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Lodging Engineer

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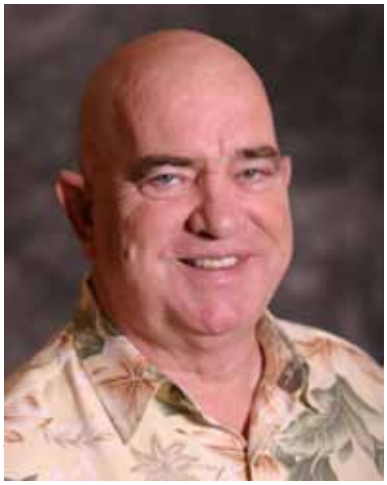

An Interview with

Dennis Ward , CEOE

Chief Engineer of Loews' Royal Pacific Resort
Orlando, Florida

By Robert Elliott

Lodging Engineer: DENNIS, WOULD YOU TELL US A LITTLE ABOUT YOUR EXPERIENCE IN FACILITY MAINTENANCE AND HOW YOU GOT STARTED?

I started my career following my father's footsteps. I had quit college because I was making fairly good money as an operating engineer in Local 94, NYC. With plenty of overtime, I was better off than most of my college buddies that were looking for work. I worked in several large office buildings in New York working my way through the ranks of engineer's helper, mechanic, operating engineer, chief engineer. I attended Master's School of Refrigeration and qualified as a Refrigeration Machine Operator of unlimited capacity. The largest building I worked in was 55 Water Street (3.5 million square feet). It has

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The Hidden Risks of Green Buildings: Why Building Problems Are Likely

By

J. David Odom, (ASHRAE) of Liberty Building Forensics Group;
Norm Nelson, PE Senior Director of Engineering, Hilton Hotels;
Richard Scott, AIA, NCARB, LEED®, AP and George H. DuBose, CGC, Liberty Building Forensics Group, LLC

The great irony of building green is that the very concepts intended to enhance a building's performance over its entire lifetime are many of the same things that make a building highly susceptible to moisture and mold problems during its first few years of operation. While green buildings have many positive benefits, there is also strong evidence to suggest a direct correlation between new products, innovative design, and building failures. Simply put, departing from the "tried and true" often means increasing the risk of building failure.

Two strong characteristics of most green buildings are: 1) the use of innovative, locally-produced products and 2) the implementation of new design, construction, and operation approaches that are intended to reduce energy usage and be environmentally sound.

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featured in this issue

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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 • Tel. (703) 863-7515 • website: www.nahle.org

Editor-in-Chief
Robert Elliott **(robertelliott@nahle.org)**

Art Director
Beth Levine (**Beth.Levine@gmail.com**)

Contributing Writers
Manny Higazzi • August Craanen • Tim Arwood • John Sladek • Norm Nelson • Robert Elliot• David Odom
(Address all correspondence to articles@nahle.org)

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

Advertisements
See www.nahle.org or call (703) 863-7515

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INTERVIEW WITH DENNIS WARD

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its own zip code and three 4,000 ton Carrier chillers. It was a new building and a tremendous learning experience for me. During my tenure as an operating engineer I learned about chillers, steam stations, controls (pneumatic and later digital), plumbing, electricity, preventive maintenance and other fundamentals that served me throughout my career.

Eventually, I tired of the union mentality of everyone being equal regardless of the effort put forth so I wanted to try my hand at management. I had an opportunity to open the Meadowlands Hilton Hotel in Secuacus, NJ. Having never been in hotel operations before, it was an eye opening experience for me. I had never before had to prepare a budget, take care of laundry and kitchen operations, perform maintenance in guestrooms and restaurants as well as public areas, deal with union or non-union issues, attend owners meetings and develop and manage capital budgets. Once again, I was fortunate to have a new building and was able to pick the contractors brains as they installed equipment that I had never seen before (washers, dryers, ironers, steam kettles, convection ovens, grilles, broilers, etc.). To say I was overwhelmed would be an understatement. However, I waded through the tasks and performed well enough to be considered for my next challenge the Parsippany Hilton, a 375 room hotel. This hotel was also a new property built by Prudential Insurance Company and probably the best built building I ever operated. We had a small problem with all the sprinkler lines freezing and cracking every fitting in the ballroom prefunction area prior to the gubernatorial ball just after opening but other than that, it was well conceived and exceptionally well documented. They had an architect's rep and draftsman on the payroll to update field changes and provide an accurate set of as-built drawings upon building turnover.

From here, I went back into New York for a temporary assignment as Chief Engineer of the Grand Hyatt New York. I was intended to open the new Hyatt Regency New Brunswick. As it turned out, my skill sets were better suited to the harsh environment of the Grand Hyatt and I stayed there for 3 years prior to becoming the Director of Engineering at the 960 room Hyatt Orlando in Florida. This hotel was probably the greatest challenge of my career. It was a 2 story, motel-like structure situated on 76 acres with 4 complexes of 10 buildings each. It had 960 window shakers, 54 rooftop DX units, a water and wastewater plant, laundry and 4 swimming pools and spas along with 65,000 sq. ft of meeting space and a 20,000 sq. ft exhibit hall. Built in 1973, it had never been renovated until I came on board in 1984. All through its life, it struggled as an "orphan step child" Hyatt. During my tenure at Hyatt Orlando, I was offered and assumed the responsibilities of a "Senior" engineer, assisting with openings and mentoring others as well as helping oversee the operations of 6-7 hotels in the Florida region. Lacking the glamorous atrium and glass elevators, it always struggled financially until the doors were closed in 2003. At that time, my options with Hyatt were to go back to a big city (New York, LA, Chicago) none of which appealed to me so I stayed in Orlando taking a position with Loews Royal Pacific Resort as Chief Engineer.

When I walked in the door I was already a chief engineer in an office building and figured I knew the job…WRONG !!

The Loews complex is a partnership with Universal Orlando. It consists of 3 hotels (Royal Pacific Resort, Portofino Bay and the Hard Rock Orlando) and a central facility for technical and trade support. Each hotel has an independent theme and identity and the complex comprises 2400 rooms in total. The Royal Pacific is the largest at 1000 rooms and caters more to convention travelers, although all 3 enjoy a fair amount of business due to the relationship with Universal Orlando.

