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1ST PERSON INTERVIEW

Albert Tsaturyan

Chief Engineer

40Berkeley

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*40Berkeley, 40 Berkeley Street
Boston, Massachusetts*

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Air Knight

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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.

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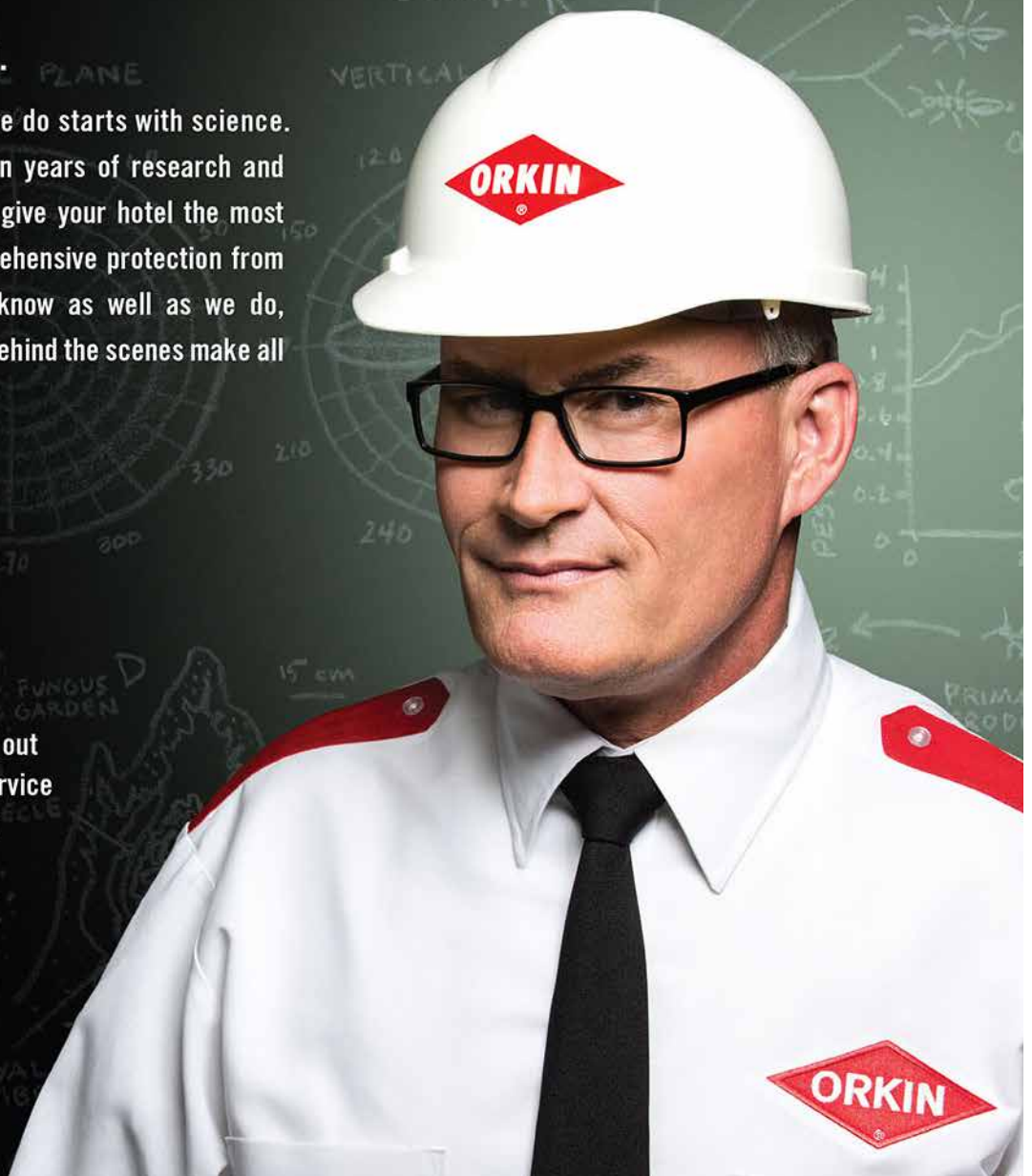
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As I See It



Robert Elliott, CCE
President, CEO - NAHLE
Editor - Lodging Engineer

NAHLE is proud to announce the completion of the development of our second certification program. The Certified Chief Engineer (CCE) is now the designation select service property engineers will receive. We have been working over the past year with several RE-ITs and hotel management companies to develop our new textbook. Engineers passing the exam for full service properties will now receive the new designation of Certified Director of Engineering (CDOE).

After a review by several engineers and hotel management companies of our existing full-service textbook, we ended up keeping several key chapters for our new text, but we also added a few new chapter sections and several completely new chapters. Our new CCE program has a total of 19 chapters and is divided into three test sections: management, building systems, and building envelope and grounds. The CDOE program has 31 chapters. The CCE program is specifically aimed to reach the typical hourly paid select service property engineer and to be studied while on the job.

When we started adding new chapters we knew we needed to address low-rise wood frame construction properties. We immediately decided we could not study select-service properties without a look at PTAC units. So, we looked to one of the best and most experienced persons we could find for this important chapter. Norm Nixon (who used to oversee PTAC units for Hilton) came highly recommended. Now an employee of CH2 Mhill, Norm's chapter on PTAC units alone is worth the read. I wrote a few sections on low-rise wood construction and thru-wall penetrations. Destination Hotels & Resorts and Liberty Building helped out on a new chapter for mold and mildew. And, after a small roll-out of the new program with a hotel management company, we listened to their feed back and are now adding two more chapters: saline pools and dehumidification of indoor pools. We feel now that we have an excellent curriculum for select service property engineers that has been reviewed and vetted by your peers.

According to Georgetown University's 2012 study, "Men or women who completed certificate programs of less than one year earned roughly 10% more than those who do not have such certificates."

As NAHLE finishes up our new certificate program for select service properties it seems appropriate to explain why becoming *Certified* is good, or what we call inside the beltway, our "Value Proposition." Our program benefits are many and relatively easy to explain. It basically provides value to both the owner of the property via improved asset management and the employee through personal continuing education and professional development. For the asset manager and hundreds of hotel management companies the "Value Proposition" is simple. Take Norm's chapter on PTAC units, for instance. We wrote this from the engineer's perspective. David Odom of Liberty Building spearheaded finding Norm and developing an outline for the chapter on PTAC units and moisture infiltration. David said that you need to address one simple question: "After reading our chapter over the weekend, what will you do different Monday morning when you walk into work?" If one PTAC unit has its useful life extended or its efficacy improved, then you have probably paid for the program. And, then if this newly found knowledge is further transferred to the engineer's staff, this equates to greater guest satisfaction and potentially a greater ROI. Or, maybe the value is in understanding the principles behind not just one, but all the building systems the engineer is in charge of maintaining on a daily basis. It is now easy to see that whether the Certification program is a refresher for some or presents new information to others, either way it adds value to your portfolio. Armed with new knowledge, this new breed of engineers becomes your front-line asset manager taking care of your property's assets on a daily basis. Applying this logic to any hotel building system or capital asset and your decision to fund engineer training will yield immeasurable returns for years to come.

Now, for the hotel engineer, our "Value Proposition" is even simpler. In addition to investing in the engineer and providing him with tools to train his staff, let's talk about dollars and sense. And, I do mean sense. What hotel engineer would not want to invest

HOTEL ENGINEERING
For Limited Service Properties
*Certified Chief Engineer Desk
 Reference and Study Guide*
Robert F. Elliott



20 to 30 hours and \$600 for a 10% bump in salary and a lot less job stress? Let's say you are making \$18 an hour or around \$3,000 a month. By gaining a certificate and getting a 10% increase in salary, you would earn an additional \$100,000 in a lifetime. Now imagine yourself retired, with your CCE ... and now, without.

Although I can't guarantee an increase in your salary, you can look to an indisputable source and make up your own mind. In a study dated June 2012, [Georgetown University Center on Education and the Workforce](#) published a study; **"Certificates: Gateway to Gainful Employment and College Degrees."** According to their study:

Certificates are the fastest-growing postsecondary credential awarded over the past several decades.

- Men or women who completed certificate programs of less than one year earned roughly 10% more than those who do not have such certificates.
- On average, certificate holders earn 20 percent more than high school-educated workers – about \$240,000 over those with a high school diploma in lifetime earnings.
- Almost 44% of certificate holders work in a field related to their certificate training and those with certificates who work in their field earn 37% more than those who work out of their field.

