ISSUE
27
SUMMER 2017

Lodging Engineer

1st Person

Interview with
Chris Walker

Featured In This Issue

"The Great Escape" Lessons from Katrina

Solar Power in Hotels

Water System Technologies

Perspective on Asset Management

LODGING ENGINEER™ reports about people, events, technology, public policy, practices, study and applications relating to hotel and motel engineering, maintenance, human communication and interaction in online environments.

CONTACT
P.O. Box 30844 • Alexandria, VA 22310
703-922-7105
www.nahle.org

Editor
Robert Elliott (robert.elliott@nahle.org)

Contributing Writers
Amanda Strouse, Tom Daly, Paul Frederick, Bruce Fathers, Richard Manzolina

Correspondence address to: articles@nahle.org

Administrative Issues: admin@nahle.org (all submissions, editorial matter, artwork, subscriptions, address changes)

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Inside This Issue

Lodging Engineer
Summer 2017

The Great Escape - page 6

As hurricane season approaches, Tom Daly and Paul Frederick share their lessons learned from Katrina, one of the most devastating hurricanes to hit the hospitality industry in recent years.

1st Person an Interview with Chris Walker - page 11

Lodging Engineer visits with OTO Development's chief engineer, Chris Walker, at their Hampton Inn, Yber City. Chris talks about recent renovations and some of the challenges of a historic neighborhood property.

Hospitality's Best Mechanical Trio - page 16

Many older multi-story and select-service hotels often have dated plumbing and mechanical systems that contribute to guest complaints such as not enough hot water or low water pressure. New technologies can pretty much guarantee guests will get a hot shower.

What You Didn't Know About Solar...And Why Now? - page 22

Despite energy saving and less carbon, the hospitality industry has been slow to embrace solar energy. Experts discuss their system's payback period as well as space requirements, maintenance and installation.

To Your Asset Manager - Can you Handle the Truth? - page 26

A resort hotel engineer found he was a little too focused on the building and the longevity of its assets while his asset manager suggested the emphasis should be more on the business side of the resort and less on the building.

Energy Star's Overview of Energy Use and Efficiency - page 29

On average US hotels spend a little of $2,000 annually per available guest room on energy alone. Cost reductions through energy efficiencies are quantifiable and guest expectations and satisfaction remain a high priority.

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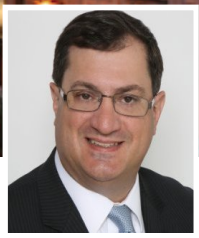
THE GREAT Escape



by Thomas Daly & Paul Frederick

The lodging industry learned many lessons as the result of actions taken, or not, during the devastation that was Hurricane Katrina in New Orleans in August of 2005. As another hurricane season approaches, the following account may be of help as lodging facilities prepare for the worse.

THE STORM

Hurricane Katrina traveled a wavering and erratic course over the Gulf of Mexico for a period of several days in late August 2005. After first making landfall in Florida, the storm regenerated in the Gulf reaching a Category 5, but its final landfall was unpredictable.

New Orleans had seen many hurricanes approach but their paths historically diverted away. This City had seen hurricane-related flooding before, but not since 1969. That distant and irregular history of the consequences of a major storm striking this much-below-sea-level City, provided a false sense of security for both its residents, visitors and especially its state and local government officials. This time New Orleans' luck would run out as the largest natural disaster in U.S. history struck this city head-on.

Many patrons of hotels in New Orleans either could not or did not evacuate as Hurricane Katrina approached the city on August 29, 2005. Vertical evacuation was common practice in Louisiana, which included moving into high-rise hotels for shelter. For those Hilton patrons remaining, Hilton's management closed its four smaller hotels there and concentrated it resources, staff and patrons in its largest hotel, the 1200 room Hilton New Orleans Riverside in the hotel district, whose elevation was a few feet higher than the rest of city, precluding the flooding of many of those hotels when the levees would later fail.

Disaster planning is a part of the Emergency Procedures policy for Hilton's family of brands. Each hotel's Executive Committee is required to review and practice all such procedures, including those for hurricanes, semiannually. Those on the East and Gulf coasts of the U.S., are particularly aware of the need for such diligence for hurricanes.

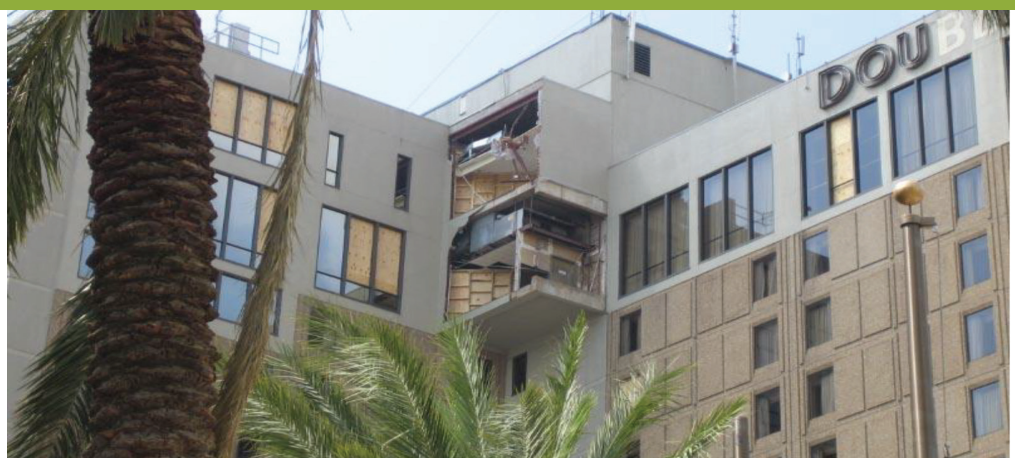
THE DELUGE

With the onset of Hurricane Katrina in New Orleans in the early morning hours of Monday August 29, 2005 normal commercial power was lost to the City's hotel district and all routine communication capabilities including hard line telephony, cell phones, email and voice-over-internet-protocol (VOIP) failed. Some 300 cell phones towers in the region were destroyed. Phone company switching centers were flooded.

Earlier in the week the Hilton New Orleans Riverside hotel had been provided with satellite telephones, providing a crucial voice link to Hilton's corporate resources in Texas and California during this disaster.

The storm broke many of the hotel's windows and the incoming water did significant damage to the Hilton's infrastructure, especially its communications capabilities.

As power failed, the hotel's emergency generator, routinely tested and maintained, worked flawlessly but, as with most such 'emergency' generators, it was both limited as to its supply of fuel, ability to operate for long periods and the amount of equipment, systems and lighting it supported.



The vast majority of emergency generators in U.S. commercial facilities are not the 'continuous duty' type but are the 'standby' type, intended to operate only for a limited duration. When operating at full load the Hilton generator's fuel consumption was vociferous. The hotel was also equipped with rechargeable lanterns for staff and more than 1200 glow sticks and flashlights for patron's use, but their operational duration was also short lived.

THE DECISION

The reality of the situation became clear only a few hours after the hurricane struck and the amount of devastation became apparent. No one was coming to help anytime soon. The City government was dysfunctional and the State of Louisiana was ill-prepared, despite ample warning, to deal with a storm of this magnitude.

Normal power was not going to be restored in the foreseeable future to non-critical facilities, such as hotels. Fuel for emergency generators to provide critical power and lighting was a fungible asset with re-supply unlikely.

If the storm was not deadly and destructive enough, the subsequent failure of the levees and massive flooding later compounded the challenges and options for relief.

Immediate decisions were needed to safeguard more than 1600 Hilton employees and guests, now at significant peril. While not known at the time, looting, man-made property destruction and violence would ensue within hours.

On a conference call at 03:00PDT on Tuesday August 30, 2005, a small group of Hilton executives in Austin, Beverly Hills and Chicago, in consultation via satellite phone with the Hilton New Orleans Riverside's acting general manager and its Director of Security (a retired New Orleans Police Department Captain), decided to evacuate all stranded employees and patrons with solely private resources via a bus convoy. That effort would be led on the ground by a dedicated Hilton management and security team in New Orleans and in nearby Baton Rouge.

After the group crisis call decision to get the buses to New Orleans and to set up a command post in Baton Rouge, our regional security manager needed to figure out how to get to Baton Rouge, get supplies shipped and set up a command post (he lived in South Florida). At 0400EDT he was able to book a flight through Houston, also was able to reserve a rental car at the Baton Rouge Airport, the last one left, which was a Lincoln Town Car. At 1600CDT on Wednesday August 31st we had boots on the ground in Baton Rouge standing up our command center. Supplies for the command post where overnighted from our corporate office in Beverly Hills, CA and arrived in Baton Rouge first delivery the morning of September 1st.

THE CALVARY

After the decision was made to rescue those stranded, Hilton General Managers in Dallas, Houston, Austin and San Antonio began to assemble more than thirty-five charter buses and drivers to make up Hilton's 'Midnight Express'. By late afternoon Wednesday August 31, 2005, those resources where on their way, initially to Baton Rouge.

By that evening the security situation at the Convention Center was now the focal point of TV and radio media, and our bus drivers were concerned for their safety and the security of the motorcade as there were reports on the news about fuel trucks being shot at, and looting in and around the area of Convention Center. We attempted through contacts at the National Guard, State Police and New Orleans PD to obtain a law enforcement escort of the buses to the Hilton New Orleans Riverside next to the Convention Center, to no avail.

Public resources were limited and not available to assist at that time, with officials suggesting we wait until morning to see if the situation changed.

At 01:50CDT on Thursday September 1, 2005 on a scheduled check-in call, the Hilton New Orleans Riverside management advised that the security situation near the hotel was deteriorating and a dawn evacuation would be riskier. The convoy was then given the 'go' signal to proceed.