Due to a strange twist of fate, I returned to Hyatt after 3 years with Loews. I was asked to assume the responsibilities of the Director and Senior Engineer at the Hyatt Regency Grand Cypress, one of Hyatt's flagship hotels. In each stop along the way, I was fortunate to have General Managers that allowed me to perform to the best of my ability, reach beyond the boundaries of engineering and learn more about the operation of the hotel outside the boiler room. This interaction has honed my ability to zero in on problems and arrive at solutions that benefit the hotel, not just an individual or department.

LE: WHAT MADE YOU CHOOSE THE HOSPITALITY INDUSTRY FOR A CAREER?

I didn't really choose the hotel industry. It was more like it chose me. After enrolling and not performing well in a pre-Med program in college, I became an operating engineer. The commute into New York City was tedious to say the least. I had applied for a watch engineer's position at the Meadowlands Hilton which had not yet opened. The person they had slotted to come over from the New York Hilton bowed out and they were looking for a Chief Engineer when I walked in the door. I was already a chief engineer in an office building and figured I knew the job……WRONG !! As I mentioned before, I had never had to PM a guestroom or restaurant. Mechanical maintenance was my forte. However, I now had a laundry, kitchens, water softeners and all sorts of auxiliary equipment to maintain as well as a parking garage, landscaping, swimming pools, restaurants, dimmer and sound systems. It was a tremendous challenge and a whole new learning curve. It was a very dynamic industry. No two days were ever the same.

You might have the greatest plan in the world for the day, but a backed up drain in the kitchen, a faulty fire alarm or a boiler that won't start completely changes that plan. I can say that I have been working in facility maintenance for 41 years and have never been bored. The people you meet and the challenges you face in the hospitality industry cannot be realized anywhere else. I'm reminded of the time a conference manager told me that they were bringing in a live alligator for a group of Polaris snow mobile dealers (small, family owned businesses) from the Rocky Mountain states since they had never seen a gator before. Naturally, the hairs on the back of my neck went up thinking this has got to be one of the craziest ideas I've ever heard. Of course

the GM couldn't understand my concern. The meeting planner wanted the gator to roam about the stage while the attendees drifted into the ballroom. Fortunately, the gator shook loose the Saran Wrap holding its mouth shut during rehearsals and the handler had a problem corralling him and getting him back into the bag. Everyone then understood the potential danger of having a loose 300 pound gator amongst a group that contains parents, grand parents and children. We settled on a much smaller gator, duct tape instead of Saran Wrap and a leash to control him should he become a little rambunctious.

LE: BESIDES ALLIGATORS, WHAT ARE SOME OF THE CHALLENGES YOU SEE FACING MODERN FACILITY MANAGERS?

Presently, the biggest challenge facing all of us is financial. With the current economic conditions, even though we are recovering, we are still suffering from reduced revenues and capital reserves. This naturally puts a strain on our primary function of maintaining and improving the property. We have been challenged to do "more with less" for at least 10 years 'but the "rightsizing" of the current downturn has stretched budgets to the limit. Unfortunately, we are all in this situation and no one can just automatically flip a switch and bring room rates and revenues back to the levels they were at 2-3 years ago. As a result, prioritizing becomes an important part of the job. Which projects and expenses will provide the biggest "WOW" factor for the buck or the greatest return on investment? Which capital projects can be postponed for another year? This is also causing operators to take a deeper look at the big picture. What projects are out there that we are not currently looking at that will need to be done? In what time frame? Unfortunately, all too often, the projects related to infrastructure are the most expensive and easiest to put off. Things like chiller and boiler replacements, roof replacements, plumbing and electrical upgrades and such are big ticket items that have no impact on the guest expectations (other than the negative impact when they fail). So the engineer is challenged with extending the life of the asset sometimes long beyond tits expected life. In this situation, preventive maintenance can become a self-imposed nightmare. The equipment is still running so why do YOU want to replace it?

Energy Conservation which used to be a point of incentive has become an operational necessity. The cost of energy has had such a negative impact on the bottom line that every engineer is expected to use less energy and find a way to reduce utility costs year over year. On the bright side (no pun intended) there are some significant improvements in lighting technologies that are helping tremendously to offset utility increases. Hotel operators that are able to include major equipment retrofits are benefiting from the increases in heat transfer technologies over the years. Laundries are benefiting from ozone systems and water reclamation systems. The point being made is that in order to reduce your present energy costs, it is becoming more and more apparent that all the operational tweaks have been implemented and we now need to replace older, inefficient equipment and fixtures to realize the larger gains.

There are a number of energy management systems in operation that have been reduced to mere remote on/off switches. These systems need to be evaluated for upgrades in software and/or firmware in order to be more effective. We should also look at the use of wireless technologies to control energy use in unoccupied guestrooms and spaces. Although much harder to attain in existing buildings, LEED certification should be one of the basic considerations of any energy conservation retrofit program. Accounting departments need to get more in tune with rebate programs and Federal credits for energy initiatives.

Green Hotels have become more and more prevalent to the point that there are more "green" hotels than not. We, as an industry need to adopt a standard as to what constitutes a green hotel. There are so many to choose from right now and none of them actually certifies that the hotel is as environmentally friendly as it can be. There are a number of statewide initiatives that have varying degrees of compliance and certification. LEED, of course, is internationally known, but very difficult to comply with an older structure without some major re-capitalization. Energy Star's Portfolio Manager Program is a good resource, but also steeply based in LEED. There is no question that being green is essential to the future success of any hotel or chain, especially in light of the present gulf oil spill. However, it is also important that we don't chase a ghost trying to become certified only to find that the particular certification is not relevant.

LE: HOW IMPORTANT IS TRAINING IN TODAY'S ENVIRONMENT?

