

ISSUE

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SUMMER 2015

Lodging Engineer

Engineering and Maintenance
Mastering the Basics

Hotel Welfare and Security
Safety Is No Joke

Applying Value Engineering
VE Follows a Process

**Are Your Hotel Amenities
Attracting Uninvited Guests?**

Swimming Pool Safety

FEATURED

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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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Are Your Hotel Amenities Attracting *Uninvited Guests*?

By Ron Harrison, Ph.D.

Director of Technical Services, Orkin, LLC



When choosing a hotel, a traveler can be swayed by the amenities offered to guests. It's often the convenience and comfort of these added perks that define the guest experience and make your accommodations a home away from home for travelers. These offerings may earn you bookings, but without proper maintenance, they may also invite unwanted guests into your establishment – pests.

A 2014 survey by hotels.com <https://www.yahoo.com/travel/bp/surveys-reveal-travelers--favorite-hotel-amenities-232202255.html> found that three of the top ten hotel amenities desired by travelers are complimentary breakfast, swimming pools and hotel lounges, all of which are hot spots for pests.

In a world where social media and instantaneous online customer reviews, it only takes one pest sighting to negatively impact your hotel's

reputation. As a result, keeping your amenities as clean and pest-free as possible is critical.

To help stop pests from negatively affecting your guest experience, work with a pest management professional to implement an Integrated Pest Management (IPM) program. IPM aims to prevent pest problems before they occur with a combination of stringent sanitation and facility maintenance.

Regular inspections and maintenance as part of an IPM program, especially in and around pest hot spots, will help keep pests out. Here's a look at three amenities that can attract pests and some IPM tips to help prevent pest problems in these areas.

Complimentary Breakfast

Complimentary breakfast landed at number one on Hotel.com's list of the top ten amenities desired by travelers. Complimentary breakfast, often served buffet style, is convenient for guests, but can also be a convenient meal for pests like cockroaches, flies, rodents and stored-product pests. To discourage pests from joining the buffet line, continually monitor the area for spilled food items and wipe down spills immediately.



Try to adhere to the posted breakfast hours and avoid leaving food out for extended periods of time unchecked and uncovered. Remove food items after breakfast is over and store them in sealed containers. Regularly remove trash from the dining area to prevent food odors and vacuum the floor when breakfast hours are over to remove any remaining debris.

Swimming Pools

Pests are attracted to pools because they provide a moist environment and readily-available food sources – snacks are common on the pool deck, which means food debris and drink spills are inevitable.

Common poolside pests include cockroaches, wasps, bees and mosquitoes. Mosquitos and wasps are particularly worrisome in this area as they can cause guests painful bites and stings and even severe allergic reactions.

To help prevent pests from invading the pool area, only allow food and beverages in designated areas and clean up food and drink spills immediately. Make sure the pool area has plenty of trash cans and keep them covered with a tight fitting lid to avoid providing pests a free meal.

Empty trash cans regularly and rinse them out to prevent food debris from building up inside.

Standing water can serve as a breeding ground for mosquitos, so clear all puddles on the pool deck by using a squeegee or broom after it rains.

The warm, moist environment of indoor lap pools, heated whirlpools and the sauna, can also attract pests like cockroaches and rodents. Regularly inspect these features for leaks and pest activity, and seal cracks in the tiles around pools and the sauna doors to contain moisture.

The Hotel Bar

Sticky residues from spilled drinks and crumbs from bar food can serve as late night snacks for pests, which means sanitation in the lounge or bar area is critical. At the end of the night, remove all food items from the bar, including fruit slices, olives and other garnishes, and store them in airtight containers. Fermenting alcohol can attract pests like flies, so it's important to cover all liquor bottles and clean any surfaces where drinks may have spilled, including tabletops, counters and floors. Don't forget about the area under the bar, too – food debris can easily accumulate here if not cleaned regularly.

Dispose of all empty bottles and cardboard boxes. Fruit flies can lay eggs in bottles, while cockroaches can use the corrugated cardboard as shelter and even eat the glue that holds boxes together.

Finally, keep ice dispensers, refrigerators and soda fountains in working order to prevent leaks or excess condensation, which can attract pests.