NAHLE is posting the Georgetown study on our website. Read it yourself and then ask yourself whether you want to invest \$600

now and when you retire have an extra \$100,000 maybe even as much as a ¼ of million\$. A certificate in hotel engineering can literally change your life. Certificates promote gainful employment and long-term job security and steady income. Certificates also lead to increased guest satisfaction, less employee turnover, reduced capital expenditures and reduced operating expenses. And, perhaps most important, certificates make a statement to the employee that you are investing in them and their future.

NAHLE's goal less than five years ago was to increase the professional development of hotel engineers through education and training and the exchange of information and technology. We sought to create an independent third party certificate program that would be transferrable across all brands. Now with a second program in place, we believe we have the tools available to address the engineer's professional development and increase REIT dividends.

Whether you manage a REIT or a hotel engineering staff, education and training are extremely important to your success. Are you going to accept training from a different brand or unknown source? A transparent independent third-party program by the National Association of Hotel & Lodging Engineers and our educational partner, the American Hotel & Lodging Educational Institute (EI), is your only true pathway to success. As NAHLE continues to grow we trust that both management and the employee agree with our "Value Proposition" and will support the professional development of hotel engineers.

Marriott's Robert Belle, CDOE becomes NAHLE's first designated 'Certified Director of Engineering'



Robert Bell Chief Engineer, CDOE
Marriott Renaissance Plantation Hotel
1230 S. Pine Island Road, Plantation FL 33324
www.marriott.com/fllrp

I've been a engineering manager for over 14yrs, 10 in limited serve and the last 4 in full serve at the Renaissance Plantation. For a while I've been searching for a certification designed specifically to enhance my knowledge and competency in hotel engineering. My supervisor recommended the CCE certification from NAHLE and I must tell you this course hits all areas and key points from what you need to know to keep your facility maintained and running efficiently to being compliant with most city, state and federal codes and regulations. It's an all around great self study course for the hotel Chief Engineer and DOE, and to this day I keep my study guide on my shelf as a reference if ever needed. I am also honored to be the first person to be designated CDOE (Certified Director of Engineering) from NAHLE and a proud member.

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Albert Tsaturyan

Chief Engineer

40 Berkeley, 40 Berkeley Street
Boston, Massachusetts

By Robert Elliott

Lodging Engineer met this issue's 1st Person through our Engineering Certification program. After speaking with Albert, I learned why he values the property he manages so much. But more importantly, I realized that even though he already 'has the job' he is still seeking additional training and professional development. For these and other reasons, I realized that Albert has a lot in common with many of his fellow hotel engineers, except one thing; imagine checking into a Hyatt Regency or Hilton Garden Inn and learning that you are sharing some amenities with guests you don't know. And I'm not talking about the golf course or the swimming pool. Albert manages a hostel. Wikipedia defines a hostel as, "a budget oriented, sociable accommodation where guests can rent a bed, usually a bunk bed, in a dormitory and share a bathroom, lounge and sometimes a kitchen. Rooms can be mixed or single-sex, although private room may also be available. Hostels may include a hot meal in the price. Many hostels have long-term residents whom they employ as desk clerks or housekeeping staff in exchange for free accommodation." That's right, you can share a bathroom with a total stranger or maybe even multiple strangers. Regardless of its residents, the International Building Code defines a hostel the same as it does a hotel or motel, "a building for sleeping purposes where the occupants are primarily transient

1ST PERSON

AN INTERVIEW WITH ALBERT TSATURYAN

in nature." And, after speaking with Albert, I think the similarities and challenges that Albert faces are pretty much the same as those found for most any hotel. I am convinced after speaking with Albert that his hostel's current renovations include some of the greenest and most innovative products and solutions available any hotel in the USA or the world for that matter. For these and other reasons I believe you will enjoy the interview.

Albert, tell our readers how you become Chief Engineer at 40Berkeley?

My first job was in the housekeeping department at the Sheraton Commander Hotel in Cambridge, Mass. After immigrating in 2001, I stayed with relatives in the beginning and worked my way up from housekeeping to Building Engineer where I handled engineering and maintained the hotel's IT infrastructure and phone system. Eventually I was promoted to the Assistant Director of Engineering. After nine years, I felt it was time for me to broaden my experience and I secured a position at the 40Berkeley Hostel as Chief Engineer.

transition and recovery certification and another as a Nortel Certified Technology Specialist (NCTS). I am a member of the US Green Building Council, the National Association of Hotel & Lodging Engineers and I am working on my LEED associate credentials as well as becoming a NAHLE Certified Chief Engineer.

I find your property, a hostel, very interesting and I am sure for you and your staff this translates in all your decisions from renovations and capital improvements to daily maintenance.

Can you give our readers a broad look at your property?

The building we now call 40Berkeley Hostel was originally the YWCA Residence for Women constructed in 1884, when it provided safe and respectable housing for women and students coming to Boston to work and study. The original building was 16,093 square feet with 156 beds. In 1953, the YWCA underwent a major renovation adding 52 guestrooms for a total 208 beds. It was recently purchased in 2010 by a local real estate couple who transformed the building into "the hip place" it is today.

When you work in a 130 year old property with a 60-year-old building addition there are always challenges and something to fix!

So where did you pick up your training to qualify yourself as a Building Engineer?

I attended the Russian-Armenian Slavic University in hotel management before I came to the states. Since then, most of my training has been on-site job training. In 2008 I studied telecom and IT at Wentworth Institute of Technology picking up an understanding of computer IT protocols. I have received several additional certifications over the years, including an EPA universal refrigerant

The 40Berkeley is an 8-story, brick building with a full kitchen and a casual 100-seat dining room where we offer complimentary breakfast and dinner is available. Other complimentary features include a movie room with 20 seats, lounge areas, a game area with two pool tables and a business center with desks and free WI-FI. Our room rates range from \$65 to \$120 per night with deluxe rooms at \$240 per night.



Ramon Replacing Housekeeping Cart wheels

How about a run-down on the back-of-the-house?

For heating we are using two, 5 million BTU Hodge low-pressure gas steam boilers generating 5 pounds of steam pressure through a 2-pipe steam radiator system with four zones. We use Johnson Controls thermostatic valves and sensors to control the steam flow. We are working with our utility, National Grid on a three-year energy conservation program. In the first year we did a survey and discovered 100 failed steam traps. The second year we reduced the failed traps by 65% and in the third year we expect to have them all repaired reducing heat loss to a minimum. This will save gas and reduce the physical endurance on the boilers, which we are planning to replace with new, efficient **CLEAVERBROOKS** boilers.”

During the summer we shut down our boilers and use LG PTAC units for cooling. For hot water we are using two A.O. Smith 100 gallon water heaters for the kitchens and shared bathrooms with two 300-gallon hot water storage tanks. The majority of linen laundering is outsourced.

We are currently gearing up for a renovation that will include; roof repairs, a roof deck build out, FF&E, ADA compliant water closets, an HVAC system, new windows, fire alarm panel and new elevators.

That is certainly a lot of product name dropping. You obviously surround yourself among many of our industry's best. I hope they are all NAHLE members. I am assuming if one wants to bid on your upcoming work they should contact you directly. If you would please, tell our readers about the new elevators you are planning for your property. They may look like cold grey steel going in, but once installed and operating they are definitely one of the hottest and greenest technologies available.

The building is currently equipped with two passenger elevators installed in 1953. We have plans to extend the elevator shaft through the roof for easy access to the roof garden. Currently we are talking with OTIS and some other elevator companies to develop plans for a full upgrade to an energy efficient regenerative drive

The biggest savings will be replacing the AC-DC generators that are working 24 hours a day converting AC to DC to run the elevator motors.

system. These elevators capture energy as the elevators descend and deliver it to the grid. The new elevators will travel at 300 ft/min compared to the current 150 ft/min, reducing run time, saving energy, plus they will make less noise, have LED control panels and be ADA compliant.

The biggest savings will be replacing the AC-DC generators that are working 24 hours a day converting AC to DC to run the elevator motors. Our current system is using 100,000 kw/yr. and will be reduced to 50,000kw/yr. I estimate this should save \$900 a year from our utility bill.

That's pretty amazing to capture energy from the elevator's descent and return it to the grid and get paid for it! I am definitely going to follow-up and try and get Otis to speak to their product in our next issue. You mentioned some other renovations, can you tell us about them?