I firmly believe you can never know too much and that you should strive to learn something new every day. One of the problems I see in our industry is a lack of formalized training for career advancement. We put a ton of effort into recruiting and hiring the best candidates available and then let them wallow in a position for years. Evaluation times and annual reviews are an ideal opportunity to identify the employees that strive for better things in the future. They should be

It is becoming more and more apparent that all the operational tweaks have been implemented and we now need to replace older, inefficient equipment and fixtures to realize the larger gains.

encouraged and nurtured along their careers. Other employees should be fed a steady diet of training regarding SOPs, basic skills, advanced skills, customer expectations and such so that it becomes a part of their routine. No one should be allowed to rest on their laurels and think they know all there is about their job. There are constantly new products being released, new technologies being implemented, new equipment being installed and new ideas being generated that need to be understood by everyone in the organization to guarantee continued success.

Back in 1992, I helped form an apprenticeship program for the hospitality engineering function. It was reviewed and certified as a bonafide program for the state of Florida for the occupation of "Building Maintenance Repairer". It provided classroom training in a multiple of disciplines and was supported by on the job training and periodic reviews of the apprentice's progress. After 2 years, upon completion of the coursework and related job training, a certificate was granted the apprentice and journeyman status was granted. This certified that the bearer was properly trained in OSHA standards, basic skills regarding electrical and plumbing repairs, painting and drywall, tile and grout, minor carpentry and pool maintenance. The apprentices were also taught business math, air conditioning and refrigeration principles, mechanical maintenance and record keeping. I felt this program filled a very basic need in the industry and we provided training for over 300 employees from various hotel chains during its operation. Unfortunately, the program died a slow death for lack of participation and enrollment. I still feel there is a need for such a program as this, particularly in the larger cities where you may have a compliment of over 100,000 hotel rooms and millions of square feet of meeting space.

LE: WHAT SORT OF TECHNOLOGIES ARE YOU TESTING IN YOUR HOTEL?

There are marvelous things happening in the area of paints and coatings. Any improvement that reduces the need for maintenance improves the efficiency of your paint staff. We are preparing to experiment with a product developed by StoCoat that uses nanotechnologies. It is actually an exterior coating that has the ability to clean itself. This reduces a dirty, dingy appearance to the façade of your building, reduces the potential for mold and mildew and increases the interval between the need for re-coating. Since we are planning on replacing the sealants and coatings on our building in two years, this experiment will allow us to have a good year or so of experience with the product before making a major investment.

As the capabilities of LEDs continue to improve with regard to color rendering and dimmability, we are continuing to look for varied applications within the structure. I would think that everyone is aware of the significant savings in areas with 24 hour loads, exit signs and such. However, as the lights become more like incandescent and also become dimmable, we are now able to use them in more decorative applications. Once again, the improved light hour efficiency can significantly reduce the need for light inspection rounds and bulb changes.

Brian Kagan repairs a water heater burner.

Wireless technologies are also improving which will give us economical control over lights and appliances in our guestrooms. We are looking into the possibility of controlling lights and other electrical devices with our smart thermostats.

Sustainable products are also very interesting. We are looking into using construction materials that are more eco-friendly and durable. This includes composite lumber, cement board, carpet and other floor coverings.

LE: WHAT SORT OF TRENDS ARE YOU PREPARING FOR IN THE FUTURE?

One of the problems I see in our industry is a lack of formalized training for career advancement.

We are all seeing hotel rooms become more and more like our homes. More comfortable mattresses, duvets and chairs, more appealing case goods, flat screen TVs, high definition programming, iHomes and such have already been incorporated. I would expect larger rooms, larger bathrooms, in particular with more amenities such as whirlpools, bidets, designer finishes to find their way into regular guestrooms and not just the high end suites. I think guestrooms, in general, are becoming more like the master suites in our homes where you can rest and/or entertain in them very comfortably.

I also see more "destination" resorts developing. These are not just your Sandals or Club Med facilities, but city and resort destinations that are affiliated with a spa, golf club or renowned attractions such as museums or amusement parks. This gives the guests something to come back to besides just a hotel. It also allows for a broader, ever-changing experience as the affiliate sites improve or renovate their facilities. For instance, this year we are not undergoing any renovations but are expecting the opening of the Wizarding World of Harry Potter at Universal Orlando to have a significant impact on our room demand.

We, and the services we provide, also need to become even more transparent. It is best if we are not seen at all. This can more easily be accomplished with smart systems that tell us when the room is available for maintenance or cleaning. Even though the room is vacant, the knocking on the door may disturb the guest next door.

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Advertorial

ADA Compliancy Required!

New regulations affect your signage in commercial facilities as well as state and local government buildings

Coinciding with the 20th anniversary of the Americans with Disabilities Act, new ADA regulations will soon take effect. And, while a probationary period has been allotted for buildings to get in line with the new regulations, facility owners and managers will need to begin the process of seeking compliancy soon in order to avoid fines.

And, while fines are a good motivator in getting you in line with new ADA regulations, compliancy is also important in order to better serve your customers. Fifteen million Americans are blind or visually impaired and 21% of those identified are ages 65 and older. With an aging population, this number is likely to increase. ADA signage is greatly needed in order to assist impaired persons with wayfinding and identification.

What do you need to know about signage updates?
There is a lot of paper work to thumb through to get a handle on the new regulations in order to become ADA compliant. But, we've done the leg work for you! Here's what you need to know right now.

- **Mounting location and height –** Signs must be installed on the wall adjacent to the latch side of the door or the nearest adjacent wall. Mounting heights are 60 inches above the finish floor to the centerline of the sign. Note: your signage should be mounted so that a person may approach within 3 inches of the sign without encountering protruding objects or standing within the swing of the door.

- **Finish and contrast –** When choosing colors and finish for your signage, go with a matte or other non-glare finish. Furthermore, signage characters must contrast with their background with a minimum contrast of 70% – either light letters on a dark background or dark letters on a light background allowing for clear visibility.

- **Raised and brailled characters –** The regulations have expanded for raised and brailled characters. New regulations require characters to be raised a minimum of 1/32 inches, upper case, sans serif or simple serif type and should be accompanied with Grade 2 Braille. Raised characters shall be at least 5/8 inches high, but no higher than 2 inches.

Information provided by: access-board.gov.

SIGN★A★RAMA
WHERE THE WORLD GOES FOR SIGNS

Need to get your facility up-to-date? SIGNARAMA is well-versed on the latest ADA rules and regulations. Contact your local SIGNARAMA for more information. Find your nearest store at www.signarama.com/locations or call 1-877-581-0857.