Your amenities, not pests, should define your guest experience. Work with a pest management professional to implement an IPM program to help keep pests outside where they belong so you can spend more time focusing on providing an exceptional experience for your guests.

To find out more about amenities that may be affecting your pest control practices, please join Dr. Harrison for a free webinar on July 23 at 1 p.m. Visit www.nahle.org to sign up.

Ron Harrison, Entomologist, Ph.D., is Director of Technical Services for Orkin. He is an acknowledged leader in the field of pest management with more than 30 years of experience. Contact Dr. Harrison at rharriso@orkin.com or visit www.orkin-commercial.com for more information.



IMPROVE YOUR A.I.M. AGAINST PESTS: WEBINAR OPPORTUNITY

Register now for Dr. Ron Harrison's webinar: "Hotel Amenities and Pest Pressures" at NAHLE.org. Space is limited.

**July 23, 2015
1:00 PM EST**

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8 PLACES TO CHECK OUT BEFORE PESTS CHECK IN

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Round-the-clock room service, fresh linens, beautiful landscaping and outdoor amenities all make hotels and motels hospitable to paying guests. But these same conditions can also facilitate pest infestations. Fortunately, regular inspections and maintenance of a few common "hot spots" in and around your property will help keep out flies, mice, cockroaches, bed bugs and other unwelcome guests. Here's a brief guide to eight places where you're likely to find pests and tips to help prevent pest problems in these areas before they start.

1 LOBBY & OTHER ENTRANCES



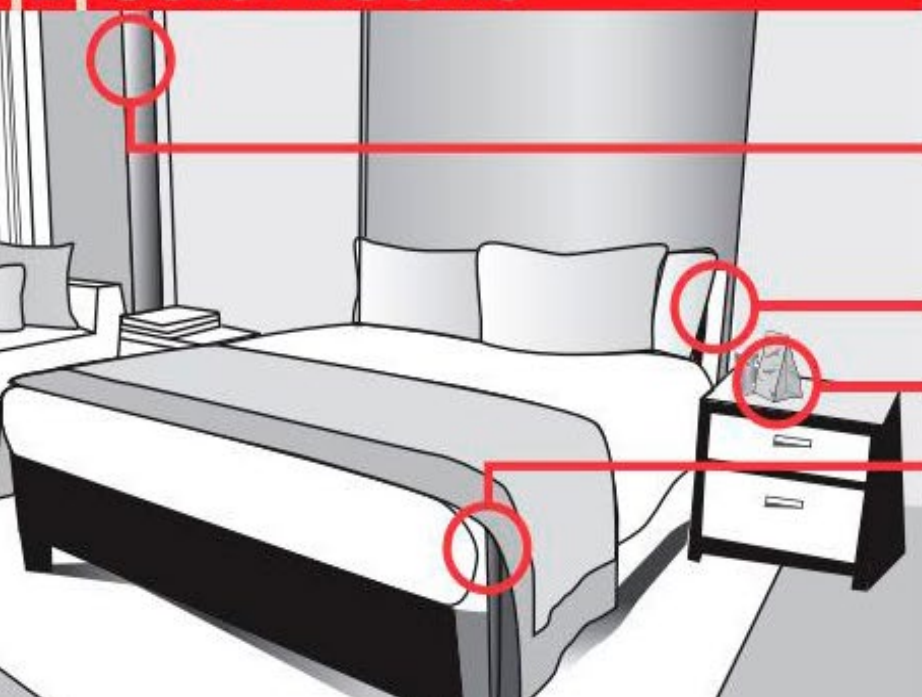
Common pests: Flies; ants; cockroaches; mosquitoes

Where you'll find them: In the lobby or near entryway plants; under doors; near cracks and gaps

How to prevent:

- Work with an HVAC professional to make sure air flows out of open doors and blows out pests.
- Keep doors shut when possible and install door sweeps and weather stripping to create a secure seal.
- Cut back foliage and low-hanging branches at least two feet from the façade. Install a gravel perimeter two feet deep around the immediate exterior of the building.
- Review landscaping choices with a pest management professional to select varieties that discourage pests.
- Use artificial plants and trees in the interior where possible.
- Reduce outside water sources around door areas.