We added a new business lounge with new furniture and installed a customized mahogany work bar. We used a dry erase paint that turns any surface into an erasable canvas allowing users to collaborate and be more creative. Upon my arrival to 40Berkeley I teamed up with Single-Digits and upgraded the outdated WI-FI network to the newer Ruckus WI-FI system with BAP (Business Access Portal) interface. With BAP I can monitor all connections 24/7 and make sure everything is working properly.

With an older property you must have your share of challenges. Can you describe what it's like to manage the engineering for an older property such as the 40Berkeley?

We strive to keep all of our systems in perfect running condition; however, when you work in a 130 year old property with a 60 plus year-old addition there are always challenges and something to fix. Sometimes the guestroom plumbing can be a complete nightmare. On several

occasions we had to shut off the water to the entire building. Once, when we installed new shower valves we had to shut off the main water source to the building because the toilet diaphragms got stuck in an open position causing toilets to continually run.



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Ramon and Nikolay installing a ceiling fan

We are very proactive in controlling pests. Ninety percent of our guests are the backpacking types who travel around the world so we are vigilant in this effort. I spend the extra money and hired a local company, K-9 Detective Dogs, on a quarterly basis to check our rooms for bed bugs and if we get any hits we call another local company. They provide regular chemical treatments that can take my rooms off line for three days, but they also provide a steam treatment that only take 3 hours, no scent, no chemicals and no down time for the rooms. I had an inspection yesterday and we had zero hits.

Tell us about your staff, how big is it and what do you look for when hiring?

We have a total of three workers including myself as Chief Engineer and two engineers. What I have learned in the past 15 years in the hospitality engineering industry is that we all learn from each other. My team is great and very knowledgeable. I believe the key for success is communication. I always look for someone who has both good mechanical and people skills. We also have partnered with Youth Build Boston, a program sponsored by the Department of Labor that provides hands-on vocational and academic training for young people in

Boston looking to improve their lives. This amazing opportunity has allowed us to continue to build relationships within our community as well as provide real life work experience for 2 interns over an 8-week period!

How do you answer guest complaints? Could you tell us about your maintenance procedures both corrective and preventive?

We work very closely with our house-keeping and front desk departments. Guest repairs are top priority and are taken care of immediately. We use the Yardi Voyager preventive maintenance system, which helps us to keep the track of our guestrooms and the building's property management (PM) systems. Every month I post certain building system PM work orders (for example, the PM Work Order could be to check all rooftop exhaust fans). I'll write a note in the system on how to perform the WO and what kind of tools are necessary to complete the job and assign an engineer. After the work is completed the engineer will write notes in the system to document any findings and completion of the work.

Another challenge was reducing the grease build up in the kitchen exhaust duct vertical chasers. We found a company that uses a high-pressure hot water system that gives good results reducing build up from 2002 to 1200 microns. They also take care of our exhaust fans and general HVAC on a quarterly basis.

Tell us about your hostel's "green" efforts and sustainable programs?

When I started at 40Berkeley Hostel I remember we had to change 10 to 12 standard incandescent bulbs every day. I met with a local distribution team and they developed a program to replace the incandescent bulbs with Sylvania Light Emitting Diodes 18W PAR38 (LED) bulbs. We use 28W T-8s for the lobby and common areas and 8W LED bulbs for guestrooms, which significantly reduced our energy consumption. To reduce water consumption we replaced all of the faucet aerators in the building from 2.0GPM to 1.0GPM and replaced all showerheads from 2.5GPM to 1.6GPM

showerheads. We also replaced our existing Sloan 0.5 GPF urinals with water free SLOAN urinals in our men's bathrooms. And, in the kitchen we installed a new Ecolab Dishwasher, which is energy efficient and reduces water consumption.

We only use zero VOC (volatile organic compound) paints in our building and we are installing cork flooring in our guestrooms. 95% to 100% of the cork content in floor tiles is from pre-consumer recycled materials. No trees are lost or damaged in the harvesting process.



Nikolay painting the kitchen hood

We recycle pretty much everything; all of our batteries, fluorescents and ballasts are recycled through a third party service contractor. We are taking steps to ensure that our building and our operations afford our staff and guests the opportunity to become better stewards of the Earth and its resources. The 40Berkeley is a member of "Boston Green Tourism" a catalyst for expanding the use of environmentally-friendly practices in Boston's visitor industry. Boston Green Tourism was awarded an Environmental Merit Award by the EPA in April 2008.

And, I have to ask, are you a NAHLE Certified Chief Engineer yet?

I decided to take the NAHLE Certified Chief Engineer exam because I really believe it's good to become certified as a chief engineer. I have spoken to key people in the hotel field and they all say it's a good thing to have. That's what motivated me to join NAHLE.



TOP 5 MOST CREATIVE IDEAS TO REDUCE EXPENSES IN YOUR ENGINEERING OPERATION

Richard Manzolina, CEO
Director of Facilities Operations
Lansdowne Resort, Lansdowne, VA
www.destinationhotels.com

If you are like me, you love a great “Best Of” list. You know what I mean...the top 10 richest supermodels ...the top 5 winning NASCAR drivers...and if you are a Letterman fan, the *Top 10 list of Top 10 Lists*. There is just something innately entertaining about the “best of” concept that keeps us just intrigued enough to read, listen or watch until the end hoping for vindication of our opinions or waiting to do battle with the author on theirs. Either way, if you are as easily entertained as I am, then here’s my take on the *Top 5 Most Creative Ideas You Can Implement to Reduce Expenses in your Engineering Operation*. Admittedly, it’s a topic not nearly as sexy as supermodels. But hey, neither is Letterman.

1) ATTIC STOCK...IT’S NOT JUST FOR THE ATTIC

Atop my list is the capital budget. Most properties have at least a modest reserve for replacement fund...monies for everything from room renovations to a new chiller. If you are lucky, you will have a say in what makes it on the capital list. But even if you don’t, make sure to take advantage of whatever capital funding you have by using it help mitigate foreseeable operating expenses that will invariably hit the engineering budget. As long as you follow accounting rules, this can be a highly effective operating cost reduction strategy.

Everyone knows to ask for extra carpet and wallpaper when they renovate. Not so much to save money, but because try-

ing to find matching materials years after a renovation can be next to impossible. But the idea of attic stock works well for other kinds of capital purchases. For instance, let’s say you are buying a new dish machine. Have the supplier include a stock of high-dollar replacement parts, like pump motors, bearings, spray arms, and heater elements. You’ll save a small fortune in the cost of repair parts over the life of the machine, and save time in sourcing and buying parts later on.

You can use this same tactic with less traditional projects, like refrigeration and lighting. If you are replacing a chiller, PTAC unit, or walk-in freezer, consider including an attic stock of refrigerant. Minor leaks over the life of even well maintained refrigeration equipment are inevitable, and the cost of most refrigerants, even modern ones, adds up fast. Next, if you are like me you may be looking at the next generation of lighting retrofit projects. Replacing incandescent and even fluorescent lighting with super energy efficient LED ‘s makes a lot of sense when you calculate the life cycle cost of the bulbs. But you will still need to have some bulbs in inventory for replacements, and your controller’s memory will be short when you try to explain why the

bulbs you used to pay \$.50 a piece for now cost upwards of \$15 apiece. So be sure to include a healthy stock of extra bulbs in the retrofit project...bulbs which may also be eligible for the same rebate as those being installed on day one.

2) BE YOUR OWN CONTRACTOR

For years, engineers have often been asked to judge the merits of outsourcing a portion of their work. Does it make sense to farm out air handler maintenance, kitchen equipment repairs, lawn care, etc.? Sometimes it does, sometimes not, but regardless of the answer deciding whether or not to keep work in-house is not the only consideration. Sometimes, it makes sense to bring work in-house, especially when that work does not require specialty skills or equipment. Case in point...*window washing*.