INTERVIEW WITH DENNIS WARD

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Naturally, our goal is to have everything in 100% working order at all times. We need to incorporate the services of all the staff (housekeepers, room service servers, bellmen, housemen) in understanding why it is best if the guest never needs to see us.

LE: DO YOU HAVE ANY WORDS OF ADVICE FOR A YOUNG DOE OR ADOE?

Learn, learn, learn. For every opportunity given to learn something new or take on some additional responsibility – do it. The building maintenance field is a wonderful opportunity to continually learn. The landscape is always evolving due to technological advancements, business needs, competition and necessity. We need to be ready to change with it and even make some of the changes. I remember back in 1987 while with Hyatt, I saw all the department heads with computers running various programs (usually Microsoft Office). This was long before e-mail and texting. However, very few of the engineers I knew had a computer on their desk or even in the engineering office. This bothered me to the point that I went out of my way to learn Word, Excel, Access, PowerPoint and other programs on my own so that if and when the company thought that engineering should have the latest in technology, I would be ready to put it to good use. I challenged my colleagues to do the same or be left behind in the technological revolution that was happening at that time. Networks, systems, enhancements were in their infancy and it looked like the most technically oriented people in the hotel were going to be left outside. Today, the challenge is keeping up with the change that is taking place. You need to be constantly learning new things in order to keep up with the demands of the job, to prepare for your next opportunity or to be ready to accept more responsibility. I encourage recent grads or new assistants to network. Don't just get to know the people in your own organization, get involved with your local hospitality group or BOMA. These types of contacts can keep you in the loop regarding what is going on and where things are going. Do whatever is asked of you to the best of your ability. Don't be afraid to ask questions if you are not sure of what the outcome should be. If the task requires skill sets that you have not yet acquired, now is a good time to learn. One of those skill sets might be a second language. It may be interpersonal skills. It could even be the ability to be empathetic. As a boss, you must realize that people have lives outside the workplace. Families and situations play an important role in the attitudes that they bring to work. They may be working two jobs just to make ends meet. We must understand what motivates them and keep them motivated to work for us and continually do their best. Nobody is born with all the knowledge and skills that they need to be successful but nobody is denied them either.■

Pre-shift meeting in the engineering shop. From back to front: James Prochet, Bill Mills, Jean Pierre Louis, Isaac Figueroa and Luis Padilla.

Loews' Royal Pacific Resort, Orlando, Florida

The Hidden Risks of Green Buildings

continued from page 1

David Odom

The preceding graphic summarizes some of the differences between green buildings and the concepts the authors have found in lower risk buildings. For example, lower risk buildings do not exceed industry guidelines on mechanically introduced outside air; but emphasize humidity control (especially in hot, humid climates). Green buildings, on the other hand, reward the introduction of more outside air than current industry standards, which can lead to indoor humidity problems and mold growth.

Green building environmental goals are typically organized around a set of nationally accepted benchmark guidelines such as those of LEED® (Leadership in Energy and Environmental Design), which is the guideline established by the United States Green Building Council (USGBC). LEED® certification is a checklist and point system of recommended practices where achieving various point levels can certify the building as having achieved silver, gold, or platinum status. These practices involve such issues as efficient water and energy use, the reuse of waste materials, and the use of renewable and regionally produced products.[1]

The overall goal of these new materials and procedures is to achieve a structure with reduced negative environmental impact —both during construction and throughout the building's life. The intent of building green is unquestionably noble and good, and should be aggressively pursued. However, because of the dramatic change that this will present to the design and construction industry, its implementation will present new risks that are likely to be both technical and legal in nature. Some of the legal risks are fairly obvious, such as the risk of not meeting a building owner's expectation of achieving a certain level of LEED® certification (i.e., implied or even written warranties). Other risks are more obscure, such as:

- The failure of new products to meet their promoted performance levels, which is more likely with new materials compared to proven materials found in traditional buildings.
- Accepting the higher standard of care that a green building might present—what is currently considered "best practices" may now become the new expected "standard of care."
- Failing to recognize (or prepare for) the unknowns in cost and schedule impacts that a green building might present.

Green Buildings vs. Lower Risk Buildings

Green Buildings	Lower Risk Buildings
***Adds additional* outside air (>ASHRAE by 30+ %)**	***Minimizes* outside air (Does not exceed ASHRAE guidelines)**
Emphasize energy conservation	**Emphasize dehumidification**
Stress VOC reduction — Emphasizes exhaust (>5 Paschals) — Building flush out	**Minimizes VOC concern** — Very tight control of exhaust — Rejects building flush out
Stress new, innovative materials	**Stress proven materials**
Stresses carbohydrate based materials	**Stresses hydrocarbon based materials**
Stresses extra envelope thermal insulation	**Stresses drying potential of envelope (walls and roof)**

The introduction of new materials and methods has not always proven to be successful, and sometimes has resulted in notable building failures, especially those related to moisture intrusion and mold contamination. Many of the time tested materials found in lower risk buildings are hydrocarbon based. The long term efficacies and performance levels are unproven for some of the new carbohydrate based materials being promoted for green buildings.

Green building environmental goals are typically organized around a set of nationally accepted benchmark guidelines such as those of LEED® (Leadership in Energy and Environmental Design)

It is even unclear if a LEED® certified building can be built under a design/build method without the construction team assuming huge amounts of unknown risks because of the vague definition of what is considered "green."

The building industry has been historically conservative, relying on time-proven construction materials and methods. The proliferation of new products and innovative building approaches related to green development is challenging the design and construction community in a dramatic fashion. These changes virtually guarantee an increase in building failures and lawsuits. Past experience indicates that many of these failures will be predictable, and some are likely to be catastrophic.[2]

EXAMPLES OF TECHNICAL RISKS FOR CONTRACTORS & DESIGNERS

Moisture intrusion, whether bulk water intrusion through the building envelope or a relative humidity increase due to the heating, ventilating, and air conditioning (HVAC) system, results in a large percentage of construction claims in the U.S. Moisture intrusion not only results in building deterioration, but has been linked to occupant comfort and health issues, especially in those buildings that become contaminated with mold.[3] Sustainable building practices, some of which are part of the LEED® accreditation process, can increase the potential for moisture intrusion if not carefully considered and implemented. Examples include:

• Vegetative roofs, which are more risky than conventional roofs (due to the constantly wet conditions) must be carefully designed, constructed, and monitored after construction.