2 GUEST ROOMS



Common pests: Cockroaches; ants; bed bugs

Where you'll find them: Bathrooms; ceiling fixtures; mattresses; headboards; under carpet

How to prevent:

- Ask housekeeping staff to keep an eye out for potential hiding places (buckling wallpaper or carpet) or other conditions that may attract pests and report them to maintenance immediately.
- Remove headboards and inspect behind them for bed bugs every six to 12 months.
- Eliminate food debris and excess moisture wherever possible during thorough room cleanings.
- Train housekeeping staff to inspect for tiny, rust-colored stains indicative of bed bugs on mattress tags and seams and under seat cushions during regular room cleanings.
- Quarantine bed bug-infested room(s) and any adjoining rooms immediately for treatment.

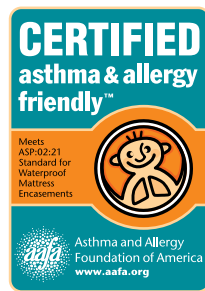


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Engineering and Maintenance, *Mastering the Basics*

By William Blackmon, CDOE



If you mention any of these names, Michael Jordan, Jack Welch, Bill Gates, Jack Nicklaus, Warren Buffet, or Serena Williams, most people will instantly recognize them. These are all individuals who demonstrate the highest levels of ability in their professions. We imagine they hold secret powers, mastering some mystical level of skills only a select few individuals will ever develop. However, this is not necessarily the case. Often times, their success hinges on their mastery of the basics and fundamentals that even beginners in their field rely on. With this same thought process, it is now more than ever critically important for engineers and technicians to master the basics of our profession in order to become fully competent. As part of NAHLE's continued ongoing commitment to develop its member's expertise, this article has been written to provide several best practices and recommendations you can follow to help you master the basics in your field, hospitality engineering.

There are three areas we must consider in order to identify the basics that make up our profession. The first is you, the engineer. The second is the property you are responsible to maintain and repair. The final area is the tools and methods that you use every day in your work. This article follows a step process to make it easier to plan and implement the items from the lists. We will begin with the first area, you, the engineer.

FEATURE



1. The Engineer

1. Determine where you are in terms of ability and knowledge. This calls for an evaluation of your strengths and weaknesses. Evaluate yourself honestly and list your strengths from best to worst.

2. Create a list of the most common problems at your property or facility. By comparing this list with the list you created in step one, you can determine which area you need to focus on developing first. If you are weak in the electrical field, and your property has ongoing electrical issues, this would be the most beneficial area for you to concentrate on first.

3. Identify your best and worst traits or habits. Work to resolve your bad habits. Most people are unaware of the negative impact their bad habits make when they are considered for raises and advancement opportunities.

4. Use your time as effectively as possible. When things are slow and you don't have any specific tasks assigned to you, work on improvements. Organizing, cleaning, labeling, reviewing manuals, studying, inspecting parts of the property seldom visited, these are all steps that will pay big dividends over time. In industry, there is a Japanese management concept called "kaizen" that focuses on eliminating waste in all systems through continuous incremental improvement.

5. Maintain a positive attitude every day. This is even more important on your worst days. This one factor will prevent the best candidates from being hired. It will end any chance of a raise or promotion if you are already working. Negativity is a career ending ailment and you do not realize the impact it can have on everyone in your team.

6. Stay current on relevant topics of the hospitality industry. NAHLE and Lodging Engineer Magazine are incredible resources for this type of information. Ask your management team what issues are affecting your property the most, and take action where you can. By showing a vested interest and exceeding expectations, you will become a valued part of the team.

7. Perhaps the single most important step is to follow a proactive approach to solving ongoing maintenance problems at your property. Use tools to analyze failure trends. Study the repair history of the equipment. When possible, use failure analysis to help determine root causes before more problems arise. An ounce of prevention can be worth a thousand pounds of cure in today's high cost world.



2. The Property

The next area to consider is the property. Well maintained properties look like.....well maintained properties. This is the easiest area for engineers, property managers, guests, and others to recognize and it can impact business significantly. Curb appeal will bring in guests, or drive them away. Once inside, they expect things to look and function as they should. Most people would love to own an eye catching Ferrari, but if it did not run it would be a total disappointment. Let us review some steps you can take to ensure your property always looks great and the systems and equipment performs well.

they will immediately notice. That missing piece of trim in the main lobby or the discolored ceiling tile might seem trivial, but it can alter opinions. One of the things I notice at nearly every property I visit is water stains under an outdoor hose faucet. It is unsightly and easily prevented, yet commonly found.