Leaving the initial staging point in Baton Rouge, the buses stopped first at the New Orleans Airport Hilton, another hotel that had approximately 100 stranded guests and employees. The Airport Hilton is about 16 miles from the Hilton Riverside.

At 02:15CDT, the bus drivers agreed to head downtown in a caravan with two local managers from the New Orleans Airport Hilton without a police escort. The refueled caravan, with fresh supplies of batteries, lanterns and flashlights moved into New Orleans, stopping periodically to negotiate road-blocks with the State Police and National Guard who, after some *'who are these guys?'* moments, allowed the buses to proceed.

The Hilton Riverside is only a few blocks from the Superdome, a hastily set-up 'last resort' evacuation center, initially for 10,000 city residents, later increased to more than 20,000 refugees. With roof damage to the Superdome, these evacuees where then directed to leave the Superdome and move to the Convention Center which was adjacent to the Hilton Riverside. At both locations food and water were in short supply. Restrooms facilities failed. Chaos ensued.

THE ESCAPE

At 03:30CDT the charter buses arrived at the Hilton Riverside using a service road behind the Convention Center, with their headlights off, lead in by the hotel's Security Director. Patrons and team members were quickly loaded onto the buses. The caravan at 04:05CDT then made its way through the devastation, winding through largely deserted streets back to Baton Rouge. The parade of buses, with

weary but elated passengers, arrived at Hilton's Embassy Suites in Baton Rouge at 06:30CDT, 2.5 hours later, which is normally a one hour and fifteen-minute trip.

All guests and staff were fed, given access to showers, the internet, phones and, for those that needed it, prescription medications. The Embassy Suites Baton Rouge took advantage of relationships with local vendors who donated food and beverage for our weary guests and 187 guests had their daily medical prescriptions filled with a ten-day supply. All were then afforded their choice of destinations for one of the four Texas cities where Hilton had facilities until they could make transportation arrangements to return home. All local transportation, hotel accommodations, food, lodging and related services were complimentary for both employees and guests. Hilton employees in Baton Rouge came out of the woodwork to assist the arriving guests, even on their days off, including past employees who just wanted to help.

By noon on September 1st the last bus left for Texas. The Embassy Suites Baton Rouge and corporate staffs had processed all guests and employees from New Orleans that needed a place to stay.

THE AFTERMATH

Two days later, on Saturday September 3rd, we were able to go back to New Orleans and review the conditions of the Hilton properties. Power was still out, the National Guard was patrolling the streets, and we discovered looters had breached several of our hotels. We secured the building and posted armed security personnel to keep unauthorized persons away.

We set up a new Hilton command post at the New Orleans Airport Hilton which had power restored quickly since this hotel is on the airport's electrical grid. For the next two months, we had a dedicated command post of corporate personnel daily to include, security, human resources, risk management, nurses, finance, purchasing and engineering, to assist the hotel staffs with restoration efforts.

LESSONS LEARNED

Some of the lessons learned follow:

First, in a catastrophic event resulting in interruption of commercial power understand that normal vendors who supply fuel and repair/maintenance services for commercial building emergency generators will not be available. You are on your own.

Second, supplemental fuel supplies, typically 55 gallon drums of diesel fuel, need to be acquired and stored (outdoors) in advance to provide critical extra time for the facility's emergency generator to operate, while the likely evacuation decision is made.

Third, knowing the generator's fuel consumption in gallons-per-hour when fully loaded and the amount of available fuel are key metrics in real-time decision making. When the generator stops, the limited lighting and power stops.

Fourth, material handling equipment to move 400-pound fuel drums and manually operated pumps to transfer fuel must be acquired in advance. Spare parts and materials including oil, oil filters, fuel filters, air filters, batteries and the knowledge of on-site engineering personnel to service the generator accordingly is critical to keep the generator running.

Fifth, generator fuel tanks need to be periodically emptied, cleaned and re-fueled with filtered fuel to avoid clogging the generator's fuel system.

Sixth, a large stock of glow sticks, lanterns and flashlights needs to be acquired, stored and routinely replaced. That precaution is routine throughout the Hilton system and is audited regularly. Backup supplies in nearby cities and a plan to get them to the hotel in need must be set up in advance.

Seventh, satellite telephones with spare batteries and chargers are the only sure means of communications in disasters of this magnitude and their acquisition and practiced use must be a part of the facility's emergency procedures. They can be purchased and maintained in advance or acquired (rented) for short durations. Have a relationship with a vendor.

Eighth, for internal communications traditional two-way radios are essential. Never rely on cell phones. More than 300 cell phone towers were destroyed in this event and it took weeks to re-establish that technology's infrastructure. Your own two-way radio system including a base station, uninterruptible power supplies, repeaters, radios, chargers and spare batteries is your

only guarantee of reliable internal communications.

Ninth, most importantly, know that time is of the essence. Do not procrastinate and do not worry about any financial issues. Act decisively and in the interest of the safety of your staff and patrons. Spare no expense doing so. Senior management needs to appoint a crisis manager and give him or her unfettered authority. There is no 'budget' for a situation like this. Spend what you need and deal with any second-guessing green eye shade types later. Insurance should cover most of what you spend even in our case the $3,000 bill for the rental of the Lincoln Town car for transportation.

Finally, after-action 'lessons learned' meetings among all key players, with candid discussions of what worked and what didn't, are critical to improving plans and their execution when the next disaster strikes.

These lessons proved invaluable just two months later when Hurricane Wilma struck Cancun, Mexico where our Hilton Cancun Resort guests and employees sheltered in place at a school house while Wilma stalled over Cancun for 5 days. We then used our model from Katrina and, when it was safe, bused everyone to another city where we had hotels about 5 hours away.

EPILOGUE

Internally within Hilton, this event was deemed 'The Great Escape'. Sixteen hundred plus employees and patrons were evacuated from the devastation that was New Orleans without injury or death, in an unprecedented private sector rescue initiative. Key Hilton personnel at corporate, regional and hotel levels stepped up. In their careers with Hilton, this was their finest hour.

This life-saving experience for our guests and staff in this crisis was reflected in the complimentary letters received thereafter and was better than any 'loyalty' program we could have ever concocted.

They will never forget and neither will we.

Thomas G. Daly MSc. CSP CLSD CASp • President & Managing Member • The Hospitality Security Consulting Group, LLC
Reno, NV

Thomas G. Daly is the retired Vice President Loss Prevention for Hilton Hotels Corporation (now Hilton Worldwide) 1995 - 2007.
Paul Frederick, CPP • Security Consultant • Stamford, CT

Paul Frederick is the former Global Director for Safety & Security for Hilton Worldwide and Vice President of Safety & Security for Starwood Hotels & Resorts. He was the Regional Director of Loss Prevention for Hilton in 2005.

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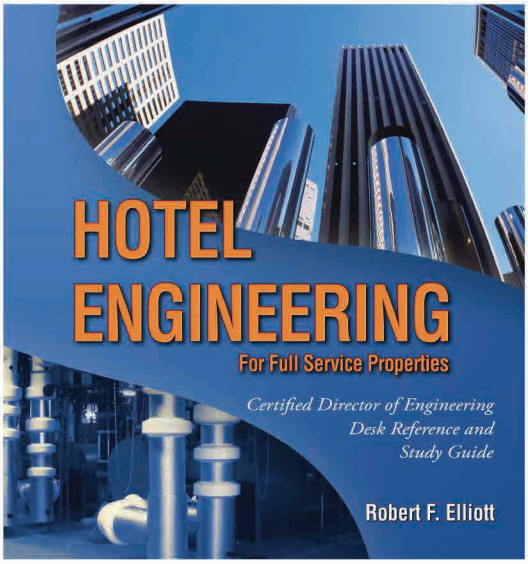

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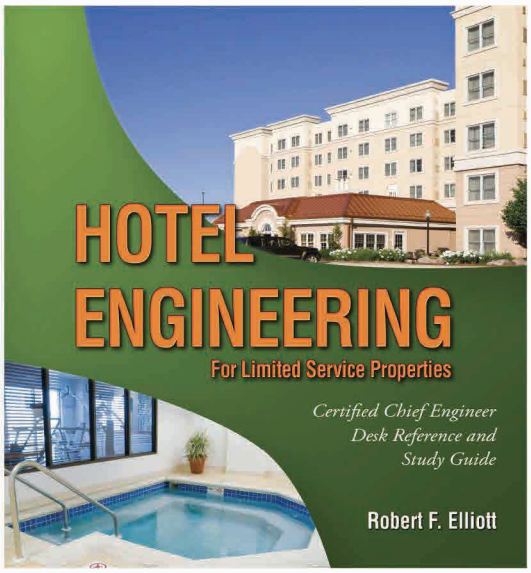

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1st Person Interview With

Chris Walker

by Amanda Strouse

Thanks for taking the time to talk to me today. I heard you met our editor when you completed the NAHLE CCE Program recently. But before we get into that, let's begin with you telling us about yourself and the hotel you work for.

I work for Hampton Inn & Suites Tampa/Ybor City/Downtown, which is in a historic district. On July 23rd, I will have been here eight years. I was born and raised in Tampa. I've traveled the country and I love to call Tampa my home. Hampton Inn & Suites Tampa/Ybor City/Downtown is a select-service hotel. We have a pool. What makes this hotel unique from other Hampton Inns is that we're in a historic district with lots of parades, festivals, bars and restaurants and a lot of history. OTO Development has owned and operated this property since 2010. It's five stories with 138 rooms, and it's a five-time consecutive winner of the Certificate of Excellence from TripAdvisor Hall of Fame.

