



## **NYC hotels: A critical and high profile energy sector**

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Hotels are a unique sector in terms of energy use. Each occupant's length of stay is brief and during this time guests may not be thinking about energy use reduction or sustainable measures. It is difficult to instill sustainable habits upon guests but energy-saving measures can be implemented behind the scenes. One of the most helpful tools in uncovering these measures is an American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) energy audit.

Within the past year, Steven Winter Associates (SWA) has completed in-depth energy audits, in accordance with ASHRAE and the NYS Energy Research and Development Authority (NYSERDA) FlexTech Benchmarking Program, for three hotels in New York City. During the energy audit process, hotel management receives a list of recommended energy conservation measures (ECMs) to implement, each complete with an associated energy and cost savings. According to ENERGY STAR, America's 47,000 hotels spend, on average, \$2,196 per available room each year on energy, representing approximately 6% of all operating costs. In addition, "energy represents the single fastest-growing operating cost in the lodging industry." In March of 2012, SWA conducted an energy audit for a mid-size boutique hotel, located in downtown Manhattan, which resulted in an estimated annual savings of \$20,500 split across six energy efficiency measures.

Hotels often exhibit very high energy use profiles; the importance of occupant comfort makes controlling energy use a challenge. As a general rule, hotels rate guest satisfaction at the top of the operations priority list. This may translate into allowing each occupant to maintain full control over heating and cooling, frequently resulting in virtually unrestrained controls. Grant Salmon, BPI-MFBA and senior energy consultant at SWA, recommends the installation of set controls as a solution.

"In my experience, the two biggest opportunities for energy conservation are guest room control upgrades and optimizing central plant heating and cooling" said Salmon, "guest rooms are over-conditioned when not in use; controls would not only better manage heating and cooling, but eliminate a great deal of inefficiencies." In older hotels, where there is limited control over thermostats and temperature, a highly recommended energy efficiency upgrade would be the installation of occupancy sensor controls to ensure that heating and cooling is turned off when the room is not occupied. The sooner such strategies are implemented, the sooner a building can start saving both energy and money.

The National Grid states, that "in a typical lodging facility, lighting, space heating, and water heating represent close to 60% of total use, making those systems the best targets for energy savings." Space and water heating are the two major energy consumption issues in maintaining a natatorium, a common hotel amenity. SWA recommended adjusting the natatorium air temperature, during a recent energy audit conducted on a high-rise hotel near Ground Zero. According to Seresco Natatorium Design, 90% of pool water's annual heating costs originate from pool surface evaporation losses. Additionally, a pool in a room that is set to 78°F, with a relative humidity of

50%, will evaporate 15% more than the same pool in a room set to 82° with the same relative humidity. Every pound of moisture evaporated translates to approximately 1,000 BTU of heat loss from a pool.

Periodic retro-commissioning, which is also required by NYC's greener, greater building laws, specifically Local Law 87, can further improve operations and maintenance aspects of a multi-occupant building. Michael Flatley, CEM and senior building systems consultant at SWA, likes to paraphrase the real estate mantra "location, location, location" into "education, education, education," particularly in reference to his approach to retro-commissioning. In many cases, operating engineers in hotels are not aware of the fine points of the existing conditions, let alone upgrades based on recommendations to correct existing problems. Providing education through training is the only way to achieve optimal operation in place of less effective "standard operating procedures."

Demonstrating proven and practical strategies for reducing energy/operating costs and improving comfort and indoor air quality, energy audits are the best solution to improving the sustainability of the hotel sector.

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