To be clear, I am not talking about the windows on your guest room tower. We’ll leave that acrobatic feat up to the professionals. I am referring to work done on the ground...all the glass that needs routine cleaning but is literally beyond the reach of your housekeepers or lobby porters. This work is often sub contracted, but can be brought in-house for a fraction of the cost using cost ef-

For the cost of a glass cleaning crew working one day a month, I was able to add a FTE to my staff who is capable of doing the same work in one week, leaving three weeks a month for virtually anything else.

fective, part time labor. Or better still, it may be feasible to add a full-time staff member for equal cost...creating an extra pair of hands for all those projects that can be done between window cleanings. In my case, tens of thousands of square feet of glass are within 15' of the ground (remember to count both sides). For the cost of a glass cleaning crew working one day a month, I was able to add a FTE to my staff who is capable of doing the same work in one week, leaving three weeks a month for virtually anything else. Need someone to help power washing...no problem. Want to relamp the ballroom? We've got just the guy to help. The opportunities are seemingly endless. So while you will probably still want to contract your chiller and elevator maintenance, take a hard look at some of your maintenance agreements that don't require such a high skill set. You might be pleasantly surprised.

3) ROSES ARE RED....

While we're outside, let's look at the landscaping. Many properties, even in urban settings, incur a significant expense every spring and fall, if not more often, for costs associated with their seasonal color rotation...fancy language for all those flowers you put in the ground that end up dying a few months later. These flowers are, to a great extent, a necessary consumable. Second only to a Bellagio caliber water feature, one could argue that nothing adds as much flare, excitement, and a warm sense of arrival then a well designed and vivid landscape rich in colorful flowers. But those little petunia pots add up fast, with costs shooting into the thousands or even tens of thousands for many properties. For this reason, consider perennials; the long term alternative to costly annual flowers. The obvious benefit of perennials versus annuals is longevity. Annuals last a season and get replaced over and over again, while properly installed and maintained perennials can last indefinitely, generating a much lower life cycle cost.

So why doesn't everyone plant perennials? I suspect the most common reason is ignorance of available selection and

aesthetics. When we hear "perennials", we picture plants and shrubs in umpteen shades of green... materials that provide the back drop in out of the way flower beds rather than plants that are worthy of taking center stage. But when properly selected and cultivated, the right perennials can allow you to have your crocus and eat it too. And the best part...drum roll please...since perennials are a *permanent installation*, their cost can often be capitalized, so the expense does not have to come out of your operating budget. Need more convincing? Here are some of my recommendations for flowering and/or colorful perennials that add lots of beauty, texture, and visual interest to even the most budget conscious properties.

Flowering perennials offer colorful, cost effective alternatives to annual flowers.

From top left, black eyed susans provide striking visual contrast. Day lilies come in a variety of colors, and can bloom as much as three times a year depending on your climate zone. Daffodil bulbs bloom early, creating a splash of color within days of mild spring weather. Most bulbs are available in early and late season varieties, so you can mix and match to maximize your bloom window. Ornamental grasses, such as this Japanese blood grass, provide bold color and depth...this isn't your father's tall fescue!



4) MULCH MADNESS

Since we are already standing in the flower beds, let's dig a little deeper into this frustrated horticulturist's idea bag. Pull back the flower pedals and take a closer look at what lies underneath...that underwhelming but agriculturally responsible pile of shredded trees known as *mulch*.

Well maintained mulch beds provide lots of benefits. Not only do they look nice and create a rich, dark background to help make your flowers and shrubs pop, but they also keep weeds down and the soil moist helping to bolster growth. Problem is...it doesn't last! Seemingly weeks after it goes in, traditional mulch transforms into an uninviting blanket of

matted, weathered grey blandness that does anything but generate visual excitement. But have no fear, dyed mulch is here! If you haven't tried it, prepare to become a believer. Dyed mulch holds its color all season, negating the need for an expensive top dressing of fall mulch. This will make the extra \$10/yd or so you will pay in spring well worth the \$50/yd you will save in fall. Or better yet...use the money to buy some perennials!

5) LOSE THE WEIGHT... AND GET PAID FOR IT.

After we've cleaned the windows and spruced up the landscaping, eventually we will have to get around to taking out the trash. For a hotel, this often

means having the compactor pulled, promptly followed by an invoice from your trash hauler detailing the weight of the compactor's contents...the basis for the hauler's charges. Since most markets charge for waste by the ton, the lighter your trash is, the less you pay. So what's the heaviest item in a hotel's compactor? The liquids are of course...an inevitable byproduct of our food-service operations. Fluids from F&B activities or even rainwater can saturate the contents of the compactor making it heavier and therefore costlier to dispose of. Closing your restaurants is one option to lighten the load, but there is an easier way to get the liquids out and reduce your hauling expense.

Take a close look at the front end of your compactor...the end with the operable door. Look for a pipe nipple or plug sticking out near the bottom. This orifice is designed for connection to a drain line that allows your compactor to squeeze out excess liquid every time the "compact" button is pressed...saving real money with every squeeze. If there's no orifice there, you can install one. Admittedly, you could start a composting program or feed your food waste to the local pig farmer, two of the many "greener" ways of keeping wet food waste out of your compactor. But, what this idea lacks in earth-appeal it more than makes up for in its simplicity. Once installed, employees have to do nothing...no extra work, no special bins and no concerns over the comingling of food and non-food waste. Just press it and forget it, and watch your trash bills shrink. (Note: the liquid byproduct from your compactor should be directed to a *sanitary* waste line...not the storm sewer. Consult your local

building codes before pursuing such an installation).

Hopefully, you will find a few of these ideas apply to your operations, or otherwise help to spawn an idea or two of your own. But for those of you who have stayed until the end looking for closure, I offer you this:

Kathy Ireland probably does not share our enthusiasm for the financial benefit of LED retrofits...at #1 she is reportedly worth over \$350 million. Equally impressive is Richard Petty, with over 200 Nascar wins, one can only wonder how prolific he would have been racing a compactor truck. As for the greatest Letterman Top 10 list of all time, there seems to be no shortage of opinions. From Y2K to Obamacare, the home office in Sioux City, Iowa has apparently never been busier. But consensus seems to favor this winner . . .

The Top 10 Things Never Said Before on "The Sopranos", presented by the cast members themselves. Hmm, maybe I should re-think my idea about those daises.

(A note from NAHLE's editor; this article was written prior to the unfortunate passing of James Gandolfini, may he RIP)



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WATER CONSERVATION — “EVEN RECENT CHANGES ARE CHANGING”

Bill Hoffman

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Just in the last 20 months, almost everything you thought you knew about water conservation requirements, programs, green rating systems, and even where to get information has changed. In 2012, both major plumbing code writing bodies issued new codes with significant water conservation requirements. Additionally, the Federal Government has also instituted new programs to both support water efficiency and set new minimum water use standards. Various states and local governments are rapidly implementing water conservation regulations, and new sources of information are becoming available online, all in a relatively short period of time, this 2012-2013 time period. And, among others properties, Sheraton is launching an aggressive water conservation initiative across all properties.

Is your property ready and perhaps more importantly, are you ready?

The purpose of this article is to provide an update on these and recent changes that will impact the lodging and hospitality industry.

CODES, STANDARDS, AND REGULATIONS

Before discussing codes and standards, it is important to distinguish between the two. Building codes are designed to “tell how to build it.” They can be prescriptive and direct which fixtures, appliances and equipment meeting certain standards be used, but their emphasis is on the act of building or repairing something. Or, they can be performance based stating minimum or maximum requirements that whatever is being built must meet. Standards are also of two types. The first dictates how a fixture, appliance or piece of equipment is made or what level of performance it will have. This sets the minimum bar or threshold for product compliance. The second use with respect to water or energy conservation is to dictate how efficient a building or system will be. Both building codes and standards can be adopted by a state or jurisdiction. A guide is not adoptable and is typically a suggested reference one step below a standard. Various code and standard writing groups have rules for promulgating their code or standard. Each will have scoping requirements telling the reader who the intended code/standard applies to or which use-group(s) it applies to. To add to the complexity our Federal government’s

agency such as EPA are charged by congressional mandate to write regulations interpreting laws promulgated by Congress that have the effect of standards and often the combination of a code and standard. **For example**, on January 4, 2014 the Federal Reduction of Lead in Drinking Water Act mandates reducing the allowable lead content in brass products from 8.0% to 0.25%, thereby ensuring that any pipe, plumbing or pipe fitting, or fixture you purchase, that is intended for use for human consumption, must have less than 0.25% lead on its wetted surfaces. So, EPA is charged with writing a regulation to meet Congress’ law. Standard writing organizations will follow with product specifications matching EPA’s regulation which will then lead manufacturers to produce the new pipes and fixtures to the standard’s specification and distributors like Grainger will then provide only those products meeting the requirements of the Federal Reduction of Lead in Drinking Water Act by January 2014.