You mentioned Ybor is a historic district. What is it known for?
Cigars, mainly. Ben Affleck did a movie about Ybor called "Live by Night."

Can you give me a description of your hotel's average guests? Do most of them live outside of Florida?
There is no average guest. Some guests are staying the night for a cruise the next day, other guests come for conventions at the Tampa Convention Center, concerts, hockey games or just for the historical aspect itself. We get people who come in for a number of different events, parades, festivals like Gasparilla Pirate Festival and Guavaween Festival.

Are a lot of them from outside of Florida?
Absolutely. There is no typical guest.

So that keeps it exciting.
Yes! It's kind of a melting pot.

Does the hotel utilize any cool, modern technologies or unique systems or equipment?
We recently upgraded to keyless RFID entry. If guests are Hilton Honors members, they can unlock their room with their phone. We have two 500,000 BTU A.O. Smith water heaters. We have split system air conditioning units for each individual room and an air handler in each room. The property was built to control humidity throughout the hotel. We have an AAON unit on the roof that cools the hallways and a Trane unit that also cools the hallways. And almost entirely LED upgrades for interior and exterior. We offer complimentary WiFi. Has your hotel structure or infrastructure had any renovations that you'd like to talk about?

For the structure itself, we've done some waterproofing to the exterior brickwork. We just installed a new roof, a TPO (Thermoplastic Polyolefin) alternate roofing system which is a single-ply white membrane. This helps reflect the sun to keep the rooms and the roof cooler. We chose this type of roof because it is more durable and it's reflective and that makes a large difference in the Florida sun. Our previous roof was EPDM (Ethylene Propylene Diene Monomer), which wasn't ideal for Florida. We had repairs done to the old roof in mid-summer and it would get so hot I've seen workers' shoes melt.

Did require tear-off or did you just apply over existing?
We tore off the old roof down to the concrete and replaced with new materials.

Did you install any type of insulation before applying the TPO?
The insulation system is installing polyisocyanurate board cut and angled for proper drainage. We also updated every compressor and coil on the roof, 138 compressors and coils, and we rebuilt the condensing unit.

Why 138 compressors? Does each room have a compressor?
Because each guest room has its own condensing unit (compressor). I call it the farm. On July 5th, we will start the process of rebuilding the air handler unit in each room.

Is this done in-house with your staff?
No this project was completed by another company.

How long of a process will that be?
That'll take about a month to a month and a half. What will be different about it is we are restoring the air handlers back to factory settings so they will be more energy efficient and run correctly with high speed for cooling and low speed for heating.

Since your hotel is so close to the Tampa Bay and the Gulf of Mexico, do those bodies of water cause any problems for the hotel?
Not too much. Humidity is controlled by the AC units - as long as they're properly maintained, there should be no humidity problems. Leaks, we did have some in the past but that's been resolved with the new roof.

Have you ever been on a property during a high wind or flooding situation?
Fortunately, I haven't been part of high winds or flooding at work. Personal life, yes: one of the houses I used to rent had flooding issues at least twice a year.

Is there anything unique about working at a hotel in Florida that hotel engineers in other states don't know?
Definitely. Humidity, as long as you keep up with AC units, everything's good to go. Salt comes into play, because we're next to the bay, we have to treat the coils before installation, so that salt does not corrode the coils. It's a fun location and a really unique area. We're also next to an Amtrak and a trolley station, that's probably unique as well.

Let's dive more into your professional career. Please tell us a little about how you got into hotel engineering.
I was between jobs so I started at the hotel as a van driver. At the same time, I was also building a house from the bottom up. So, I gained a lot of experience doing electrical, framing, siding, everything. That was my first real experience building something. Then I was promoted from van driver to engineer, performing preventative maintenance on all of the hotel rooms. I did that for exactly one year, and then I was promoted to chief engineer.

How were you promoted?
The chief engineer who was previously here left and the position was offered to me. I knew it was going to be a bit of a challenge, but I like a good challenge, so I took the job. I've been the Chief Engineer for about five years.

How many staff do you supervise?
I have two full-timers. I also look over the shuttle bus, which would be five full-timers.

How would you describe your management style?
I'm very easy going. I try to give everybody the benefit of the doubt; if people are not performing correctly, I coach them on how to do things properly. I'm very upbeat and I try to make work a fun place for everyone. I try to keep everybody happy and engaged. If you keep your employees happy, they will produce better work. I take them to lunch every once in a while and let them know that I appreciate them almost daily. The small things always add up to big things.

If you could hire an engineer with one superpower, what would it be and why?
X-ray vision, so if there's a leak inside of a wall they could see it. If there's an electrical issue, they could see it without taking anything apart. Or if they could fly too, that'd be a bonus because they would never be late.

Tell me a story where you or one of your employees saved the day.
We had a water main break in the lower level around midnight, four years ago, maybe five. I came in, shut the water off, fixed the piping and in a few hours, we were ready to go again. I think it was caused by our old booster pump fluctuating between high and low pressures but I'm not certain. It wasn't above ground, thank goodness. It was on our Garage level. I had to shut down the water to our building, then turn off the Insta hot water heaters, circulator pump, and booster pump. Then cut out the old piping and glue in new piping. I had to wait 6 hours then turned everything back on.

I can give you another one. We used to have tankless water heaters on the roof - we had six of them, and they always failed. It didn't matter how much descaling or preventative maintenance I did, they would just fail. So, we had a lot of hot water complaints, and even when it was raining or thundering and lightning outside, I had to go out on the roof and work on these things. I think I saved the day quite a few times to get those things back up and running. Which is why we now have 500,000 BTU AO Smith water heaters - no more issues. It was my suggestion to go back to the tank water heaters. I got tired of the headache.

What are the main differences?
Tank heaters hold a significant amount of hot water in reserve thus no loss of hot water when called for demand. Tankless water heaters run on demand only and heat water when needed.

What is one of the most memorable, surprising lessons you have learned while working at the hotel?
Just because the electricity is off, locked out and tagged out (standard OSHA procedure) doesn't mean that it's off. (laughs)

There sounds like there is a story behind this…would you mind sharing it with our readers?
I was working on a stack of rooms that lost power: 204, 304, 404 and

504. I turned off the breaker to each room then locked and tagged them out. I was able to locate the issue. My predecessor used clear plastic wire connectors that eventually failed. I was pulling the wiring out of the junction box to complete the repair and was zapped with 120v. It was like being stung by a large wasp and being bit by a horse fly at the same time.

What is one of the strangest problems you have ever encountered while working at the hotel?
We used to have Jacuzzis. People would start to fill the Jacuzzis and forget all about it. When they realized the Jacuzzi was overflowing they turned off the water without draining it and jump in. The water would go everywhere. We would have to get out the extractor to remove as much water as possible, lift the carpet and install air movers between the carpet and padding then install a dehumidifier. We also had to remove sheet rock (drywall) and replace it, skim, sand, apply knockdown and paint. This is why we no longer have Jacuzzis in our great hotel.

I'm sure you wear many hats in your position. How do you prioritize and stay on track?
We use a new system called Quore that comes up with monthly, weekly and daily to-do lists. Right now, we have a couple large projects going on. It's all about organizing and getting things done in a timely manner. Without being organized, everybody would be lost. A lot of times there are different things that pop up but we've just got to get it done.

What is Quore?
Quore is a software program that allows all departments of the hotel to communicate. Quore allows us to record all jobs completed and informs us of upcoming work weekly, monthly and quarterly. It records all tickets created and job repairs made so it's easy to find trends. It has a great interface that is easily navigable. You can use Quore through desk top, tablet or your cell phone through an app. Quore is great for organizational purposes so we no longer use paper to file all work done. I really enjoy not having to print out a lot of paper and filing weekly as it gives me more time to focus on the task at hand.

Tell me about your experience in the NAHLE's Certified Chief Engineer (CCE) program.
I obtained my CCE certificate through NAHLE about two months ago. It was a reimbursement program through OTO Development. I was the first one in my company to go through the CCE program to see how it would go, to see if it's a good idea for all chief engineers to take this course to gain knowledge about how to do their jobs more efficiently and effectively.

My experience with the program was very positive. A lot of the material I already knew, but I did gain a lot of knowledge about things we don't have at the hotel. So, it was refreshing to learn something new, especially with electrical. Because it was never really my favorite thing to do, having a better understanding of electrical now is very important to me. The program was great. It's not easy, but as long as you study your study guide and take notes, it's definitely a program worth doing.

What is the value you got out of this CCE training?
Pretty extensive knowledge about hotels and lodging overall. The electric portion was good to know. I learned some phrases and things to say for all aspects of the industry plumbing, electrical, façade, structure, and HVAC. Many OSHA standards are listed in the NAHLE study guide, which is very important. I have learned a lot about how buildings are constructed overall.

Does understanding how a building is constructed help you to understand how a hotel's different building systems, such as electrical and HVAC, for example, interact with each other?
Yes.

Now that you're certified, what is the next step?
The next step for me is I want to get HVAC certified to increase what I already know so I can troubleshoot and tackle the task at hand.

How long did it take to complete your NAHLE certification?
I signed up with NAHLE the day before Thanksgiving. It took about six months to complete all quizzes and print my certification. If I had not started during the holidays, it probably would have taken me 3-4 months to complete the courses.

How long do you think it will take to get your HVAC certification? And, who provides this HVAC certification? Do you have to go to night school or something like that?
To obtain my HVAC certification it will take about nine months to a year. I want to learn almost every aspect of the HVAC industry. I would have to attend classes during the day and at night to achieve this goal. The company that I want to learn from is Tampa Bay Trane as they offer extensive courses and I feel are the best HVAC educators in the business.