3. Every system, piece of equipment, room, and area of the building should be on an established, written preventative maintenance (PM) schedule. Each PM should have specific instructions and include all steps necessary to maintain, inspect, and/or test each item.



“Pay close attention if a vendors tells you something needs immediate attention.”

1. View the property from the main entrance every day. Many properties have an employee access or entrance, and until we see from the vantage guests have when approaching, we might not realize that something is unattractive or looks unappealing. Also take the time every few days to walk the entire perimeter of the property.

2. Closely inspect the common areas of the property at least every other day. Pay close attention to the details. Guests have a very keen eye when evaluating a property. What we might grow accustom to seeing and not realize,

The list should include the frequency the PM should be completed and who is responsible for ensuring it is completed on time.

4. Some equipment or systems may, or do, require the expertise of outside vendors to undertake PMs, inspections, and repairs. Such systems or equipment may include vertical transportation systems, boilers, fire alarm systems, chillers, and others still. Make sure the vendor is qualified, properly licensed, insured, and authorized to do any work before allowing them to start. The vendor should provide a step by step task list of the work done and

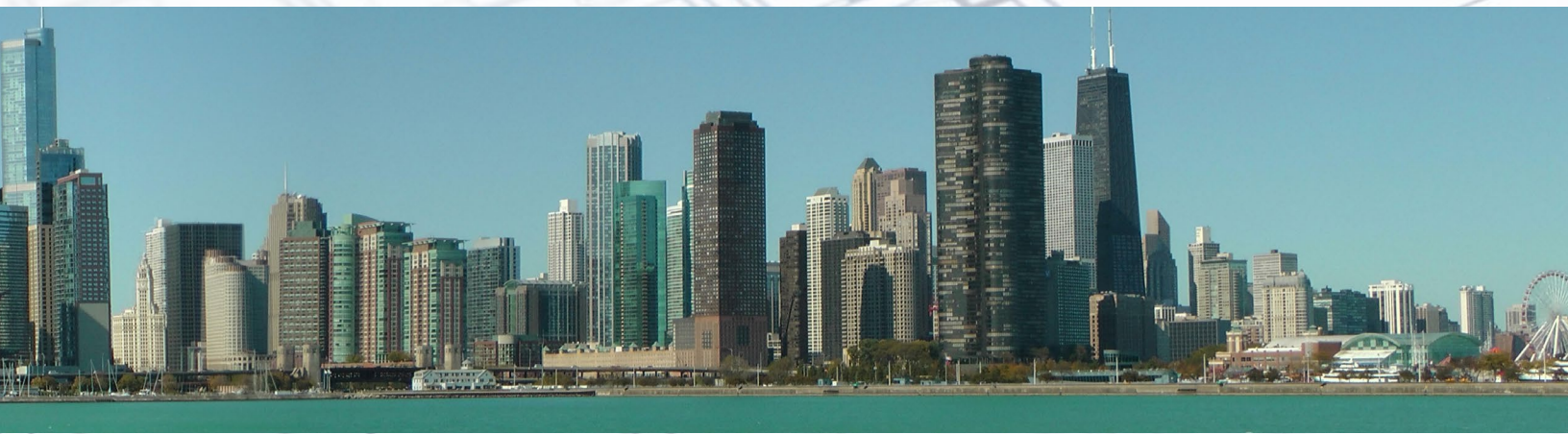
an area for comments and recommendations. Pay close attention if a vendors tells you something needs immediate attention. Delaying action could be catastrophic.

5. Due to regulatory compliance, periodic PMs, repairs, or tests are required for certain critical equipment. They must also follow or adhere to a certain mandated schedule or timeframe. Check with your state or local codes enforcement division, OSHA, the EPA, your state fire marshal, health department, local utility, or others for guidance.

and ears to help identify issues before they become serious or before a guest complains.

9. Always keep work areas as clean and organized as possible. If you are painting in an area, a guest will expect that it will look like work is underway. However, they will not expect the area to look like a garbage dump with trash and debris scattered around.