CODES – Most state or city plumbing codes are based either on the International Plumbing Code by the International Code Council (ICC) or the Uniform Plumbing Code by the International Association of Plumbing and Mechanical Officials (IAPMO). These two bodies dominate the plumbing code scene. In 2012 both bodies updated their base plumbing codes to include significant water efficiency oriented code elements including code language for the use of alternate on-site sources ranging from rainwater to air conditioning condensate and gray water.

Taking a step further, the two developed green code supplements that can be adopted if a local state or city wishes to. The IAPMO’s green code is the second addition. The IAPMO’s 2012 Green Plumbing and Mechanical Code is a refinement of their 2010 version, while the ICC’s International Green Construction Code’s 2012 edition is its first entry in this area. Both green codes contain sections on:

- Water efficient plumbing;
- Landscape water use;
- Use of alternate sources of water (rainwater, gray water, air conditioning condensate, etc);
- Water efficient appliances;
- Water efficient commercial kitchen equipment;
- Commercial laundry equipment;

- Metering and submetering;
- Pools and spas; and
- Other means of reducing water use.

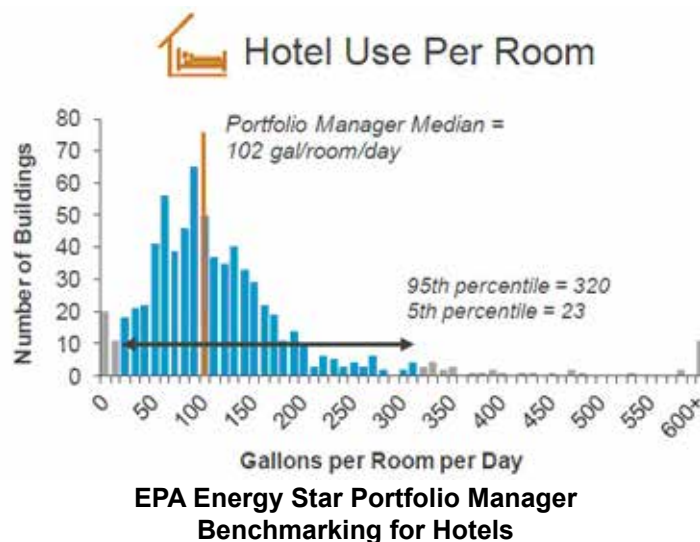
A detailed comparison of these code requirements can be found at the Maximum Performance web site at: (<http://www.map-testing.com/>). Some of the green code items of interest to hotels include 1.28 gallons per flush toilets in guest rooms, 0.5 gallons per minute faucet aerators in public lavatories and 1.5 gallons per minute faucet aerators in guest rooms, and a number of efficiency standards for steamers, combination ovens, ice makers, dishwashers, landscape, laundry equipment and cooling towers.

STANDARDS – Standards in the strictest of definitions are set by the American National Standards Institute (ANSI) through a number of standards writing bodies such as the American Society of Mechanical Engineers, IAPMO, etc., but in general, many governmental entities such as the Federal Government set “standards” through such actions as the Federal Energy Policy Act of 2005 and the Federal Independence and Policy Act of 2007 that set “standards” for water and energy efficiency. With respect to water, the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) is writing standards through ANSI for high performance buildings (ASHRAE S189.1) and are working on a base water efficiency standard (ASHRAE S191P) to be the equivalent of ASHRAE 90.1 for energy. You should recognize the headfirst dive into alphabet soup here. It is this standard’s development that will determine what type of water using equipment will be available in the future. Rainwater harvesting standards, new wastewater drain line performance standards, and many more are under development.

The hotel engineer and manager should be aware of these codes and standards and which code their local jurisdiction follows. For additional information on these codes, please visit IAPMO at (www.iapmo.org) and ICC at (www.iccsafe.org). *A good source for following which jurisdictions per state have adopted what code or standard used to be the National Conference of States on Building Codes. This publication may not be available any more.*

FEDERAL PROGRAMS AND REGULATIONS – Most are already familiar with the US Environmental Protection Agency (EPA) and the Energy Star Program. In the past, energy was it’s only focus, but the Energy Star program now has water use factors for Commercial Kitchen Equipment. Energy Star’s Portfolio Manager program is also familiar to many. They now are benchmarking water use for facilities including hotels. Hotels are benchmarked in this Data Trends web page which can be found at (http://www.energystar.gov/index.cfm?c=business.bus_energy_star_snapshot).

In a recent development, several cities across the nations including New York, Milwaukee, Austin, and Portland Or. are requiring larger commercial facilities to use portfolio manager to benchmark buildings in their service areas.



The EPA now has the Water Sense program which is the equivalent of the Energy Star program for water (<http://www.epa.gov/watersense/>). This program contains volumes of useful information on water efficiency in all types of facilities. WaterSense does not regulate, but is a source of information and certifies water efficiency for many products ranging from 1.28 gallons per flush toilets and shower-heads to pre-rinse spray valves for commercial kitchens.

From a regulatory standpoint, the US Department of Energy is developing new energy efficiency standards for a variety of products. For Federal facilities, **Executive Order 13514** requires a 26 percent reduction in water use at all Federal Facilities by 2020. New energy efficiency standards for all types of water using equipment such as clothes washers and dishwashers are also including water efficiency standards.

In another area are the new storm-water regulations designed to reduce pollution from runoff. Beginning in 2012, these new EPA regulations are being adopted across the Nations at the state and local level. The lexicon for storm-water management is long, but some of the common terms one will hear are; Low Impact Development, MS4, National Pollution Discharge Elimination System (NPDES), etc. A detailed treatment of topics in the new EPA storm-water regulations is beyond the scope of this article, but one of the key features is the design of landscapes, rain gardens, berms, swales, green roofs, filter strips and other devices and techniques used to capture and hold rainfall on the property where it fell. It is important to note, with these new storm-water practices, the landscape and soil profile in the hotel landscape becomes part of the treatment system. It also means that rainwater is captured in the soil and is available for the landscape. **This will reduce the need for irrigation if** the hotel has an irrigation controller that can detect and take advantage of this “free” water. It also means that runoff from improperly designed or maintained irrigation systems will be significantly reduced.

STATE PROGRAMS AND REGULATIONS – The degree to which states promote water conservation varies significantly across the United States. For example, California and Texas have legislation that will require that toilets sold in the state after January 1 of 2014 must be 1.28 gallons per flush or less, and Georgia has already implemented this requirement in 2012. Other states are considering or are planning to adopt the green supplements of the two major plumbing codes, and many are looking at other programs. The Alliance for Water Efficiency conducts an evaluation of state programs. In a 2012 report, only Texas and California received an A- grade. Twenty eight other states received grades between B+ and C-.

The point is that like energy conservation, water conservation is now on the political radar screen and it affects your hotel's bottom line. Just like with energy conservation in years past, expect action at the state and local level in the near future regarding water efficiency. To this end, cities in twenty states across the nation offer water efficiency rebates.

RATING SYSTEMS

Rating systems have proliferated over the last twenty years. There is LEED (Leadership in Energy and Environmental Design) by the US Green Building Council that everyone is familiar with. For the hospitality industry, the Green Key rating system is one of the more "hotel-specific" systems, but this is just the beginning. Other examples of rating systems include the Green Build Initiative, EcoGreen Hotels, the Green Leaf system in Canada and a number of other initiatives. Currently, 33 states have some type of green hospitality program and there are many more. Keeping these rating systems up to date and relevant is a daunting task and this author's examination of several state sites show that many are out of date.

Perhaps the best known and most used rating system is the US Green Building Council's LEED System. Whole articles could be devoted to describing the details of the newer, up-to-date rating system, but LEED Version 4 (V4) which is still in review illustrates where the better rating systems are going. First, the new V4 has specific focus areas including:

- Schools
- Retail
- Data Centers
- Warehouses & Distribution Centers
- Hospitality
- Healthcare

The hospitality ratings for new construction (NC) and existing buildings (EB) have more points for water than previous systems including points in the "Sustainable

Sites" Credit Area. The Water Credit Area includes prerequisites that must be met as well as points for going beyond code and prerequisites. Table 1. summarizes the V4 point system for new construction and existing buildings.