Where do you see yourself in 10 or 15 years?
If I'm still in the hospitality industry, I'd prefer to be either a GM or beyond that, I'd really like to be a facilities engineer overseeing multiple hotels and their engineering departments. Or a project manager in the hospitality industry.

Why do you like and want to stay in the hospitality industry?
It's a challenge - every day it's a new challenge. It's figuring out what went wrong with a boiler or a tank water heater or AC unit or plumbing or electricity, or finding out where a leak is coming from, and being able to resolve the problem. It's not only turning the situation around, but making sure the guest is 100 percent satisfied. I take pride in what I do and I love doing it. Mostly, the challenge is what I enjoy. I love a good challenge.

Amanda Strouse
Amanda Strouse is a professional journalist and content writer. Connect with her on LinkedIn: https://www.linkedin.com/in/amandastrouse

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HOSPITALITY'S BEST MECHANICAL TRIO FOR SAFE AND EFFICIENT HOT WATER DELIVERY, THE TRIFECTA WINS

by **Bruce Fathers, Vertical Market Manager/Hospitality for Watts Water Technologies, Inc.**

Many hotels today, especially larger, multi-story facilities with plumbing and mechanical systems that may date back 10 or 20 years, have gremlins in the works. They give facility managers and maintenance staff headaches, and pester guests unrelentingly.

And, oh, those late night or early morning calls to the front desk staff!

Sadly, the technology to solve the three, key challenges that sensitive domestic water systems can pose simply wasn't available a decade or more ago.

Older domestic water systems installed a decade or more ago were good; just not good enough. Gradually, weaknesses – heat exchangers that lose their potency, hidden leaks, sediment and scale build-up – develop and, combined, create a "perfect storm" for guest complaints.

Small, select service hotels or large upscale/luxury brands may have won 4-or 5-star ratings, yet managers can't always assure customers they'll have a warm shower when they want it.

Joel Ryun, Journeyman plumber, Lexington Plumbing, strikes a pose outside the hotel.

The three key facets to keeping and maintaining a healthy, vigorous and reliable domestic water system within hotels large and small – the troublesome trifecta – are:

- the source of abundant hot water,
- treatment for scale build-up, and
- the ability to provide all rooms (even those on the top floor) with sufficient pressure, and at comfortable, safe, consistent hot water temperature.

Ian Walters, project manager, Lexington Plumbing (left), and Jamie Shibel, outside sales for the manufacturer's rep firm, Mack McClain and Associates, make adjustments to the mixing valve's setpoint.

The challenge is that, all too often, the challenges that plague domestic water systems in hotels are related. Often, a systemic approach works best in resolving them definitively.

Airport hotel woes resolved

Greg Brinkerhoff, director of engineering at the Marriott Kansas City Airport hotel, and other staff members there experienced domestic water pressure and temperature problems.

According to Brinkerhoff, late arrivers and early risers can push the limits of a hotel's water heaters and plumbing systems. At his 384-room hotel, adjacent to a busy airport, there's a steady flow of guests at all hours.

"The highest demand for hot water comes between five and six AM and again between ten PM and midnight," added Brinkerhoff. It wasn't uncommon for hotel managers to get several calls a week from guests, displeased about the lack of hot water.

"Unfortunately," said Brinkerhoff, "The best we could tell them at the time was that hot water 'was on its way'."

For more than two years, the hotel battled domestic hot water issues. As it turns out, a large hydronic valve was used for the original system. The misapplied valve had a 120-second response time and couldn't actuate quickly to keep up with the changing water pressures present within the hotel.

Because of the valve's sluggish response time, every time something would go wrong with the pumps, heat exchangers or storage tanks, the entire domestic hot water system would require a time-consuming recalibration. Maintenance was required routinely – a constant source of disruption for the engineering staff.

"More or less, when maintaining the domestic water system, we had to isolate the entire piped network, shutting it down completely," continued Brinkerhoff. "Whenever the hot water mixing valve opened or modulated, the entire system would flood with cold water.

Enough Is Enough

Last winter, facility managers and engineers decided to replace the entire hot water system.

Brinkerhoff called on Ian Walters to help with the system. Walters is a project manager for Kansas City, MO-based Lexington Plumbing, a mechanical contracting firm specializing in commercial and industrial work.

"Ian and I had this discussion about the hotel's domestic water system, and that there are just so many dynamic changes with the pumps and water pressures," said Brinkerhoff. "We knew what the hotel needed was a smarter, more responsive valve – especially considering that the guests in all 384 rooms had very different schedules."

Months earlier, Walters had learned about a digital mixing valve made by Powers, a Watts brand.

"They make a smart delivery solution for mixing domestic water in a hot water recirculation loop," explained Walters. "It's called IntelliStation. Shortly after learning about them from our rep, we installed one at large hotel on the other side of town. There, we exceeded the expectations of facility managers – a strong confirmation that the technology worked well." This digital mixing solution features an intuitive, touch screen display. IntelliStation's modular construction also makes repair and maintenance quick and easy.

But Walters didn't want Brinkerhoff to just take his word for it. He wanted to show him first-hand.

"I went with Ian to another Marriott hotel that had similar hot water issues," Brinkerhoff said. "They'd installed an IntelliStation digital mixing system there, and I was able to see it in operation and speak to facility managers who more than vouched for the system."

What he learned was that the hotel, which had experienced similar hot water issues, now had a fast-responding, safe and clean domestic hot water system that delivered hot water on demand.

"After hearing maintenance managers validate the technology – testifying that it only took seconds for hot water to get to taps – I was sold," added Brinkerhoff.

Digital water mixing represents a significant leap in the technology used to control hot water delivery. The approach incorporates a programmable valve to quickly process temperature (mixed outlet +/-2oF to set point), flow, and pressure data, which is obtained from the hot and cold water inlets, mixed outlet, and sensors on the mixed-water return. High-speed, responsive electronic actuation modulates a simple valve that allows the setpoint to be electronically controlled and maintained. An integral recirculation pump can be programmed to turn on/off to a target set point and temperature variance.

Digital mixing allows engineers or facility managers to select a desired hot water temperature and to control and monitor the entire water distribution system.

Meanwhile, On The East Coast

At the Marriott Washington at Metro Center in D.C., Jeff DeSanto, president of Rockville, MD-based manufacturer's rep firm DeSanto Co., Inc., invited Ned Dwyer, principal, E. J. Dwyer Co., also a manufacturer's representative company, to combine resources to best meet the retrofit needs of the 457-room hotel. Facility managers there were struggling with domestic water problems that included the reliability of sources, and storage, for hot water at the hotel.

"Among other challenges, large storage tanks were failing," explained DeSanto. "A good solution was to use some of the existing water heaters

After making adjustments to the mixing valve, Ian Walters, project manager, Lexington Plumbing (center) and Jamey Shibel, outside sales for the manufacturer's rep firm, Mack McClain and Associates, determine the domestic water temperature setpoint.

that, with a creative 'cascade' control package, could be connected in lead-lag fashion to two new, 2 million BTU AERCO AM Series, high efficiency, condensing water heaters, and four, 200-gallon AERCO storage tanks.

"They [hotel managers] appreciated a solution that could put to use some of the water heaters they'd installed a few years earlier, and together with the new equipment – which included digital mixing valves – quickly met the hotel's kitchen and custodial needs, while also supplying hot water consistently and without interruption to all of the hotel rooms," added DeSanto.

The digital mixing technology mentioned by DeSanto, an important part of the solution at the hotel, brought Ned Dwyer's Annapolis Junction, MD firm into the picture.

"We offer a solution that went straight to one of the hotel manager's key concerns," explained Dwyer. "Consistency of delivery temperatures to the hotel rooms was an important need. The Powers IntelliStation digital, mixing system was installed. That, combined with the water heater and storage equipment, formed the solution that since has solved a problem that had been giving hotel managers headaches – and a lot of front desk calls – for years."

An 800-Room Challenge

Not far from the smaller D.C. hotel was a larger, 800-room luxury hotel, also in the metro area. There, problems focused on one challenge: an inability to satisfy optimal water pressure to all room, a difficulty that also affected water temperature at points of use – especially showers.

Here, too, digital mixing and pressure control was specified, but because of the hotel's size, two IntelliStation systems were used, in parallel, not just one. "Essentially, any number of these systems can be added to meet the flow demand of any facility," explained Dwyer. "These systems range in size from 2-1/2 inches to 6 inches, with flow rates that begin as low as 0.5 gallons/minute . . . and to any flow rate that's required."

In one application that Dwyer was involved with, three large digital mixing systems were combined to meet an 858 gpm demand – that's a lot of water, all of it controlled precisely, to exact pressure specifications, throughout an entire facility – and with temperature control at + or -2°F in temperature, 24/7/365.

The Source of Hot Water

According to Mark Croce, strategic account manager, AERCO, the water heaters specified by Jeff DeSanto and installed at the Marriott Washington at Metro Center in D.C., solved a problem that challenges many hotels nationwide.

"With a hotel, every room, every day is potentially a source of call for maintenance tied to domestic water," said Croce. "That can be quite a task for a hotel with anything less than stellar systems."

At the root of many water issues is the source of hot water: the water heaters that must maintain a steady supply of water to hundreds of rooms, each day of the year.

"We've developed systems specifically to withstand the rigors of continuous, year-round punishment," added Croce. Today, these robust systems are direct-fired, condensing, super high efficiency, and modulating to meet the exact load required. Sleek, powerful units capable of steady heat at a moment's notice; not the large, stand-by tank that wastes energy and serves as a breeding ground for microbial growth.