10. Remember to keep all areas of the building presentable, even areas guest do not typically see. I remember a hotel I once stayed at that I happened to walk by as an engineer was coming out of a



6. Manufacturers of equipment and devices will also require PMs to be completed on a certain schedule or the warranty may be voided. Refer to the manufacturer's manuals or instructions to determine the proper schedule and the requirements that must be followed. Good engineers become great engineers when they take the time and effort to read and follow instructions first.

7. Make sure to keep records of all the PMs once they are completed. Insurers, compliance officials, and perhaps even manufacturers may ask for proof that these systems or equipment have been tested, inspected, and maintained properly.

8. Take time to review guest comment cards. Ask the staff if they have any concerns or issues, or if they have noticed any problems. You will gain a better understanding of your property by using all the eyes

and ears to help identify issues before they become serious or before a guest complains. I could see into the area and it looked like a trash dump. I had a far less favorable opinion of the place then.



3. Tools and Methods

The last area we will cover is the tools and methods we use to maintain and repair the property. Often times as engineers, we forget the importance of caring for the tools we depend on. Also, we seldom stop to consider the methods we follow in going about our daily work. We will review some best practices to follow.

1. Keep your tools organized. Industry uses “shadow boards” to store and visually organize tools. It is simply a peg board, wall, or any flat surface that has an outline painted in the shape of the tool where the tool will hang or be stored. If you want to test yourself, time how long it takes you to find a certain tool. The very best professionals I have worked with had their tool cabinets labeled and marked and could locate any tool they owned in seconds.

2. PM your tools regularly. It is a sad fact, but tools are often neglected. Clean, lubricate, sharpen where necessary, and inspect them for damage. If a tool is damaged, repair it if it is possible to do so safely and properly. If not, discard it and replace it.

3. Keep your tools where they are needed when possible. You can save considerable time by following this simple step.

4. Get into the habit of inspecting ladders, tools, safety equipment, etc. before each use. Accidents don't just happen. My wife worked at a hotel in which an engineer fell and died when a ladder slipped out from under him.

5. Buy quality tools. They will serve you well for most, if not all, of your lifetime.

6. Organize your manuals and technical reference material. When a critical system fails, the last thing you want to do is add more down time while you search through piles of manuals to find the one you need.

7. Organize your spare parts and keep track of usage and inventory levels. It will surprise you to learn how much money can be wasted buying unneeded parts. What is worse is not having that one critical part that has a long delivery time. When extended equipment downtime causes lost revenue or guest complaints, management takes notice.

8. When a failure occurs and it takes an extended period of time to diagnose and repair, follow up afterward by documenting the issue and the correct steps that were taken to identify the problem. Be as detailed as possible. Then try and determine a root cause and implement good solutions as quickly as possible. Odds are it may happen again. If it does, you at least know how to diagnose it properly without relying on memory. This is my favorite tactic I have used to solve problems and limit the effects of reoccurring issues. Don't get called to the carpet to answer why lightning struck twice with the same ill effect both times.

We have covered many methods that you can apply to help you master the basics of engineering. Each engineer has his or her own personal strengths and weaknesses, and each property or facility has its own unique challenges. While this article serves as a good guide, the main purpose of it has been to help you to evaluate and to contemplate your situation. Using these methods, create a plan of development for yourself and your property. Tailor the plan to your individual circumstances and reevaluate at least every 3 months.

When you strive to master the basics of your profession, you will distinguish yourself by solving issues and problems better, quicker and more efficiently. Management will save time and money, your coworkers will have a better facility to work in, and the guests will be satisfied they choose your property to stay at. By continuing to partner with NAHLE as a member, you will build a lifelong reputation as a dedicated professional that has mastered the basics in your field, hospitality engineering.

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Hard water is high in mineral content. It gets this way from seeping through deposits of chalk, limestone and dolomite. Dolomite is mostly composed of calcium. Hard water is not dangerous to drink, but can wreak havoc on pipes, showerheads, ice machines chillers, boilers and especially dish machines. Have you ever seen your glasses come out the other side of your dish machine with those white spots all over the glasses? This is usually from hard water. Deposits of calcium, lime and rust will eventually destroy your machines by forming a scale deposit on the fins, or smaller orifices. It attaches to the object and as the deposits pass, they catch and clog up the unit unless you soften the water supply which means taking out these minerals that are in the water.