Table 1. New LEED Version 4 Rating System for Hospitality				
LEED CREDIT AREA		Maximum Points		
		New Construction	Existing Buildings	
Integrative Processes		1	n/a	
Location & Transportation		16	15	
Sustainable Sites		10	10	
Water Efficiency		11	12	
Energy & Atmosphere		33	38	
Materials & Resources		13	8	
Indoor Environmental Quality		16	17	
Innovation		6	6	
Regional Priority		4	4	
TOTAL		110	110	
Rating System	Certified 40-49 points	Silver 50-59 points	Gold 60-69 points	Platinum 80+ points

As an example, the new V4 Water Efficiency section for existing buildings contains the following sections:



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- WEp1 Indoor water use reduction REQUIRED
- WEp2 Building-level water metering REQUIRED
- WEc1 Outdoor water use reduction - 2 points possible
- WEc2 Indoor water use reduction - 5 points possible
- WEc3 Cooling tower water use - 3 points possible
- WEc4 Water metering - 2 points possible

It is in the indoor water use reduction credit that for the first time, all types of water using equipment in the kitchen, laundry, water softening, boilers, and for plumbing fixtures are contained. In past versions, only plumbing fixtures points were available. Cooling towers and metering are new topics in V4 also. The Sustainable Sites Credit area also contains significant changes related to storm-water management, landscape design, rainwater management, and other factors impacting outdoor water use. Beta testing began in 2012 and a final ballot to implement the new LEED point system described above will occur this summer.

SOURCES OF INFORMATION AND ASSISTANCE

As the information above shows, the hotel manager and engineer will have to be learning a significant new set of information to keep up with this deluge of changes now under way related to water efficiency. But there is help! First of all, there are several organizations and agencies with information available through either publications or web based information. To begin with, there is this publication, Lodging Engineer. Two organizations that have extensive information on water conservation are the Alliance for Water Efficiency (<http://www.allianceforwaterefficiency.org/>) and the California Urban Water Conservation Council (www.cuwcc.org). They have extensive libraries of information. The US Environmental Protection Agency's 'WaterSense' program is another excellent source on water conservation. WaterSense also has an excellent web-based guide for water conservation in commercial and institutional operations, including information specific to the Hospitality industry. This web-based publication can be found at (<http://www.epa.gov/watersense/commercial/bmps.html>). This BMP has a section for hotel water efficiency.

Professional services are also available. Services range from simple plumbing replacement companies to full service water

conservation companies that can analyze a hotel property to determine what water conservation retrofits and changes in operating procedures make sense to actually designing and implementing these changes. Funding through loans, performance contracting and other methods are also available from national full service firms such as Water Management, Inc. (www.water-mgt.com) who is responsible for this article.

Rebates and governmental incentives are also an important part of making a hotel water conservation program work. This requires that either the hotel engineer be familiar with these source of assistance or that the entity they contract with be knowledgeable. Since many of the improvements for water efficiency also result in energy savings, the person or company responsible for locating funding assistance should also be very familiar with both water and energy rebate programs, possible tax incentives and special grants that may be available. These programs can vary significantly from one region of the country to another.

Training, education, certification and knowledge based sites are just now gearing up to help the facility engineer meet these challenges. Many in the water utility and landscape irrigation professions have had water efficiency training available for several years, but getting this type of training geared to actual hotel operations is developing. Lodging Engineer magazine and www.nahle.org will help keep you in touch with these opportunities.

CONCLUSION

Today's hotel engineer will have to embark on a steep learning curve for water conservation, similar to the one they embarked on a couple decades ago for energy, if they are going to keep ahead of the rapidly rising water and wastewater costs and the rapidly changing codes/standards and regulatory environment. As with energy, the lodging engineer can do much to implement cost effective measures, but in the end, may find that soliciting professional assistance will be needed to institute a complete water management program. In the meantime, the hotel manager and engineer should take advantages of the many information sources and web sites noted in this article to help bring them the latest in the rapidly evolving field of water efficiency.

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THE 2013 GRAINGER SHOW

Larry Wilhelm
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Orlando, FL. NAHLE, had the pleasure of attending the Grainger Show this spring with thousands of building and facility maintenance engineers from across the country. Since many of our members have asked about the event we wanted to share our experience and what we learned about this amazing organization.

The Grainger Show was designed for building engineers to find solutions that improve their facility's bottom-line performance and help operate their properties efficiently, economically, and safely.



Attendees gain valuable knowledge by connecting directly with industry-leading suppliers, business-issue experts, Grainger representatives and their peers.



Guests attend educational sessions and networking discussions for specific groups including hospitality, safety, sustainability, inventory management, property management and emergency preparedness to name a few.

Grainger Town. Engineers can browse through Grainger Town to learn about specialized areas. Attendees can visit the General Store for Inventory Management Solutions and the Grainger Branch to learn about customer services, sourcing and tech support. They can visit the



Travel Agency to speak with the International team or check in to the Library to speak with industry experts on how to reduce costs or visit New Construction



to learn about implementing the newest solutions in sustainability for business. The Police and Fire Station helps attendees integrate the latest in safety and emergency preparedness. That's a lot of information in one place.

Walking the floor and mingling with attendees and a vast array of manufacturers and suppliers is a wonderful way to view the latest innovations, tools, technologies, and solutions. As with everything Grainger does, the floor is organized into supplier categories so you can make the



most of your time finding products and learning about the latest solutions from highly qualified industry representatives loaded with information and resources



Jim Ryan, Grainger's Leader and CEO

from the world's leading manufacturers. It is great fun and truly an educational experience in itself.

GRAINGER HISTORY

Grainger was founded eighty-five years ago by William W. (Bill) Grainger as a wholesale electric motor sales and distribution business in Chicago in 1927. He established the company to provide a consistent supply of motors. Sales in the early days were generated primarily through mail order via post cards and a catalog. The MotorBook, as the catalog was originally called, was the basis for today's Grainger catalog. To improve customer service, Bill Grainger opened a branch in Philadelphia in 1933, and then three additional branches the following year. By 1936, there were 15 branches in operation.

In 1967, Grainger became a public company and today there are more than 700 Grainger branches making the company North America's leading broad-line supplier of maintenance, repair and operating products, with expanding global operations.

A CONVERSATION WITH GRAINGER'S LEADER, CEO, JIM RYAN.

"Cost are going up significantly and companies are looking for cost savings," explained Ryan, "this not only means managing the cost of products, but providing information to maintain equip-

ment, help companies with compliance and support work safety to reduce the cost of lost time from accidents. We are serious about environmental friendly cost management. Company's that tie sustainability to cost savings helps all of us. Think about the new lighting products that drive down costs and improve energy conservation. Grainger now offers 10,000 energy efficient products. Even our headquarters is LEED certified."

Ryan, who started his career in the warehouse, said Grainger is growing rapidly, "Grainger has launched a five-year plan to become the leading product supplier in the world. As a service provider, we will deliver products the most efficient way possible, from our warehouse, directly from the manufacturer or if it is an emergency we have last minute delivery from a local branch. Whatever it takes, Grainger will deliver what our customers need."

But that's not all, Grainger is also proactive in education. "As consultants we help our customers find opportunities to do their job better. Our sales people will walk your facility and make recommendations on things you can do differently. We are hiring a sales force with experience in every segment, working with trade associations to share information and adding products in specific verticals," said Ryan.

HOSPITALITY NETWORKING SESSION & REGULATORY AFFAIRS.

After our meeting with Jim Ryan, Bob Elliott, CEO of NAHLE, spoke at the Hospitality Networking Session, hosted by Robert Bahl, Vice President, Engineering, Marriott International and

attended by hotel engineers from across the country including Bob Jones of Marriott and Randy Gaines of Hilton to name a few. Bob Elliott updated the group on regulatory affairs in the hotel industry and led an informative discussions on CO detectors and storm water management, concluding with a lively discussion on electric vehicle charging stations.

Meeting with Jim Ryan, one immediately senses he is a highly energized and focused leader whose goal is to deliver the highest quality products fast and efficiently. According to Jim, "our mission is to be a very organized supply chain for our 20 million customers. With 400,000 products in stock and over 700,000 products on Grainger.com our customers can see if the product is in stock and determine how long it will take to receive their items. If we don't have it, we will find it and deliver it. Customers can call or visit our 700 Grainger branches for personal service or you can search products on the go with Grainger's new mobile app.