Because these new water heaters are built to meet high-volume domestic water needs with low volume and quick recovery (no discernible lag in time from when most of the stored hot water is used, and new hot water is provided), the systems also have a very small footprint, saving valuable space. For replacements, they easily fit through doorways and in an elevator.

Joel Ryun, journeyman plumber, Lexington Plumbing, measures amp draw at the main control.

Another advantage is the ability to install them while old equipment is operational. "There's no down time for facility managers," said Croce. "And when the systems are seamlessly brought online, they immediately meet demand, and with the highest efficiency – saving energy right out of the box.

"Initial costs are low, too, because there are no bulky, expensive storage tanks to install," continued Croce. "One of the last facets of installation is the setting of an accurate, consistent temperature – often solving one of a hotel engineer's most vexing problems with no more than a set-temp setting."

Water Treatment - Completes The Trifecta

The last remaining, key facet of the water quality equation for hotels is the frequent need for water treatment. For years, the only answer was a softening system requiring salt – often a lot of it – as well as backwashing, which uses a lot of water, and maintenance, too.

But as it has in many industries, new technology offers alternatives.

Hard water is a condition that's foolish to ignore. Untreated, it means crusty shower heads and costly scale buildup in water heaters.

Large Domestic Water Systems Risks

Legionella

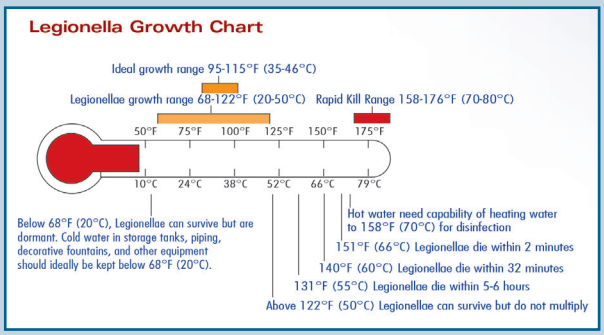
According to the Centers for Disease Control, proper maintenance of water distribution systems is key to preventing illness from water-borne bacteria such as Legionella. CDC statistics show that 8,000 to 18,000 people are hospitalized with Legionnaires' disease in the U.S. each year. Managers of commercial and institutional facilities know that selecting and controlling proper water temperature in their storage and delivery systems plays an important part in preventing germ growth.

Scalding

Uncontrolled and unmonitored water distribution systems can create high-temperature scalding hazards in bathtubs, sinks and showers. Digital mixing systems make it easy to select and maintain safe water temperatures for large domestic water systems.

Thermal Shock

The thermal shock of a rapid and uncomfortable change in shower water temperature can cause a fall or serious injury. With digital mixing, stable mixed water is delivered to ASSE-listed thermostatic point-of-use devices (shower or sink valves) to minimize this risk.



Systems require very little maintenance, no backwashing, no salt, and no electricity. Typical hardness problems, especially build-up of scale in pipes, water heaters, boilers and on fixtures are no longer a concern.

In Europe, TAC (template assisted crystallization) has been hard at work, replacing salt-based water treatment, for almost two decades.

Watts OneFlow® prevents scale by transforming dissolved hardness minerals into harmless, inactive microscopic crystal particles. These precipitated micro-crystals stay suspended in the water and are simply discharged, harmlessly.

Systems require very little maintenance, no backwashing, no salt, and no electricity. Typical hardness problems, especially build-up of scale in pipes, water heaters, boilers and on fixtures are no longer a concern.

TAC technology is not a water softener or a chemical additive. It's a scale prevention device with proven third party laboratory test data and years of successful residential and commercial installations.

"The technology works by changing the characteristics of the solution being treated, the treated water has a reduced scales forming capability," explained Jack Ma, PhD, PE, Watts, Water Quality Products.

"TAC systems are chiefly used to prevent scale in plumbing systems, appliances and equipment like boilers, water heaters, dish washers, automotive and process washing equipment, as well as valves and other components that generate or use heated water.

Maintaining water quality, pressure and temperature remain some of the key challenges for hotel managers today. Fortunately, technology has been developed in response, successfully.

Gregg Brinkerhoff, KC Airport Marriott Airport director of engineering, tests water temperature at a guest room sink fixture within the Kansas City Airport Marriott hotel.

Ian Walters, project manager, Lexington Plumbing, sets IntelliStation setpoint and return temperatures.

Joel Ryun, strikes a pose outside the hotel.

The IntelliStation digital mixing system at the Kansas City Airport Marriott hotel.

Installation: All About Digital Mixing

The Powers IntelliStation touchscreen control operates a three-way valve through a high-speed actuator to precisely maintain the selected outlet temperature (+/- 2oF). Temperature and pressure sensors are included at key points within the panel to enable an immediate response to changes mixed outlet temperature readings. A built-in pump (optional) provides recirculation of the tempered water loop. This reduces the wait time at point-of-use fixtures (maintains loop temperature) and keeps water from stagnating to minimize the occurrence of bacteria/legionella.

Hotels unlikely to use this feature. IntelliStation can be connected to a building automation system (BAS) to provide read access to a range of temperature and pressure measurements and allow adjustment of the outlet temperature setting within a pre-programmed range. BACnet® IP, BACnet® MSTP and Modbus® protocols are all supported.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What You Didn't Know About Solar...And Why Now

by Amanda Strouse

The United States passed a significant renewable energy milestone this spring. At least 10 percent of all U.S. electricity generated in March was a result of wind and solar power, an all-time high, according to a U.S. Energy Information Administration report. This information clearly reveals that more and more people and businesses are utilizing renewable energy.

Although the increasing exposure of residential solar panels are believed to in-part fuel the increasing prevalence of solar power systems used to power commercial properties, the lodging industry remains a shy newcomer to solar.

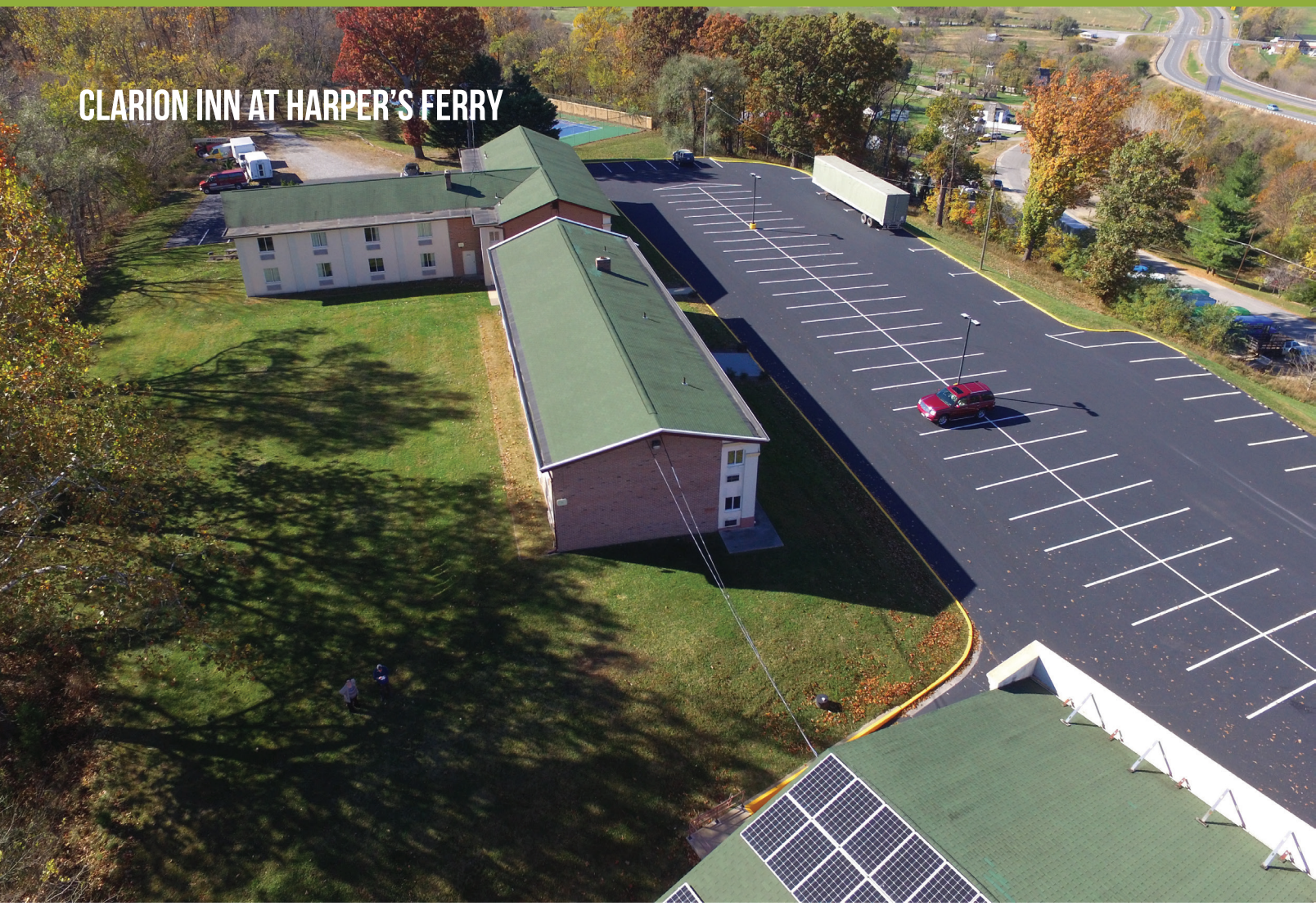
You may be wondering if and how your hotel would benefit from solar. How challenging of a system is it in regards to installation and routine maintenance? And, perhaps most importantly, is it truly worth the supposed large investment?