• Improved energy performance through increased insulation and the use of new materials, which may change the dew point location in walls, resulting in damaging condensation and a reduced drying potential for wall assemblies. Lower risk buildings emphasize the drying potential of the envelope over increased insulation. While it is desirable to increase insulation for energy savings, the designer must also evaluate moisture impacts.

• Reuse of existing buildings or recycled components, which may not provide optimum water-shedding performance in new configurations or may not be readily integrated to the adjacent new materials.

• Use of new green construction materials that have not been field-tested over time. The designer needs to assess new materials and their risks compared to traditional materials found in lower risk buildings.

• Increased ventilation to meet indoor air quality (IAQ) goals that may unintentionally result in increased interior humidity levels in hot, humid climates. The designer must consider the increased energy load (and cost) and HVAC equipment sizing required to properly dehumidify a building when exceeding the minimum outside air requirements recommended by the American Society of Heating, Refrigerating, and Air-conditioning, Engineers (ASHRAE).

• Building startup procedures, such as "building flush out," could result in increased humidity levels and mold growth. Lower risk buildings rely almost exclusively on source control (which is also a green building goal) rather than relying on "flush-out" and increased building exhaust. Building "flush out" along with building "bake-out" were concepts developed in the late 1980's by the indoor air quality industry, which often caused more problems than they solved.

New green construction materials are entering the market at a staggering rate. Because many of these products help to achieve multiple LEED® credits, designers working on green buildings are eager to specify these materials. The risk to contractors is that many of these new items are not time-tested, and designers often do not have the time to fully research their efficacy. If the new product fails, it may be difficult to determine if it is a design error, an installation error, or a product defect. Additionally, general contractors must rely on subcontractors to install new materials that they are often inexperienced in installing.

The intent of building green is unquestionably noble and good, however its implementation will present new risks that are likely to be both technical and legal in nature.

Some of the expandable foam insulation products are examples of green materials that pose increased risks. The water absorption properties of these insulation materials can be quite different than what designers expect with traditional insulation. Additionally, some of the carbohydrate based foam insulation materials may retain more water than traditional hydrocarbon based foam insulation. Increased absorption of water into the insulation could negatively affect the wall performance. This is not to say that such materials should not be used; however, their properties need to be recognized and accommodated in the design.

The amount of ventilation (outdoor air) necessary for occupant health and comfort has been debated for decades. Although there are sound arguments on both sides of the debate, the emphasis on increasing ventilation to achieve LEED® environmental quality credits has increased the incentive to add more outdoor air to a building through its HVAC system (a minimum of 30% more outside air above ASHRAE recommended minimums is required to obtain a LEED® credit for ventilation).[1]

Increased ventilation is especially risky in the southeast U.S. where outdoor relative humidity levels are elevated for a good part of the year. Experience in the southeast, as well as other areas of the country with humid summers, has shown a direct correlation between the number of moisture problems and increased ventilation rates.

To effectively minimize the risk of moisture problems while increasing ventilation, designers may need to increase the complexity and capacity of the HVAC components and control systems to achieve proper dehumidification. This adds to contractor risk, since complex systems historically fail more often than simple systems. Additionally, the complexity of the system operation can result in unintended pressurization relationships where local depressurization causes humid outdoor air to be drawn into interstitial building cavities, causing condensation and mold growth.[4]

Building owners, designers and contractors all assume more risk when they deal with complex, and possibly untried, technologies not generally found in traditional buildings. Pinpointing whether the problem is design- or construction-related may be very difficult after problems have already occurred.[5]

Building startup procedures to meet LEED® credits include a credit flush-out of indoor containments using increased outdoor air either at the end of construction or during the initial occupancy period. The intent is to remove pollutants from off gassing of volatile organic compounds (VOCs) from new materials. The amount of air needed to meet the flush-out requirements places a building at increased risk because of the amount of moisture

"The amount of air needed to meet the flush-out requirements places a building at increased risk because of the amount of moisture introduced with the increased outdoor air."

introduced with the increased outdoor air. LEED® requirements are that a minimum of 14,000 cubic feet per square foot of floor area is required for flush out. This presents multiple problems: most HVAC systems are not designed to dehumidify that amount of outdoor air which, in a 100,000 square foot building, is 1,400,000 cubic feet of outside air. Depending on outside conditions at the time of the flush-out as much as 240,000 gallons of water can be added to a 100,000 square foot building. This added moisture will be absorbed into building materials, finishes, and furnishings, increasing the risk of mold growth.[6]

There's one sure way to kill an idea: Sue it to death. Quote from ENR, July 2008

Most specifications put the general contractor in charge of the flush-out, including controlling relative humidity levels during flush-out. If the system is not designed to handle such loads, the contractor is faced with a difficult challenge that may require the addition of a temporary, and extremely costly, dehumidification system. Lower risk buildings tend to avoid flush-out.

CONCLUSIONS

What is the greatest risk to the green building movement? It's likely not the increased costs associated with green buildings—it's more likely green buildings that don't perform up to expectations and, in some cases, may experience significant failures. The increased costs of litigation and insurance that could result from underperforming green buildings will be absorbed by designers (in a highly competitive marketplace), but in most cases will be passed onto building owners. These increased costs, along with the negative publicity on failed green buildings, could dramatically influence building owners NOT to build green. Only recently has the marketplace begun to recognize the various contractual, legal, and technical risks that are inherent to green buildings. A growing number of experts have suggested that the first two steps to improved green building risk management are to: 1) recognize the unique risks for green buildings. 2) Develop a set of guidelines that merge the unique regional challenges with green building guidelines, recognizing the lessons learned in lower risk buildings. The design and construction community must not assume that if one builds green, then one will be building regionally correct or even lower risk buildings. Until the gaps between lower risk buildings and green buildings are addressed, the design community would be advised to prioritize the lessons of lower risk buildings already learned from the waterproofing, humidity control, and building forensics community. Without these priorities, poorly functioning green buildings are the likely result, and this could be the ultimate killer for the green building movement, especially in demanding climates. In our opinion the solution to good performing, lower risk green buildings are at least three-fold:

• Development of a set of Climate Design Criteria that integrates (and prioritizes) climate-specific criteria with current green building practices. Best practices for moisture control must take priority over green building practices.