Jim Ryan and Robert Elliott



DIAGNOSING THE WARNING SIGNS OF HOTEL INDOOR POOL PROBLEMS

Ralph Kittler
P.E., Vice President
Seresco Technologies
www.serescodehumidifiers.com

The hotel/motel industry is rife with problematic indoor pools.

Unfortunately many hotel chains unknowingly accept chlorine odors in non-pool areas, surface mold growth, condensation on windows, corroded metals and other dysfunctional signs. These problems are not acceptable and many times can be remedied with knowledgeable investigative troubleshooting by hotel engineers.



Natatoriums, *building(s) that contain a swimming pool*, have many unique design challenges that are not always obvious to anyone unfamiliar with their state-of-the-art requirements. The dehumidifier, which is an indoor pool's key mechanical HVAC equipment, is unduly blamed. However, the majority of indoor pool problems are not related to the dehumidifier, but caused by the facility's original design and construction faults such as building pressurization imbalances, improper vapor barrier specification and installation, or dysfunctional ventilation design. They can also be due to poor water chemistry and maintenance. Regardless, most dehumidifier manufacturer's factory technicians are good natatorium troubleshooters because they're

typically the first responders to problems and see dysfunctional indoor pools firsthand.

CHLORINE ODORS IN COMMON AREAS

Chlorine odors are noticeable in many hotel and motel common areas after only stepping into the lobby. Any hint of chlorine odors outside of the indoor pool area typically signifies a building pressurization problem.

Indoor pools are purposely designed with a slight negative building pressure under the guidelines of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards for natatoriums.

Negative pressure (exhaust air) is critical, because it ensures there is always some portion of natatorium air, presumably containing some pool chemicals, being exhausted and replaced with fresh outdoor air. Design engineers ensure negative pressure by specifying one or more exhaust fans in the ventilation system. A continuous dilution of the airborne chemicals helps ensure the best possible indoor air quality (IAQ).

The exhaust fan, which might be packaged with the dehumidifier or mounted separately, should be checked first. A positive building pressure in the pool area might signify the exhaust fan is no longer working properly or its original cfm configuration has been changed. All it takes is one person fiddling with the exhaust fan or outside air dampers and an imbalance of exhaust or outside air creates IAQ problems.

A facility with a long history of pool area chlorine odors, might have had someone decide that more outdoor air was needed for dilution. Thus, they may have opened the outdoor air damper and unbalanced the entire system by creating a positive pressure environment. Thus, the IAQ problem remains unresolved and new complaints inevitably arise about pool odors residing in the facility's outlying rooms. Thus, it's highly recommended that hotel engineers develop a solid understanding of the pool's overall ventilation system air pattern.

Burning eyes and respiratory irritations *within* the pool area might signify a chloramine problem. Chloramines are chlorine atoms that attach to ammonia, perspiration and other byproducts of human body functions. The result is a toxic, heavier-than-air chloramine gas that hovers just above the water surface in the human breathing zone. Typically, this problem is associated with water chemistry. All hotel engineers should understand pool water balance and have the test kits and training to test water even if outside swimming pool service companies are contracted to maintain pool water.

Persistent chloramine problems might better be solved with water side alternatives such as ultraviolet irradiation, sorghum moss, or a deck-level air capture exhaust system.

CONDENSATION ISN'T ACCEPTABLE

A pool's dehumidifier is also many times blamed for excessive pool area condensation on windows, walls and ceilings, since its key function is to maintain a 40 to 60-percent relative humidity (RH).

Window condensation is never acceptable and can still occur even though the dehumidifier is providing low 30 to 40-percent RH levels. Instead of a dehumidifier malfunction, window condensation typically signifies an air distribution problem.



Window surfaces colder than the ambient dew point temperature will experience condensation

Window surfaces colder than the ambient dew point temperature will experience condensation, much like a cold can of soda on a summer day. The low insulating R-values of windows and skylights make them notorious for condensation when their surface temperature drops below the dew point temperature, which can be very high in natatoriums. For example, an 82°F space temperature plus 50-percent RH will produce a 62°F dew point temperature.

If proper airflow is distributed across window surfaces, thus warming every square inch of the window and/or skylight above

the dew point temperature, condensation can be eliminated. Another possible reason for airflow problems is ductwork installation errors. For example, sheet metal duct elbows installed too close to the dehumidifier's supply air discharge could cause airflow resistance or turbulence that might affect air distribution throw distances in the natatorium.

Overhead or under-deck ventilation ductwork should span the entire width of windows. A common architectural mistake is the specification of windows with mullions that jut out on the interior rather than the exterior. Interior mullions block air flow across the entire window surface. Hotel engineers can reroute ductwork or replace inadequate or poorly positioned diffusers to distribute even airflow across window surfaces.

While window condensation signifies air distribution challenges, wall condensation indicates the wall's insulation is insufficient or the R-value is too low. Wall condensation is the more serious issue of the two, as any amount of it must be addressed immediately to avoid serious building structure deterioration.

VAPOR BARRIERS

Another problem related to walls and ceilings is the absence or breach of a vapor barrier, which is a ubiquitous plastic sheeting that basically envelopes the entire pool room.

Indoor pools are warm environments with 40 to 60-percent relative humidity (RH). This environment has a high vapor pressure relative to the outdoors during cold weather. The vapor barrier is akin to a balloon keeping moisture contained in the environment. A vapor barrier that isn't tight due to a tear allows moisture to migrate through walls and roofs toward the low vapor pressure of the outdoors. Just a small seam that wasn't properly sealed by the installing contractor or a tear during construction can allow moisture into areas where it will eventually damage the building envelope or even its infrastructure.

Condensation migration in subfreezing climates could produce ice on a natatorium's exterior wall or roof, which is a serious issue that should be addressed immediately.

DEHUMIDIFIER OPERATION AND MAINTENANCE

Dehumidifiers don't require much routine maintenance other than regular air filter change-outs. Older dehumidifiers with belt-driven blowers may need routine fan belt tension checks and lubrication. More modern units with direct-drive fans typically don't need lubrication, however an on-site engineer should always keep his eyes and ears open for any unusual sights and sounds.

Outdoor exhaust dampers need regular cleaning. Generally, outdoor air dampers remain open 24/7 unless the pool area is subject to an occupied/unoccupied schedule that automatically closes them at night.

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Seresco Adds 90 to 140-Ton Indoor Pool Dehumidifier Sizes to its Protocol NP-Series

Like all refrigeration circuits, any visible bubbles or an unusual color in the liquid line sight glass, if there is one, can denote a problem with the system and a service technician should be called immediately. Some manufacturers have sight glasses on receivers for refrigerant level troubleshooting and the appearance of bubbles there doesn't necessarily denote a problem.

Relative humidity (RH) level performance by the dehumidifier can be checked with a hygrometer. Newer dehumidifier models have on-board microprocessor controllers with readouts for RH as well as space and water temperatures, refrigeration circuit operating pressures and other vital signs. High RH typically points to two problems: 1) the facility is being run at conditions for which it wasn't designed; or 2) the dehumidifier isn't operating optimally.

There are many instances where a facility unknowingly deviates or evolves away from its original space and water temperature design. For example, if water slides, water cannons and other water toys were added to the original design, it may raise the evaporation load to a level that surpasses the dehumidifier's capacity.

In another example, the pool's 82°F space and 80°F water temperatures--a two-degree differential recommendation that most experienced consulting engineers typically comply with--might have been skewed and the system is inefficiently wasting energy. Maintaining space temperatures above water temperatures minimizes pool water evaporation. If the room temperature is set below the water temperature due to complaints from fully-clothed occupants such as child chaperones or cleaning employees, for example, the evaporation rate will increase, RH will surpass acceptable levels and the dehumidifier's energy usage will increase exponentially.

Both of these examples illustrate the need for hotel engineers to find the system's design operating parameters and what type of dehumidifier/ventilation unit the facility has so operation expectations will be realistic.

A traditional compressor-based dehumidifier, which is used in a majority of natatoriums, should maintain 60-percent or lower RH and a year-round stable space temperature. A minority of pools operate ventilation-only style systems without compressors and a refrigeration cycle. They have the capacity of maintaining similar RH levels and space temperature with good controls during cooler weather by utilizing drier, outdoor air. However, as outdoor temperatures get warmer, the ventilation-only system can only provide temperatures that are available outdoors, thus humidity levels will generally surpass 60-percent in summer months.