U.S. hotels spend an average $2,196 per room every year on energy, according to Energy Star. A hotel's electricity costs are estimated as 46 to 60 percent of the hotel's total utility costs, which we all know are quite large expenses. As utility-efficient technologies and systems have improved throughout the years, more and more lodging properties have hurried to install some of these products, such as LED lighting, low-flow plumbing fixtures, water-efficient laundry systems and motion censored HVAC systems, as a way to get federal tax credits and save on overall utility costs. But considering a large system overhaul, such as installing a solar energy system, might be getting mistakenly overlooked due to misconceptions.

GETTING A GRIP ON YOUR HOTEL'S ENERGY COSTS

REC Solar is a 20-year-old solar installation company for commercial properties. The company has completed projects for about 25 different hotels nationwide. REC Solar's Director of Marketing Communications, Garrett Colburn, explained why these hotel owners decided to utilize solar energy.

"The catalyst is having a particular time when they realize they're



spending hundreds of thousands of dollars in energy for the whole year," Colburn said. "Sometimes, if there's a utility rate change and their bills jump, that can also be a catalyst for them being like, 'Hey, we should look into this.'"

Colburn said this occurs as a result of not having an energy plan or energy strategy in place for the hotel, which leaves management in the dark about how the business is using energy.

"By having solar and having a dashboard, they know how much energy they're using," he said. "They take energy as a whole into their hands, because they have to get more informed about it, and they can make more informed decisions. Then they can look at ways beyond solar to fix inefficiencies."

Additional big-picture benefits of solar systems include predictable energy costs and an improved cash flow, Colburn said. Of course, the arguably biggest advantage to installing a solar system is the energy bill offset, which is what turns most people onto solar in the first place. Colburn explained that the percentage of a hotel's energy costs that can be offset by solar energy is mostly dependent on how many solar panels can be installed.

"In some cases, they can offset all their energy costs," he said. "The 50 percent to 75 percent range is pretty standard. If it's a really huge property and their bills are crazy, even with a large solar system, it might be 10 percent to 15 percent if they're too massive. But for most, it's very possible to do half or more, all the way up to 100 percent." For instance, it will be harder for high-rise hotels (or any hotels that are taller than they are longer) to utilize solar to offset a large portion of their energy bill, because of how many rooms there are and how much electricity is used compared to the limited roof space. But solar isn't limited to the roof. Other possible locations for solar panels include carports and ground mounts, if there is adjacent unused land available. So, the amount of solar energy that can be created is dependent on the amount of space available for the south-facing solar panels to be mounted.

Another important variable to keep in mind when deciding on whether or not to choose solar is the particular area's electricity and gas costs.

"If the energy costs are higher, the payback is quicker," Colburn said. He gave an example that for properties in California, it usually takes three to four years to pay back the investment, which is relatively fast, but that's because California has higher than average energy costs, so it might take longer in other states. "States where the energy costs are so low, it's too hard to make [solar] competitive."

WHY THE BEST TIME TO BUY IS NOW

Colburn said the average cost for a solar energy system varies too widely across the states to give an estimate, but one thing is for sure: solar system costs have dropped a lot in the past year and now is an ideal time to buy.

"[Solar panel costs] have reached an all-time low in the past few months and have dropped quite a lot, and now they're looking like they're going to go back up," he said. "One reason for it is because two [U.S.] panel manufactures both declared bankruptcy – they couldn't keep up with low imported prices."

Solar panel prices might soon increase because of a current trade case, where Suniva (a solar panel manufacturer in the U.S. that declared bankruptcy in April due to low costs from foreign competitors) has petitioned the U.S. International Trade Commission to install a tariff and price floor on imported solar cells. This tariff and price floor would greatly increase the costs of imported solar panels, which could then create other suspected consequences, such as the decline of solar installations and a severe loss of jobs in the solar industry.
Another time-sensitive reason why it's a good idea to invest now is the Investment Tax Credit (ITC), which is a federal tax credit of 30 percent of the value of the system for both residential and commercial properties. However, the ITC is scheduled to be reduced to 26 percent in 2020, 22 percent in 2021 and then to zero for residential and 10 percent for commercial in 2022 and onward.

"There is some value in doing it now rather than later, because you're going to get more of that tax credit," Colburn advised.

Different from the ITC, there is a financing option called the Power Purchase Agreement (PPA), which makes it much easier for smaller businesses, such as hotels, to utilize solar energy. (It's important to note that not all installation companies provide this, but Colburn said a lot do.)

"The PPA is basically a setup where, if we're financing that PPA, we would build the system and we would maintain the system, but we would own the system," Colburn said. "You're getting a lower bill and savings overall, and you don't have to pay cash for the system, but you don't get a tax benefit. There are plusses and minuses, but it's allowed a lot of companies that couldn't afford it upfront to install solar."

So, if you've been wavering on going solar, now really is a good time to go through with it, if it makes sense for your hotel. Deciding if solar energy is right for your hotel takes a deeper look into a particular hotel's location, the building structure, energy usage and other variables. To learn more about the various advantages and challenges of solar energy, let's look at two different hotels that have very different solar energy systems.

CLARION INN AT HARPER'S FERRY

Location: Harpers Ferry, West Virginia
Rooms: 100
Special Note: This full-service hotel was the first hotel in West Virginia to have solar panels.
Year Solar Was Installed: 2015
Solar Panel Quantity: 297
Solar Panel Location: One side of the hotel's roof.
Solar Installer: Mountain View Solar
Warrantee: 25 years
Initial Investment: $300,000
Government Incentives Used: WV USDA REAP Project provided the hotel with a $70,000 grant after the hotel paid the full cost for the installation.
Real Cost: $230,000
How It Works: The energy generated from the solar panels is converted from DC to AC and ties into the hotel's electric system, so the energy is used wherever energy is needed.
Energy Bill Offset: The solar energy produces 20 percent of this hotel's total energy.
Amount Saved Per Month: $2,000
How Long To Offset The Investment Cost: 15 years
Why The Hotel Chose Solar: Matt Knott, the owner of the hotel, said that being environmentally-friendly is important to his business and other business he owns. "We realized the hotel, as any hotel, is a big user of electricity," he said. "It was a way we could do something that did make financial sense and benefit the environment at the same time."
The Installation Process: "[The installer] did everything, we didn't have to do much. They put rails on the roof and put the solar panels on top of them. They ran conduit lines down to the existing electrical system to feed the solar into the electrical system. The process took probably a month."
Benefits Of Solar: "Environmentally friendly, cost savings and a green certification from Choice Hotels, the highest level of certification that they offer. The guests are happy about it and they seem to appreciate it."
Challenges: "Once we had the solar installed, it took a while for the electric company to get us the net meter we needed. You can't turn on the solar until you have the net meter."
Maintenance: "Overtime, if [the solar panels] start to accumulate debris, they'll make less electric. But the process is just to rinse them off, but rain does that. We haven't done anything for them at this point."

What Do Guests Think About It: "We have a big display in the lobby about the solar panels, so people learn about it that way because they can't see them on the roof. We have a TV monitor and that shows the amount of electrical production in real-time. People think it's cool."

Other Green Systems: Low-flow faucets, water-saving toilets and Tesla car chargers in the parking lot.
Future Solar Plans: Knott liked the hotel's solar system so much that the following year he had 85 solar panels installed for his other business, River Riders, which is located next to the hotel.
Opinion On Which Hotels Should Use Solar: "I think it's best for those that have part of their mission statement to be environmentally friendly, if they have proper incentives in place they can utilize to offset the cost and are in places where electricity is expensive."

LAKEHOUSE HOTEL AND RESORT

Location: San Marcos, California
Rooms: 144
Special Note: The property management company Eat.Drink.Sleep. purchased this hotel in 2012, which already had existing solar panel infrastructure, but it did not function correctly. So, this more recent solar installation can be viewed as an upgrade, but it included the replacement of the solar panels (performed by a different installation company than the company that did the original installation).
Year Solar Was Installed: Mid-2013
Solar Panel Quantity: 34
Solar Panel Location: The roofs of four different buildings.
Solar Installer: Reeves Mechanical
Warrantee: 20 years from the solar panel manufacturer and a 10-year service warrantee from the installer.
Initial Investment: $160,000
Government Incentives Used: The California Energy Commission provided the hotel with a $130,000 rebate after the system was paid in full by the hotel.
Real Cost: $30,000
How It Works: The energy generated from the solar heats up a glycol mixture that flows next to the hot water lines, creating hot water.
Energy Bill Offset: The solar energy produces 90 percent of this hotel's hot water.
Amount Saved Per Month: Unsure, because the system wasn't operating before so they can't compare current water or gas costs with previous costs.
How Long To Offset The Investment Cost: Around two years.
Why The Hotel Chose Solar: "We were lucky enough to have the plumbing structure already there, so we used it," said Gary Smith, who has been the Maintenance Supervisor for Eat.Drink.Sleep. for almost 18 years. The hotel only has two 100-gallon hot water heaters and a hot water storage tank, which wouldn't provide enough hot water for the 144 rooms and hotel laundry room.
The Installation Process: Reeves Mechanical removed the original panels, recycled copper piping and panels and installed new panels. It took less than four months during the same time the new management company was rehabilitating the rest of the hotel.
Benefits Of Solar: "We don't have to deal with boilers breaking down all the time. We don't have to worry about them breaking down or parts breaking. Even on an overcast day, the solar panels still get heat."
Challenges: "The timing. The hardest part is connecting the system to the plumbing and repiping it through the building. We were lucky enough to have the plumbing structure already there so we used it."
Maintenance: "I've never had to call [Reeves Mechanical] for anything other than the Internet feed not working for them to monitor the system. You just have to wash the units if it's a dusty area, so someone goes up and rinses them off once a month. Every couple of years [Reeves Mechanical] will change the insulation of the copper pipes for the system because they get hot, but that's it. It's a special insulation foam that wears out after two to three years because it's on the roof, in the direct sunlight 365 days a year."
What Do Guests Think About It: "Unless the guests see the solar panels and notice them, they don't know they're there. We don't advertise that we use solar. Some guests might see it. It's more just for us to save money and heat the water."
Other Green Systems: LED bulbs and low-flow toilets.
Future Solar Plans: None, but the property management company originally wanted to set up the heated swimming pool with a solar system, too, but there weren't any rebates available at the time for heated swimming pools so they didn't go through with it.
Opinion On Which Hotels Should Use Solar: "It's just having the money in your pocket first and then taking care of the rebates. You will get it back but you have to put the money up front first. So that is going to be the hard part for a lot of businesses."