• Development of a detailed Green Building Risk Management Plan that provides guidelines for the design and construction team from concept through the 1-year warranty period. These guidelines would incorporate the best ideas of green building specialists, moisture control specialists, construction attorneys, and insurance companies.

• Apply the lessons learned from past building successes and failures and make green building concepts subservient to these past lessons.

Liberty Building Forensics Group, LLC (www.liberty-building.com) is a firm that specializes in forensic building investigations and expert witness/litigation support. Its staff has led the correction and cost recovery for some of the largest building failures in the country, including the $60 million defect claims at Hilton Hawaiian Village in Honolulu and the $20 million Martin County Courthouse problems. Its staff has performed green building-related services on over $3 billion in new construction since the late 1990's and has authored three manuals and over 100 technical publications.

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The New Lighting Frontier: LED Retrofit Bulbs

Illuminating the path to a better customer experience, environmental stewardship and an increased bottom line

By John Sladek, Grainger Direct Marketing Services

In today's competitive marketplace, hoteliers need to focus on the importance of creating a great guest experience, while balancing it with environmentally conscious practices and corporate financial goals. One of the easiest and best ways to address these three key factors is with lighting. Not only does lighting account for 20 percent of global energy use, with new lighting solutions such as light-emitting diode (LED) retrofit bulbs, the hospitality industry can help meet their goals by simply installing new light bulbs.

Phillips Endura LED Family

Let's take a look at three aspects that can help impact the guest experience.

Ambiance

The use of lighting solutions to enrich their surroundings can help elevate guests' moods and set the scene for a memorable hotel stay, ensuring that each guest's first impression is a positive one. Lighting serves as the backdrop for creating that memorable initial experience. It sets the scene for a successful hotel stay, and helps reinforce the intent of varied settings. Outdoors, architectural lighting can turn the hotel into a prominent landmark. Inside, the use of accent, or focal lighting can highlight signature elements, creating an inviting atmosphere and distinguishing your property from the competition. Scene-setting lighting design and colorful accents in the lobby communicate "you are welcome" to arriving guests. At the reception desk, bright light provides confidence and orientation. In guest rooms, flexible lighting scenes offer the option of bright, task light—or diffused, restful light—to provide your guests with an experience that meets their individual needs.

Well-Being

Comfortable, well-balanced spaces support the physical and emotional comfort of your guests. Making guests feel comfortable starts by allowing them to move freely within a visually appealing environment. Well-lit surroundings can help improve comfort and confidence levels. Flexible lighting enables guests and staff to adjust each environment to suit varied tasks. In offices and conference rooms, efficient, flexible lighting can adjust to varying working conditions to boost concentration and motivation. In the guest room, energizing and relaxing light can help the body adjust and increase comfort levels. In bathrooms, bright light revitalizes while presenting a hygienic impression.

Sustainability

Employing systems that reduce a property's environmental impact builds a positive image, enhances guest relations, and saves dollars on energy use and maintenance. Today's guests are conscious of the environment and care about how you operate your property. They want to know who you are as much as what you have to offer. Hoteliers need lighting products that offer high efficiencies and long life.

Because hotels operate 24/7, even small gains in energy efficiency can lead to significant savings. Replacing outdated lighting systems with more efficient, environmentally friendly solutions will reduce energy consumption and disposal costs. Selecting lighting components that perform better over time also means fewer lamp replacements and disruptions to hotel operations. Working with fewer lamp types and standardizing wattages can reduce complexity, making maintenance more manageable and less costly.

As today's hospitality climate continues to change with a focus on environmentally responsible initiatives, choosing sustainable lighting solutions for your properties can build brand loyalty among guests.

The Total Cost of Lighting Ownership

Understanding how various lighting choices impact the bottom line is essential. These elements

can affect a property's payback, cash outlays and return on investment. Taken together, it's called the total cost of ownership, or T.C.O.

Because hotels operate 24/7, even small gains in energy efficiency can lead to significant savings.

Four factors drive the total cost of lighting ownership:

1. Product

The initial purchase cost for the lighting system. Beyond initial cost, compare performance, service life, lumen maintenance, and color rendering and stability.

2. Energy

Annual operating hours multiplied by electrical cost (kWh). Consider product wattages as well as light output and lamp performance.

3.Maintenance

Maintenance cost includes labor and relamping costs. Longer-life lamps that

Working with fewer lamp types and standardizing wattages can reduce complexity, making maintenance more manageable and less costly.

maintain color stability and lumen output can reduce maintenance.

4. Disposal

The end-of-life cost, including disposal and recycling of lamps, ballasts and fixtures. Disposal is another area where longer-life lamps benefit the hotel properties, by reducing waste and cost.

New Innovation in lighting technology is changing the Hospitality Landscape

Solid-state lighting or LED is changing the hospitality industry. New designs like the A19 LED screw-in retrofit bulb help make any conventional lighting fixture with a standard socket a candidate for reduced maintenance and energy savings. The A19 LED retrofit lasts 25,000 hours (vs. 750-1000 hours for a standard incandescent A19 bulb) and uses just 12 watts of power and can help save up to $120 over the life of the bulb. Multiply that by the number of bulbs used in hotel rooms and the impact can be dramatic.

The Mirage Events Center: A Case Study in Ambiance, Savings and Sustainability

Creating the perfect atmosphere is a vital competitive ad¬vantage for The Mirage Events Center, in Las Vegas, Nevada. However, energy efficiency is key in a city increasingly committed to sustainability efforts.

The Mirage Events Center was able to reduce its carbon footprint by three million pounds and use 68,000 fewer input watts, lowering its operating costs by utilizing energy-efficient products. Maintaining the Center's vast lighting systems, most of which are located more than 14 feet above the floor, had been a challenge as lamp-changing takes up too much time and interrupts regular visitor foot traffic during events. Equally disconcerting was the fact that inefficiencies and heat generation from 4,000 18- and 42-watt incandescent lamps made the energy bill skyrocket.

