us they appreciate."

Payback & ROI Analysis

self-powered keycard switch inside Marriott SpringHill Suites

Cost of powering one guestroom
(USA average, w/out automation controls)

Baseline: Annual power usage / Room [1]	2,850 kWh
Cost of electricity (peak, per kWh in TX)	$0.15
Yearly energy savings potential / room	$427.50

Compare "with" versus "w/out" automated HVAC & lighting control

23% LESS

Utility Spending w/ automated control
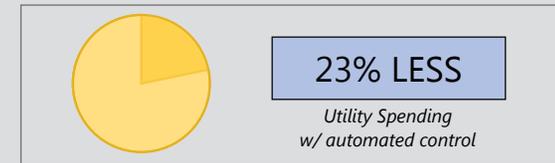
Automated Energy Savings

Energy savings potential / Room	$427.50
Occupancy-driven energy savings	23%
Annual energy savings / Room / Yr.	$98.33

Projected energy savings are based on the ROI impact variable values specific to this site location (HVAC system type, local climate, cost of electricity & occupancy rate)

1 ACEEE (American Council for an Energy-Efficient Economy) "Emerging Energy Saving Practices"