AS FOR ADVICE TO OTHER HOTELS INTERESTED IN GOING SOLAR AND RECOMMENDATIONS ON HOW TO START THE PROCESS:

Colburn of REC Solar: "Get a couple companies to look at the property so you can get a couple perspectives on where to put the solar panels and pricing. Then you have a starting point."
Knott: "To investigate what type of incentives are out there. Do a lot of research before you get started. Don't just go to someone and say you want solar. Make sure you have a plan in place."
Smith: "Find out the cost of the installation. If you're a running hotel, if you're busy and have to close down to do this, you may be putting rooms out of service for days or weeks. It just depends on what time of year you plan on doing it. "

AMANDA STROUSE
Amanda Strouse is a professional journalist and content writer. Connect with her on LinkedIn: https://www.linkedin.com/in/amandastrouse

TO YOUR ASSET MANAGER... CAN YOU HANDLE THE TRUTH?

by
Richard Manzolina

Recently, I had the pleasure of attending an annual operations conference with industry peers from across the country. We chatted, commiserated, and discussed everything from legionella testing to bathtub refinishing. What can I say...get a bunch of facilities people together and all we ever want to do is compare war stories and best practices. We don't get out much.

The agenda for day two of the conference included a nice change of pace...a panel discussion with asset managers representing hotel owners from across our portfolio. For sure, the beginning of the talk centered on exactly what you'd expect. Global occupancy trends, saturation of hotel supply in secondary markets, blah blah blah. (Insert yawn here). It was a conversation which proved intriguing to only a handful of financial analysts at the center table. For the rest of us enginerds...we had to resist succumbing to our post-lunch food comas.

But alas, the moderator threw the audience a curveball. He invited the panelists to ask questions of us. If nothing else, the unscripted nature of this portion of the discussion would certainly be entertaining, if not enlightening. So I sat up and listened intently, watching my eager peers share their thoughts with the team of owner's reps under the spotlight.

By the third question, I started answering potential questions in my head. I'm not sure why. I had no idea what the panelists might ask next, or why I would be able to offer an answer. But sure enough, one of panelists asked a great question... "What can we as asset managers do differently, or glean from all of you, to better prepare our assets for long term success?"

Wow...he threw the perfect pitch. Now's my chance to take a swing. So I raised my hand and offered the following answer.

"Sir, my name is Richard Manzolina and I am a Director of Engineering at a major resort in the metro DC area. After a recent capital budget meeting, my GM shared with me that our asset manager felt I should focus more on the *business* of the resort, and less on the *building*. "

I paused for a moment to let the subtlety of my statement sink in. Then I went on to add,

"I understood his point. If occupancy is in a downturn, it's tough to sell funding for improvements in system infrastructure. And my lobbying for funds to replace the hot water heaters was, not surprisingly, met with a frugal interrogation."

The audience chuckled.

"In this vein though, I would answer your question by stealing a line from the movie A Few Good Men. You see sir, you want me on that wall."

I again paused while the room clamored with a hearty laugh.
The panelist retorted "I thought you were going to say I can't handle the truth!"

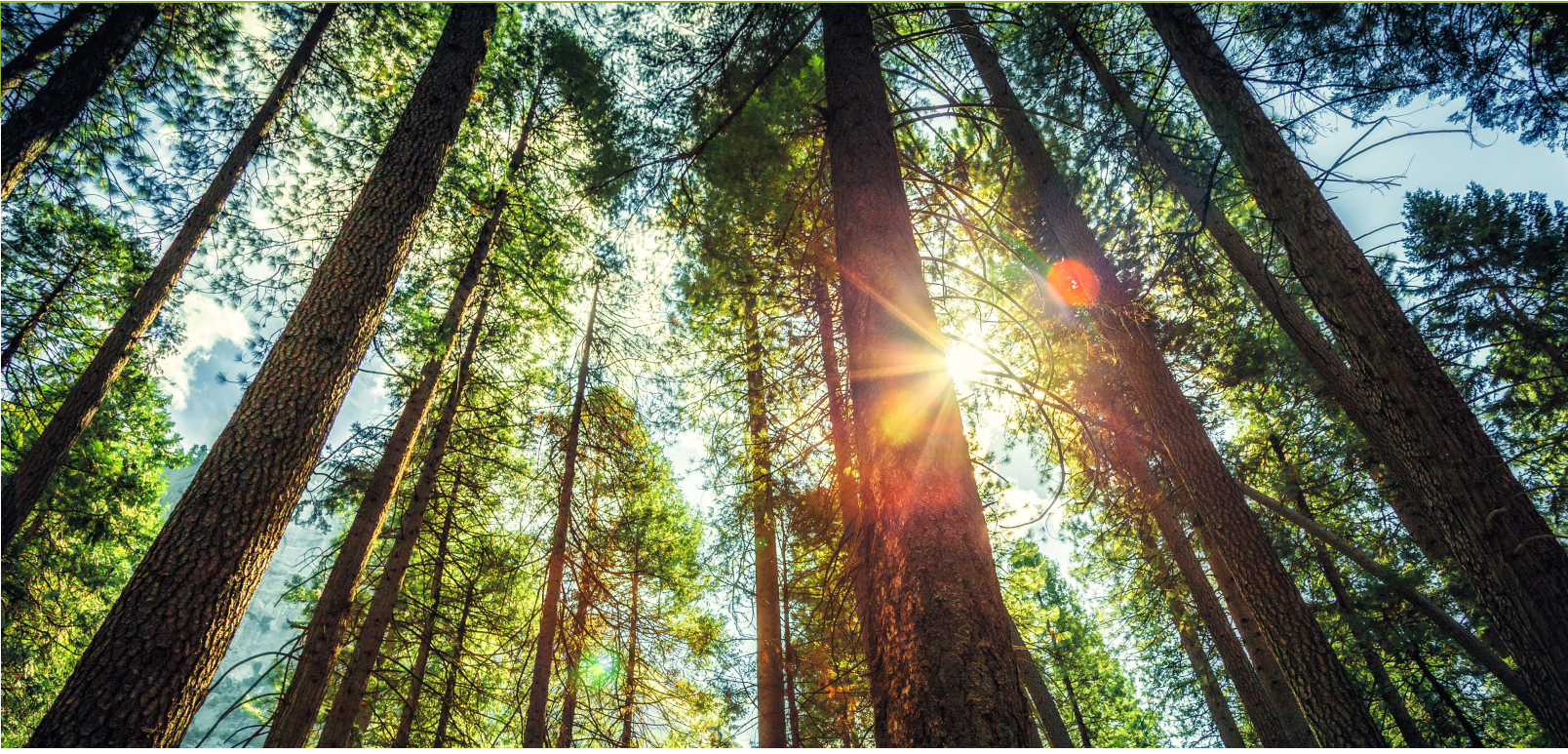
"We've all inherited properties and equipment that was clearly neglected, and questioned the blatant short sighted nature of the penny-wise and pound-foolish decisions made before us."

Now we were all laughing. I went on.

"You see, we as engineers, facilities directors and alike...we're the building's last defense. If we don't advocate for the physical asset, who will?"

Heads nodded in agreement. I was on a roll. I kept going.

"We've all inherited properties and equipment that was clearly neglected, and questioned the blatant short sighted nature of the *penny-wise and pound-foolish* decisions made before us. So I would



share with you to please, liste n to us. You've hired us to be stewards of your asset; to protect and preserve its value in the short *and* long term. So please, *help us help you* by letting us partner with you to invest wisely and strategically in your asset so that we can not only remain competitive in the short term, but effective in the long term."

I added this last quip by transitioning to yet another Tom Cruise movie. No one seemed to mind. A few even caught the reference.

The panelist responded in agreement and a brief but healthy discussion ensued. For sure, I had struck a nerve with my peers. I won't go so far as to say the room erupted in a ground swell of support and accolades, but clearly the audience appreciated my remarks, as did the panelists.

All this having been said, as I reflect back on these conversations…both with the panelists and with my former asset manager, I am compelled to remind myself that while I would love for owners and their representatives to think like an *operator*, my success is much more closely related to my own ability to think like an *owner.* Or better yet, strike a deliberate balance between the two. Early in my career, I was too naive to understand this nuance of building management. I was too fresh from the classroom…full of ideals and brimming with my newfound knowledge of proper PM, life cycle costing models, and next generation technologies. Making investments in building infrastructure made all the sense in the world too me, and considered anyone who resisted this notion to be behind the times. Now…twenty something years later, it's finally sunk in. Even if my ideas were completely legitimate…being *right* was not enough. Nowhere near enough. Instead, if I wanted to get what I thought was right for my building, I had to appeal to my owner's holistic sense of business. Put more succinctly, all I could see were the trees. I needed to see the forest.