Most importantly, the Mirage did not want the expense and trouble of replacing fixtures. This is where energy efficient retrofits come in. Using LED retrofits provides smooth dimming to 10 percent of full light levels in an elegant design that provides a diffused light source when accenting a wide area.

Hospitality properties encompass a variety of spaces under one roof—and the lighting requirements vary as much as the venue. New choices in lighting design can elevate your brand image, delight your guests and reduce operational costs. Choosing the right lighting solution can help you achieve the desired mix of ambiance, well-being and sustainability. ■

The Old Bird

By Tim Arwood, CEOE

As a Chief Engineer I have said before that we have all types in our departments. I know we have all seen the Siamese / conjoined twin syndrome, when two of your staff members seem to be joined at the hip and always want to work as a duo on projects that only require one set of hands. What about that one guy who walks around always complaining about the job to his fellow associates creating bad will, low moral, and is personally responsible for a loss of productivity in all those he slowly poisons against the company day-in and day-out? It is far better to weed him out in the application process or probationary period than having to document his activities over the course of months until you finally have enough documentation to help him move on. Many times this comes after damage to your crew has already been done.

Also, you may have one with the lone wolf syndrome. That's the guy who just won't work with other technicians out of fear of showing them some of his tricks, being afraid it will diminish his value to the company. Many times he has been at your property for many years (or decades) and is the most knowledgeable of your crew knowing your property better than you. He may be your most valuable asset or he may always be that discomforting person who resents you, because he knows the property the best, but never made it to a manager's position. There are all kinds of these "Old Birds" out there and odds are they save your company more than one to two times their annual income.

Lots of times when a new Chief arrives at a hotel he will instinctively seek out the OB and learn to rely on him for his knowledge and the dedication that his longevity with the property signifies. And, let's face it, you know that if you worked your way up the ranks to become Chief, someone probably saw your potential and gave you a break. And, maybe without someway to set yourself apart from your coworkers, you could end up being an old bird as well.

Now let's up this into a different perspective. What are the three things that make it easier to be promoted to that first Chief's slot that you hold? First is experience. Second, is your ability to assimilate and deal with the work place politics ranging from guest problems to interactions with other Executive Committee members. Third, is the collection of training, education, and recognized certifications that you have.

You may not be a Chief yet, and you may be wondering why can't I finally make that transition. Why was it that the position was filled by someone outside of your company? Or, maybe you are already a Chief, but you are stuck on a small property and the position at a larger hotel across town was given to someone from outside the company. And, you lost the opportunity to further your career and earning potential because nothing special distinguishes you from the other candidates for the job. Finally, you just might be that guy that is the Chief Engineer, but you don't have any certification or documentation that you have demonstrated that you have the knowledge to be the head of your Engineering Department.

Now, let me tell you how The National Association of Hotel & Lodging Engineers will be able to help you further your professional development and get the certification that will set you apart from you competition. NAHLE has been working on developing a Certified Chief Engineer (CCE) program for the past two years and is proud to say they have met another association goal. The CCE study guide, test and certification have been developed solely by NAHLE and are now 100% complete! NAHLE is bringing on a partner to assist them in their efforts and will be announcing the partnership in our upcoming issue of Lodging Engineer. One thing we can tell you now is that our new partner is an old pro at hospitality training and education. NAHLE's program will include publishing the Certified Chief Engineer (CCE) Study Guide, regional on-site reviews and examinations as well as online testing over the Internet. All of the Internet testing will be controlled from our partner's website. NAHLE's next goal will be to put together regional test review locations and then offer the exam as a part of these reviews. NAHLE's Inaugural Retreat and Expo was recently postponed to match up with their educational portion. They will be rescheduling the inaugural Expo for spring in Orlando. They are also looking for additional locations to host other regional Expos, so feel free to contact them. NAHLE will be bringing you more information as it develops, so be sure to check out their website (www.nahle.org).

The National Association of Hotel & Lodging Engineers (NAHLE) has been working on developing a Certified Chief Engineer (CCE) program for the past two years and is proud to say they have met another association goal.

Finally, from my own experiences I can express to you that I received an increase in salary and a much more rewarding position after receiving the American Hotel & Lodging Educational Institute's (EI) Certified Engineering Operations Executive (CEOE) designation. My company was insistent that I get EI's the certification and this 'Old Bird' has been reaping the rewards every since. ■

WINTER CHECKLIST

By August Craanen

Craanen Technical Services, LLC Westbury, New York
Tel: (516) 782-7280 | Email: consulting@craanen.com

If your property is in a zone where freezing temperatures and snow fall occurs, a comprehensive Pre-Winter Checklist is a must. When preparing such a checklist consider the items listed below for inclusion:

Roofing

Pre-winter:

1. Inspect roof framework for weaknesses.
2. Assess roof's capacity for snow loading.
3. Develop plan for Emergency organization / others to handle snow and ice loading on roof.
4. Remove debris from drains
5. Verify that for any not drained piping the heat-trace is working properly.

In winter:

1. Activate snow watch/removal crew to monitor snow depths and remove unsafe accumulations from roofs.
2. Clear drains of ice and snow. If roof is pitched and without drains, open paths to eaves to ensure drainage and prevent ponding.

Concealed spaces:

1. Identify/prepare concealed spaces, such as crawl space to allow heat passage during cold spell.
2. Provide safe, emergency heating equipment in areas prone to freezing: set to be activated automatically or by assigned personnel.
3. Provide temporary interior openings to allow heat into concealed spaces during unusual cold spells.

After the winter season provide adequate insulation / protection before the next winter season

Wet-pipe sprinkler systems:

1. Check for broken pipe fittings, cracked piping, and any distorted/leaking sprinklers.
2. After unusually cold weather, open inspector's test connection to verify that the pipe is not frozen.