Water softening is commonly used to reverse, or eliminate these issues. It is used to remove calcium, magnesium and other minerals that are in hard water. Water softeners sometimes have a separate brine or resin tank that uses common salt or potassium to create this brine solution. As the water flows through the brine tank it touches the resin beads that have sodium or potassium ions on them. The water flows through these resin beads and the ions chemically trade places with the sodium ions. Eventually the resin beads contain nothing but calcium and magnesium, and this is when you need to add salt to the brine tank.

The brine tank is either beside the resin tank or is packaged together with the resin tank depending on whether it is residential or commercial. Recharging the mineral tank works the same way as softening the water but in reverse. The calcium and magnesium ions swap with sodium or potassium solution from the brine tank, and the excess minerals are rinsed off the resin beads and down the drain.

“Hard water is not dangerous to drink, but can wreak havoc on pipes, showerheads, ice machines, chillers, boilers and especially dish machines.”

In regular operation the hard water flows into the brine tank and the calcium and magnesium ions move to the resin beads, replacing sodium ions. The sodium ions go into the water.

There are two ways to soften water which are; sodium chloride (salt) or potassium chloride. The most common way to soften water is with salt because it is a little cheaper. However, potassium chloride while still in the same price range is better for the health, organs, muscles, and nerves in the human body, and if you water your lawn with it will also help with the soil as well. If you are on a sodium restricted diet you would want to use potassium chloride in your home.

Testing for hard water is done by grains per gallon (GPG) or parts per million (PPM) of dissolved hardness minerals. 3.0 GPG is considered soft water and water that is more than 9.0 GPG is considered hard water. A grain per gallon of water (GPG) is defined as one grain of calcium carbonate dissolved in one US gallon of water. Calcium carbonate is formed with calcium, carbon and oxygen.

To test your water you will need a test kit. There are many available out on the market today. Some have simple strips you dip into the water and compare the color of the strip to the label on the bottle. However, I like the powder type. To test with the powder and drops, fill the test tube to the top with the water sample. Then pour the entire test tube into the bottle that comes with the kit. Next you put one level scoop of the hardness reagent into the bottle and shake it. Don't cover the top with your hand or fingers as this will void the test. The water should turn blue. If the water turns red or pink, you will then add the titrant solution counting the drops as you swirl the mixture. When the water turns blue, the total number of drops you put into the bottle equals the total sample hardness in grains. This is how hard your water is, such as, if it takes 3 drops to turn the sample blue, then your total water hardness is 3 grains hard. You will then call your softener company and let them know and they will come out and recalibrate your softeners.

Always check your softeners every day to ensure that the brine tank is full of either salt or potassium, and a secret I have learned in my tenure is to always keep it so you can't see open water inside the tank because as the softeners melt, they tend to cave in or leave a hill so to speak inside the tank. You will want to keep the salt or potassium in the tank full, this will save money, and keep the brine from having to take time to dissolve the softeners.

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Swimming Pool Safety

By Todd Isbell



Most of us at one time or another were taught how to swim. Growing up near a lake, I learned to swim at a very young age. Water safety should be on everyone's mind, at all times. It takes only a second for an unforeseen accident to occur. Accidents that could have been prevented had enough attention been given "before" the accident occurred. If you have a pool at your home or work, is it fenced in? Does the gate open outward? About 1 in 5 people who die from drowning are 14 years old and younger. Imagine a small child that wants to get in the pool and no one paying attention. The gate latch should be high enough that the child can't reach it, and if the child gets a chair, the gate opens outward so they cannot open the gate because the chair is in the way. Simple things such as this are how we practice water safety and avoid the chilling water hazards that can and have happened.

Keep floatation devices in the water, and a shepherd hook is also a good thing to have handy. Never try to jump in to save someone; they can then endanger your life as well. Use the hook, life ring, or even the pool brush pole to pull them to shallow water. Also I highly recommend for everyone to learn CPR, as it just makes good sense, and you never know when you may need it.