As I look back on this realization, I've also come to the collusion that *thinking like an owner* is more important than ever given the industry's shift in ownership trends. Rapidly fading away are the days of Hilton's being owned by someone named Hilton, and Marriott's being owned my someone named Marriott. So selling investment ideas by trying to appeal to my owner's personal pride of ownership, however legitimate or misguided it may be as a motivating force, is simply not a factor in most properties today. It's not personal; it's business. REIT's and investment groups rule the day, and if the project you're trying to pitch is not in keeping with the owner's investment goals…all the logic in the world and clever movie quotes will get you nothing more than a chuckle and invitation to try again next year.

So what's a facility manger to do? How do you get what you know is best for the property in this new and challenging ownership environment? If I knew for sure, I'd be teaching classes on how to make friends and influence people while writing this article from the deck of my yacht. Still, I'd like to think I have a few ideas to help building managers achieve this deliberate balance between the mindsets of owners and operators.

"I've also come to the collusion that thinking like an owner is more important than ever given the industry's shift in ownership trends."

TIP #1 Know your stuff.

If you are going to ask for $200K to replace your hot water heaters, don't expect to get approval just by saying "it's original equipment and has outlived its useful life." Any good asset manager, or GM for that matter, will expect a lot more meat on that bone. Be prepared to speak to the hard and soft costs associated with the maintenance and repair of the old equipment. Calculate historical repair costs, and the opportunity costs associated with down time… including added labor or loss of business. Where appropriate, also factor in concerns with reduced customer satisfaction. In this day and age of social media and its rapid and far reaching impact…avoiding negative customer sentiment can be a powerful motivator.

TIP #2 Give options. Lots of options.

A few years back one of my original chillers finally called it quits. So when it came time to overhaul or replace it, I didn't just get three bids for the modern equivalent of my old machine and ask for approval. Instead, I presented my owner with many options. We weighed the pros and cons of repairing the old machine, buying a new one, or even doing nothing. And while that last option was never really a consideration, taking the time to calculate the hard and soft cost implications of doing nothing proved to be a good exercise in creating a baseline for comparing other options. Plus, it showed my owner I'd taken the time to research all possible solutions. They were going to ask the question anyway. Answering it before they had a chance to ask brought me one step closer to getting the option I wanted.

TIP #3 ROI, ROI, ROI.

No matter how narrow or broad sighted your ownership is, contemplating any project's return on investment is always a factor, and usually a large one. It's in their DNA, and rightly so, so if you take nothing else away from this article, understand and embrace this reality so you can use it to your building's advantage. Take for example the previous chiller scenario. Once I established the need to replace the chiller, I priced options for both a traditional centrifugal chiller and a high efficiency magnetic bearing machine. The latter was of course more expensive, but when I calculated the ROI on the project, I factored in the energy savings vs. the *incremental increase in cost* for the high efficiency chiller…not the cost of the entire project. The need to replace the chiller had already been established, and what was in play was whether or not to spring for the higher efficiency model. This scenario generated a simple payback of well under three years….an option bordering on no-brainer territory for a piece of equipment that's meant to last ten times that long. This made the sale easy, and yes, I got the chiller I wanted.

Given all these tips and realizations, I'm reminded of a common saying that I often quote: if something is easy, everybody would do it. In this vein, managing our building and our relationship with our owners or asset managers is far from easy, so it's up to us and our unique set of skills to thrive at it, and get our buildings what they so desperately need. Success in this area is for sure an *art* more than a *science*, so it's up to us as facilities leaders to make sure our asset managers *can* handle the truth. Maybe even welcome it.

Hotels: An Overview of Energy Use and Energy Efficiency Opportunities

Energy Use in Hotels

On average, America's 47,000 hotels spend $2,196 per available room each year on energy. This represents about 6 percent of all operating costs. Through a strategic approach to energy efficiency, a 10 percent reduction in energy consumption would have the same financial effect as increasing the average daily room rate (ADR) by $0.62 in limited-service hotels and by $1.35 in full-service hotels.

Energy efficiency provides hotel owners and operators cost savings that benefit the bottom line. Efficiency also improves the service of capital equipment, enhances guest comfort, and demonstrates a commitment to climate stewardship.

Energy Efficiency Opportunities

Low-Cost Measures

- Measure and track energy performance.
- Develop an energy team and assign responsibilities to pursue energy efficiency in all departments.
- Review and emphasize the financial and environmental results of a preventive maintenance program for major systems and components.
- Ensure that team members from every department are trained in the importance of energy management and basic energy-saving practices.
- Set goals and a methodology to track and reward improvements.

Cost-Effective Investments

- Recommission primary systems to ensure continuous efficiencies.
- Install energy-efficient lighting systems, ENERGY STAR qualified compact fluorescent lights (CFLs), and light-emitting diode (LED) exit signs.
- Install occupancy sensors on lighting and HVAC systems in back-of-house spaces, meeting rooms, and other low-traffic areas.

Hotels Making a Difference:

After receiving the ENERGY STAR Partner of the Year Award in 2005 and 2006, Marriott International's company-wide continuous improvement in energy management helped the organization win the prestigious ENERGY STAR Sustained Excellence designation in 2007. In 2006 alone, Marriott was able to save almost $6 million and reduce its greenhouse gas emissions by 70,000 tons. The program included the installation of 450,000 compact fluorescent light bulbs (CFLs), conversion of all outdoor signage to LED and fiber optic lighting, and implementation of energy- and water-efficient laundry systems. Through its reduction in energy consumption, Marriott's efforts represent a 2 percent greenhouse gas reduction per room — well on the way to the corporate goal of 6 percent savings per available room by 2010.

In 2004, the historic Willard InterContinental in Washington, DC, installed CFLs in common areas and guest rooms. According to hotel management, guest complaints of lighting quality have decreased. As a result of this upgrade, which paid for the initial investment in less than six months, the hotel is saving one million kilowatt hours and more than $100,000 annually. By rating the property using ENERGY STAR's Portfolio Manager tool, management has been able to track whole building energy savings of 11 percent over this period.

How to Talk to Hoteliers About Energy Efficiency

Guest satisfaction is the number one priority in the hospitality sector, and hotel operators are often hesitant to engage in activities that could be perceived as reducing comfort, convenience, or the overall brand experience. However, energy represents the single fastest-growing operating cost in the lodging industry. There is a well-established case for energy efficiency as a sound business practice, and expectations for hoteliers to demonstrate their climate stewardship are growing.

Improved operating income translates to higher asset value for owners. Cost reductions through energy efficiency are quantifiable and can be described using key financial metrics, such as revenue per available room (RevPAR) or the equivalent increase to the ADR.

Hotels: An Overview of Energy Use and Energy Efficiency Opportunities

How to Talk to Hoteliers About Energy Efficiency (cont.)

Making these linkages is an essential part of developing a sustained approach to continuous improvements in energy and financial performance in lodging properties.

Through ENERGY STAR tools, the environmental outcomes of implementing successful efficiency programs can be tracked and demonstrated, becoming a hotelier's leading "green credential."

ENERGY STAR Offers

- Guides and manuals
- Facility benchmarking
- Training
- Institutional purchasing
- Technical support
- Emissions reporting
- Third-party recognition
- Communications strategies

ENERGY STAR Resources

Guidelines for Energy Management: Based on the successful practices of ENERGY STAR partners, these guidelines assist hoteliers in improving their energy and financial performance while distinguishing themselves as environmental leaders.
www.energystar.gov/guidelines

Portfolio Manager — Measure and Track Energy Performance: The National Energy Performance Rating Systems allows property operators to compare their energy performance to their peers, using an easy-to-understand 1 to 100 scale based on unbiased research conducted by the Environmental Protection Agency. Training on how to use the tool is available through Web seminars and downloadable pre-recorded sessions.
www.energystar.gov/benchmark

Perform Cost-Effective Building Upgrades: Plan systematic building upgrades using the 5-stage approach in EPA's Building Upgrade Manual. This online handbook offers guidance for each stage — from commissioning to plant upgrades.
www.energystar.gov/bldgmanual

Other Resources for Hotels:

The American Hotel and Lodging Association's (AH&LA) Good Earthkeeping Campaign:
http://www.ahla.com/good_earth_overview.asp

Green Lodging News:
http://www.greenlodgingnews.com

Hotel & Motel Management:
http://www.hotelmotel.com/hotelmotel

Recognition for Achievements

Earn the ENERGY STAR: Buildings that rate in the top 25 percent of energy-efficient buildings in the nation may qualify for the ENERGY STAR label.
www.energystar.gov/eslabel

Become an ENERGY STAR Leader: ENERGY STAR Partners who demonstrate continuous improvement portfolio-wide, not just in individual buildings, qualify for recognition as ENERGY STAR Leaders. EPA will recognize districts that have achieved reductions of 10 percent, 20 percent, 30 percent, or more.
www.energystar.gov/leaders

For more information on ENERGY STAR tools, resources, and recognition for hotels: **www.energystar.gov/hospitality**

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Asset Management Begins at the Property

The National Association of Hotel & Lodging Engineers (NAHLE) partners with the American Hotel & Lodging Educational Institute (AHLEI) to provide two self-paced online professional development and training programs for hotel engineers and maintenance professionals.

- **Certified Director of Engineering**
  Full Service Properties
- **Certified Chief Engineer**
  Select Service Properties

Our programs are exclusively hotel centric. By focusing on the principles of management, building engineering systems, the building and its grounds, we've created a curriculum that is easily transferable across different hotel brands and property types. From the heart-of-the-house to the property's perimeter access, our certification programs are deigned to create a uniform environment of informed decision making. Our management reports track the progress of multiple candidates and our most popular program, the Certified Chief Engineer, has online software allowing select service employees to track their hours of study while on the job.

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