by Phil Sprague

Renovate not just for appearances, but also to realize energy savings

About every four to five years, most hotels undergo a major renovation which includes soft goods, hard goods and wall coverings. Frequently, new light fixtures are installed in corridors and public spaces as well. Most carpeting is removed and replaced throughout the hotel. Needless to say, this results in large sections of the hotel becoming uninhabitable with all interior finishes and furnishings completely removed. This circumstance provides an excellent opportunity to implement the "dirty-by-nature" major cleaning and repair of heating, cooling and ventilating equipment.

Our two most recent energy audits were in a limited-service hotel and a full-service luxury hotel, both which had just completed major interior renovations. During the renovations, absolutely none of the heating, ventilating and air conditioning equipment was cleaned, repaired or upgraded. We noted in both hotels that many guestroom heating/cooling systems were non-functional and much of the public space equipment was also very suspect. Periodic hotel renovations can cost millions of dollars, but they also offer an excellent opportunity to check out and repair old mechanical equipment.

Energy saving guestroom renovations

For example, guestroom heating/cooling units, such as through-the-wall units or vertical fan coil units are usually packed with years of dirt, grease and grime. The single most cost effective and energy saving action is to completely clean these units with a pressure washer and a good quality cleaning solution. Once carpeting and furniture is removed from the room, pressure washing can commence in the room without causing any additional harm to interior furnishings. When the heating/cooling units are disassembled, it is an excellent opportunity to check components such as automated valves and thermostats. This is also an excellent time to consider replacing units that are beyond repair with new energy efficient type units. For example, through-the-wall units should be replaced with air-to-air heat pumps that offer much more efficient heating and air conditioning.

This is also an ideal time to consider investing in a guestroom energy management system. Guestroom energy management systems typically require running wire under carpet and through walls. By installing these systems during renovations rather than afterwards, the cost of installation can be minimized by almost fifty percent.

Since wallpapering and painting are also part of the renovation process, now would be the best time for the prudent engineering manager to consider upgrading guestroom lighting systems. For hotels that contain guest bathrooms with energy guzzling incandescent decorative lighting, management may want to consider replacing these fixtures with a valance over the sink which contains a two-lamp, four-foot "T-8" fluorescent fixture. Other guestroom lighting, such as the wall sconce welcome light, should also be converted to an attractive looking compact fluorescent fixture. All of these guestroom energy saving projects typically have under a two-year return on investment. And most importantly, refitting these lighting outlets during a renovation will reduce installation costs and hasten the return on investment.

Pictured below: Incandescent bathroom lighting fixtures, like the one shown here, typically consume at least six times the electricity of an overhead fluorescent "T-8" fixture.

Energy saving public area renovations

Public spaces, such as guestroom corridors, restaurants, lounges, and meeting rooms are also very good candidates for repair and upgrade during a renovation. Fans serving these areas are typically on the roof, in the ceiling, or in a separate mechanical room. The systems used to control this equipment, regardless of where it is located, can be upgraded to include a public space energy control system. These energy control systems typically require installing low voltage wiring from the device itself to a central location such as the Engineering office. This action can be implemented much easier and efficiently during a renovation; again, because wires need to be fished down walls and under carpeting or through ceilings.

Here again, first and foremost, this is an excellent opportunity to implement a thorough cleaning of all mechanical equipment. Air ducts should also be cleaned at this time because dirt and debris will not be strewn all over the areas. All maintenance items should be thoroughly updated on every piece of mechanical equipment. Replacing drive belts on motors, changing out old filters and emplacing electronic thermostats should all be considered. For smaller hotels, it may be more cost effective to simply consider installing seven-day timers to control the equipment, and as a result, save considerable energy.

Creating added value to the asset

The point of this article is to persuade owners and operators of all types of hotels to give serious consideration to investing a small amount of money in the mechanical systems throughout their hotel in a more cost effective manner. Any hotel that is twenty years old should consider these upgrades. This is also an excellent opportunity to take a global approach to the entire building's mechanical equipment. If the hotel has chillers that are over twenty years old, they should be replaced with a new high efficiency type system.

The same is also true for all types of heating equipment. Tremendous advances have been made in design and efficiency of all heating and cooling equipment, as well as water heating equipment. Twenty-year-old boilers operate at about seventy percent efficiency, while new pulse type water heaters operate in excess of ninety percent efficiency. This is almost a thirty percent improvement in overall system efficiency.

Air conditioning chiller systems have also experienced tremendous improvements in overall system efficiency. These improvements are in the range of twenty to twenty-five percent. This translates into direct savings of energy to operate this equipment.

Upgrading the hotel's heating, ventilating and air conditioning equipment during a renovation will also improve the value of the property, while reducing operating costs. Newer, energy efficient systems will improve guest comfort by ensuring that systems do not break down during high occupancy because the equipment is old and worn out.

Renovating mechanical rooms is also a very nice improvement that can be accomplished with a little bit of paint and labor. Remember, these mechanical rooms should not be used as storerooms for unused renovation materials. Clean out the mechanical rooms and keep them as nice looking as the public spaces to improve employee morale and minimize potential staff hazards.

Anyone who has been part of a hotel renovation knows how difficult it can be in terms of working through the entire process. With just a little effort, the most important part of any hotel's building can be brought up to date during this period. ✧

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