So now let's talk about pool water and chemicals. There are two chemicals to chlorinate water; chlorine and bromine. Chlorine is fine for pools, but in hot tubs, it doesn't last very long. Bromine lasts best in hot tubs, and can be recharged by putting shock into the hot tub. For my pools I like to keep the chlorine level at 3 parts per million. Most bacteria will die at 1 PPM, but I like the little extra. One contaminant that usually comes from liquid feces, cryptosporidium, takes a much higher dosage of chlorine at 20PPM for about 15 hours constantly. If you have infants in your pool I highly recommend they wear the rubber swimwear to avoid any accidents.

Saline pools are also a way to go. I like the saline pools because they make their own chlorine by adding salt. You will want your PH balance to be from 7.4 PPM to 7.8 PPM. To lower your PH level, add muriatic acid. To raise the PH level, add soda ash. The size of your pool and chemical readings will determine the amount of chemicals needed. You will need to know the volume of water your pool has in it. If it is a rectangular pool the formula is: $L \times W \times \text{average depth} \times 7.5$. If it is a circular pool or hot tub, the formula is: $R \times R \times 3.14 \times 7.5$. It is very important to keep the chemicals in your pool at the normal range. PH at 7.2 will make your chlorine much more effective as a sanitizer. Also remember pool chemicals can give off fumes which should never be inhaled. If you have a diatomaceous earth filter, be sure to wear your mask. An N-95 mask; which can be bought at any hardware store will protect you from inhaling the powder.

FEATURE



I know it's annoying to have to put it on, but just do it. Your life is worth it. Never pour water into a container of dry chemicals. This can cause an explosion. Store your chemicals in a cool, dry well ventilated area.

Super chlorinate regularly. This involves raising the level of chlorine temporarily to about 10PPM to destroy any algae and bacteria that could be in the water. Once completed the chlorine level should be returned to 5.0 or less before swimmers can go back into the water.

Stains can be caused by a number of factors. Yellow and green stains are usually caused by different types of algae. Orange looking stains are usually caused by iron deposits, either from iron in the water, or from things falling into the pool. Brown stains are usually caused by leaves. Try to keep your pool vacuumed especially in the fall and winter, but if you do get the stains, they will usually go away in time. Black stains are usually associated with black algae. In my experiences, this is the worst algae you can get. This particular algae is very hard to get rid of, and sometimes the pool must be drained and scrubbed by a professional company. A blue-green stain is usually caused from copper. Look at your algaecides and ionizers to ensure sure you don't overuse the ones with copper in them. Calcium build up is a common issue to water due to, cement, and tile grout because they all contain calcium. When the level of your pool goes up due to heavy rainfall, then dries it will sometimes leave a calcium residue on the tiles. Tile cleaning solutions can be bought at your local pool store.

On the last note, check your pool drain covers. The Virginia Graeme Baker Act requires all pools to have code compliant drain covers. It is my understanding that this year is when most drain covers will go out of date. Check with your local pool store to find out.

Lastly; always remember to be safe and stay alert around your pools, lakes, rivers and ponds.

Hotel Welfare and Security- Safety Is No Joke

By Manny Mercado, CDOE

Hi everyone! Today I am writing about hotel welfare and security because of the additional responsibility I took as Director of Property Operations. I now oversee the engineering and security department at the Westin in Morristown New Jersey. I have been writing about engineering topics for some time now and will add security topics to the list. Keep in mind that engineering and security have more than just a few things in common. When it comes to operations, we are here to assure the safety of our guests and work associates at our properties. Our common goal is to make sure everything is operating correctly. A few examples are making sure all lights are in working order, door locks lock and are secure, equipment and tools are being used correctly and free of defects, keeping an eye out for suspicious activity, reporting safety hazards etc. What sets us apart in our titles and brings us together in our tasks is when engineers are busy making repairs we keep an extra eye out for security issues both in front of the house and the back of the house as well. We do more frequent patrols which in turn helps create awareness that we are here. It helps for guest and associates to feel that they are at a safe place regardless of whether it is for work, pleasure or business.



I hold a safety meeting once a month and go over different topics and items we need to address. One key topic I stay on course with is suspicious activity and our nation's homeland security. In today's day and age we are continually on alert for terrorist activity, this topic should not be ignored. Instead it should be frequently addressed so we can stay focused on what we need to do and our responsibility as a whole. After all security is everyone's job at a work place.