Fire Protection Equipment:

1. Keep fire pump intake screens clear of ice.
2. Make sure hydrants, hose houses, pumper connections, indicator posts and other outdoor sprinkler system valves remain visible and accessible (free of ice and snow).
3. If heat is lost, check all water-based extinguishers for possible freeze damage.
4. If underground mains freeze, thaw them
5. promptly.

Dry-pipe sprinkler systems:

1. Maintain dry-pipe valve room temp of 40 degrees Fahrenheit (4 degrees Celsius).
2. Drain system thoroughly after annual trip test.
3. Regularly check air pressure and temps in dry-pipe enclosure.

Side-walk(s) and Drive way(s) etc.

1. Verify the working of the snow-melt system for drive-ways and/or side-walks
2. Activate snow watch/removal crew to monitor snow depths and remove unsafe accumulations from side-walks and drive-ways.

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Winter Checklist

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Landscape irrigation
Winterizing landscape irrigation systems is quite often overlooked. Winterizing your irrigation system is really pretty simple:
1. Turn off the water to the irrigation system at main valve.
2. Set the automatic irrigation controller to the "rain" setting.
3. Turn on each of the valves to release pressure in the pipes.
4. Drain all of the water out of any irrigation components that might freeze.
An excellent and comprehensive summary of details of items not to overlook can be found at: http://www.irrigationtutorials.com/winter.htm
Equipment and Systems:
Tune-up heating equipment:
1. Calibrate thermostats and set them at appropriate temperatures.
2. Insulate hot water tanks and piping throughout the building.
3. Inspect windows & exterior doors and seal any leaks.
General:
1. Prepare snow removal equipment.
2. Order snow-melt and other appropriate supplies in a timely manner, last minute orders might be more expensive and/or hard to get.
3. Consider non-freezing/multipurpose dry chemical fire extinguishers in areas where freeze-ups are a concern.
4. During the winter maintain a record of all problems so if needed they can be added to the checklist.
5. Instruct employees not to use personal space heaters and address the reasons why they are doing so.
6. Remind employees to keep external doors closed.

Are key card access locks safe?

by Manny Higazi

Think to yourself and answer the question based on your experience with these locks. Most of you, if not many, will say yes. I for myself say yes based on my experiences. I remember the day when we had metal keys that opened up our guestrooms and much more. Were they safe? If you think about it all types of systems are safe if you have a security program in place. Today's key card access locks are a lot safer, durable and easier to inventory (access logs). Access logs are stored in memory on many of the lock systems in place.

There are 2 types of key card access locks that I come across. One is a lock system where they are all hot wired and linked to the front desk and the other type is a stand alone with battery packs, individual lock no wires or links to the front desk. I am sure there are dual types wired with battery backup. But we will focus on these 2 types. Let's talk about the stand-alone system.

The stand-alone system usually works with a portable programmer that communicates with the hotel system or front desk. The ones that are linked to the front desk have more capabilities where they can alert the front desk if there is a problem with the lock automatically. The stand alone system needs you to make a visual and physical check of the lock to make sure it is working properly. I have worked on and rebuilt so many of these stand-alone locks that I became more knowledgeable about their mechanical function. There are many parts inside the units that rely on one another. If one fails then the lock fails to function properly.

If you are not familiar with the mechanism, let me explain the function. When the card is inserted into the lock the read head reads the card strip on the card and responds accordingly to the data on the card. Once the lock recognizes that it is a match it will engage the lock which then releases the clutch that controls the shaft that turns the lock. Many times the locks fail because of numerous problems. Some of the problems could be the read head, the clutch, the circuit board or the batteries.

One key problem that I am dealing with is the drying of the metal parts inside the units that slide the clutch and also wear on the metal that interlocks with other components that turns the lock. These locks come with the components already greased but the normal wear and tear will eventually lead to problems. Many locks I had to open and lubricate again because of the metal components sticking.

I also had locks that wouldn't even open at all. You can hear the clutch engage but no action. There were locks that stayed engaged and need immediate attention. The bottom line for this article is that you need to make sure that you have a security program in place to assure the guest that they are safe in your hotel. The only thing you need to make is a checklist that shows that the lock was tested and working.

It should be done once a week. Don't be surprised to find a lock that does not work correctly. That's why we, engineers, are to respond, react and resolve problems that occur. The housekeeping departments at my hotel are very alert and report faulty locks immediately. The checklist should also include a section for battery replacement. I recommend replacing the batteries every 6 months. Make it a habit to really take time and check all locks to avoid potential problems because an effort made right now can make a huge difference in the future. ■

ALPHABETIC INDEX OF ADVERTISERS

HOLIDAY GREETINGS FROM NAHLE!

On behalf of the National Association of Hotel & Lodging Engineers, I want to thank each and every one of you for your continued support and hard work. As we end 2010 and begin 2011, it is a pleasure to look back on our accomplishments and forward to our goals. With the help of many NAHLE engineers (and a special thanks to Art Attaway) NAHLE contributed a chapter on sustainability, from an operating engineer's perspective, for a co-sponsored American Hotel & Lodging Educational Institute (AH&LEI) and Michigan State University textbook. NAHLE also joined many new members both engineers and service vendors and saw a significant rise in our readership. For our October publication of Lodging Engineer we counted over 13,000 unique visitors to our website! We also added a digital version of Lodging Engineer to our website and currently offer the most current version of Lodging Engineer free for immediate download and viewing. But, the one thing that I am personally the proudest of is our new CERTIFIED CHIEF ENGINEER (CCE) program. We first discussed this goal two years ago in Lodging Engineer and we have finally achieved this goal. Toward that end, NAHLE will be partnering with the nation's leader of hospitality training and education and will soon be formally announcing our partner.

We have covered a lot of ground, but we still have a long way to go. NAHLE will be developing regional Educational Expos all over the country to provide engineers an on-site exam review and testing for the CCE designation. These Educational Expos will combine training and testing with a mini-tradeshow and educational speakers. NAHLE will also be working with EPA's Energy Star program and their team will be speaking to their Portfolio Manager at our Expo(s). We are looking forward to another great year and trust you remain a part of it. Tell a friend about NAHLE or better yet, contact us and get involved.

I hope you enjoy our magazine.

Robert Elliott
Executive Director

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Dedicated to Engineering Excellence

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