DEHUMIDIFIER REPLACEMENT

Technology advancements the last 10 years combined with the EPA's phase out of R-22 refrigerants make dehumidifier replacement more feasible than ever before.

Since all refrigeration coils leak sometime during their lifecycle, replacing R-22 (HCFC) machines with dehumidifiers that use less expensive, environmentally-friendly HFC refrigerants will pay dividends as R-22 refrigerant costs continue to skyrocket during the phase-out. Larger dehumidifiers, such as those used for resort indoor water parks, might also find more economy in a modern dehumidifier replacement that uses glycol heat rejection loops to reduce refrigerant charges by up to 85-percent and limit the cost and environmental liabilities of refrigerant leaks.

Many of today's dehumidifiers offer Web-based monitor and control where the factory technicians can set-up alarms and review dozens of operating parameters via the machine's Ethernet connection. This highlights efficiency and performance problems and expedites repairs immediately instead of waiting for months of inefficiency to discover the problem during annual service check-ups.

Furthermore, recent technological improvements such as exhaust air heat recovery and direct drive fans have such huge impacts on energy savings versus dehumidifiers from 10 or more years ago, that replacement costs are many times offset by quick paybacks.

Since the 1980's, a very common feature among dehumidifiers is energy recovery from compressor waste heat to provide free pool water heating. Frequently, dehumidifier manufacturers find this option not hooked up on-site. Instead the back-up conventional pool water heaters, that rely on gas or electric, are providing pool water heating. Or the auxiliary pumps associated with the free pool water heating are not installed or working properly. Free pool water heating from heat recovery can save thousands of dollars annually per location in energy costs.

Seresco recently produced a free Professional Development Hour (PDH) video available at www.serescodehumidifiers.com. (NAHLE will be requesting a copy of this video to make available on our new website) The video targets the continuing education requirements for consulting engineers, but also serves as an invaluable primer of indoor pool design and operation basics for



**Dave Lucas, President & Co-founder
Seresco Technologies Inc**

Seresco's Professional Development Hour (PDH) Video can be viewed for free by clicking on the following URL at www.serescodehumidifiers.com

hotel and lodging engineers and maintenance staffs. The bottom line for the hotel engineer is to know the basics of natatorium design and the system operation, so that any problems can be recognized sooner and the real cause is quickly identified and rectified. The end result will be a more comfortable environment for patrons and a long-lasting facility with the lowest possible operating costs.

Ralph Kittler, P.E., is a co-founder and vice president-sales/marketing of Seresco USA, Decatur, Ga., a subsidiary of Seresco Technologies Inc., an Ottawa, Ontario-based leading manufacturer of natatorium dehumidifiers. Seresco recently introduced a free Professional Development Hour (PDH) video at www.serescodehumidifiers.com that details complete natatorium and dehumidifier design and function. Kittler has 23 years experience and is an ASHRAE distinguished lecturer that can be reached at ralphkittler@serescodehumidifiers.com or 1-770-457-3392.



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CARBON MONOXIDE ALARMS FOR HOTELS CHANGE IS COMING!

Thomas G. Daly MSc. CSP
The Hospitality Security Consulting Group, LLC



The International Code Council (ICC) voted at its last meeting to substantially modify provisions in its International Building Code (IBC) and International Fire Code (IFC) for the 2015 editions involving requirements for carbon monoxide (CO) alarms for hotels.

In the first of two votes, the ICC Code Development Committee (CDC) approved recommendations from its Fire Code Action Committee (FCAC) to focus the requirements for CO alarms in hotels to only those locations where fuel fire appliances are installed or where a hotel has a connected unventilated garage. The CDC's recommendation to make this change from the existing code requirements was without dissent from its 14 members and there was no public opposition.

The Hospitality Security Consulting Group, LLC testified in support of this change on behalf of the American Hotel & Lodging Association and was a participant in the drafting and lobbying for the code change over the past 18 months. The ICC will hear public comments on this change over the summer and vote again in October to finalize their decision.

This action is a significant change from the 2012 IBC and IFC which requires CO alarms in all guest rooms or a CO detection system throughout all 'common areas', an undefined term in the code.

If your state or local regulators are in the process of adopting either the 2012 IBC or IFC or both, you should make them aware of the pending changes to these codes relative to the requirements for

carbon monoxide (CO) alarms for hotels. California has already delayed implementation of this requirement for existing hotels until January 1, 2016 and will consider changing its current regulations to reflect this new IBC & IFC language once final.

As of April 2013 only Wyoming, Mississippi and Utah have adopted the 2012 IFC impacting existing hotels but those states plus Maryland, Vermont, Missouri and South Dakota have adopted the 2012 IBC affecting newly constructed hotels and more states are considering adopting both codes.



ICC Committee focuses requirements for CO alarms to only locations where fuel fire appliances are installed.

The proposed 2015 code changes largely follow existing Massachusetts and New Jersey regulations for CO alarms in hotels which have been in place for a decade or more without any reported CO related fatalities in hotels so equipped. Boiling down the proposed changes in

the 2015 IBC and IFC they will require a CO alarm or detector within any room in a hotel which contains a fuel-fired appliance and in some ancillary spaces but nowhere else. For most hotels that would mean a CO alarm or detector would be needed in a mechanical equipment room with a gas-fired boiler, a pool heater room with a gas-fired heater, kitchens with gas-fired stoves and emergency generator rooms with diesel fired generators. Should a hotel have a wood or gas-fired fireplace in the lobby a CO alarm or detector would be needed there as well.

Even providing CO alarms in all of those locations would cost less than \$1,000, a far cry from the current code requirements for CO alarms in all guest rooms where there are no fuel-fired appliances typically.

Final action on these changes will be reported here in **Lodging Engineer** in November.

Thomas G. Daly, M.A., MSc, CSP is a Principal and Managing Member of The Hospitality Security Consulting Group, LLC. He is a former member of the NFPA Committee on Carbon Monoxide and previously served as Vice President Loss Prevention for Hilton Hotels Corporation. He is a certified safety professional and holds a master's degree in safety from the University of Southern California



THE IMPORTANCE OF HAVING MONTHLY ENGINEERING MEETINGS

Manny Mercado, CCE, CPO

Hello everyone, I can say it has been a pleasure writing articles for Lodging Engineer to help in any way I can to assist many of you in running an efficient engineering department. Today I am proudly representing a great property called the Westin Governor Morris hotel in Morristown NJ as Director of Property Operations. Many of you who have been following my articles know how I got into the hospitality industry and how it has led to my success (LE Winter 2009 issue). Today I write about the importance of monthly engineering meetings.

You are only as successful as your team is . . .

I know many of you will look at it and say not another meeting OMG. For you out there who are in a supervisory capacity please take note. You are only as successful as your team is. This means that you look good as good as your team represents you. So if you want to look good in the eyes of others make sure your team has the resources and tools to make that happen.

From my experience, monthly meetings have proven over and over to me that it works whenand benefits running a successful operation. It's like a circle of life, you have the knowledge, you pass on that knowledge and when it comes back around to you what you will hear is you are doing a great job. Remember the eyes and ears are the ones outside the engineering department, visitors, hotel guests, other department managers, and other associates and of course the big one; the General Manager.



What you may lack in resources you can always makeup in Teamwork

When I took over this property I quickly got involved and shared my knowledge. What I found out was the team needed some retraining. Once I retrained on areas that they needed most, many service calls were resolved quickly and efficiently. As a leader don't always assume that the team has the same ability as you do, unless they have proven it to you. If you go on assuming when it comes back around you will find yourself in the hot seat or not looking good in the eyes of others. Also, I don't think you want to get repeat calls from a guest because it was not resolved correctly in the first place. In these meetings, I do a refresher such as when taking a call and responding to a call; always respond and resolve it quickly. When it comes to guest request needs, the clock starts to tick the minute they place the call. If it goes on for a while tick tock,

tick tock, tick tock and then, the unfortunate ticked off. Remember to always have an open floor for the team to address concerns. This means you do nothing but listen and take notes of where you need to improve to help your team.

Before you know it your meeting results will be running flawlessly because the team is operating efficiently and are tuned in to the goal of success. Feed them success and in return you will continue to succeed in your career, where recruiters and employers are eager to get You! on their team. When establishing a meeting date always be prepared with a list of objectives. If you feel from your last meeting one of the objectives has not been met, put it back on the list for the next meeting and keep doing a refresher until you get results.

IT'S TIME TO JOIN

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