I believe in training and back to basics topics because it helps to re-enforce the message you are trying to get out. I do a specific training topic on homeland security once every 6 months. It is a repeat safety topic I go over and I add any additional new information that comes up from our government since our last meeting. I recommend all of you reading this article take time out and view a particularly informative video located on YouTube. <https://www.youtube.com/watch?v=vXVsXHPDaBY> YouTube



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No More slamming doors or sleepless mornings
<http://www.maintenancesurvival.com>

Please review the video and discuss it with your staff. You may find most of us haven't taken the time to really think about this topic because we are too busy. When I first presented this video with other supportive materials everyone's eyes lit up and remained glued to the screen. When it comes to hotel security, each of us should make sure we are all tuned in and well informed. You can do the same at your property. Security operations is not something new to me, in my early years back then, I once held a position as a sergeant of a security team of 10 security officers for a large mall with over 180 stores. For the 7 years working there I have learned a lot of what really takes place with all kinds of crimes from shoplifting, fights, car thefts, identity theft, counterfeit money and other crimes. Most people would call us mall cops when in fact we were there for their safety and protection of the property. Holding such a position has taught me a lot of what is out there in everyday life. My experience in a mall helps me to have a good sense of what I need to do in a hotel security environment. Your personal experiences can aid you too. I will be posting more articles in the near future so we all can be better informed and alert as to what we need to do on a property level. Do not take public welfare or hotel security too lightly. Please, if you find my article to be of a good source of information write back to us at manny@nahle.org and let us know the response of your meeting, we are curious. With the security department to oversee in addition to my engineering department, I will run with my new responsibilities. I look forward to sharing all of my new experiences and ideas so that we all can be better educated and more informed.



2015 I-Codes Provide Relief to Carbon Monoxide (CO) Alarm Requirements for Hotels

By Thomas G. Daly MSc. CSP CLSD CASp



The International Code Council's (ICC) 2015 editions of their International Building Code (IBC) and International Fire Code (IFC) have made changes to requirements for carbon monoxide (CO) alarms for hotels from the 2012 editions. The 2012 codes required CO alarms in all

all guest rooms or a CO detection system throughout all 'common areas'. States are now beginning to adopt the 2015 language, even in cases where they are otherwise adopting the 2012 I-codes.

Boiling down the 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, the emergency generator room with a diesel or gas-fired generator and any space with a gas-fired or wood burning fireplace. Rooms or spaces adjacent to an unventilated garage would also need CO alarms.

Even providing CO alarms in all of those cited 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.

North Carolina was the first state to adopt the 2015 IBC/IFC language for CO alarms, doing so in March,

with an effective date for new and existing hotels of June 1, 2015

Maryland adopted new regulations for new and existing hotels to install CO alarms in rooms or spaces with fuel-fired appliances, but also in adjacent rooms, so a unique state requirement and a few more CO alarms will be needed. The compliance date is April of 2017.

New York State (excluding New York City) adopted new state building code requirements for CO alarms for new and existing hotels in May effective in June, so little time for both new and existing hotels to comply.

California is in the code revision process and will be adopting the 2015 IBC/IFC language for both new and existing hotels with a likely compliance date of January 1, 2017. Existing hotels are now exempt from such requirements based on legislation sponsored by the California Hotel & Lodging Association with assistance from the Hospitality Security Consulting Group, LLC.

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 these new changes to these codes relative to the requirements for carbon monoxide (CO) alarms for hotels and urge them to adopt instead this now approved 2015 IBC/IFC code language.

State hotel associations have an excellent opportunity now to save their members thousands of dollars in unnecessary expenditures for CO alarms no longer required under the 2015 I-codes, but will have to be proactive with state regulators to make that happen.

Thomas G. Daly, M.A., MSc, is a Principal and Managing Member of The Hospitality Security Consulting Group, LLC of Reno, NV (www.thehscg.com). 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 (CSP) and holds a master's degree in safety from the University of Southern California.

Applying *Value Engineering*

What is Value Engineering (VE)?

VE is about delivering the best customer experience for a given cost. VE is a systematic method to improve the “value” of goods, products, and services by examining function. It involves reducing costs where the saving is bigger than the reduction in value. VE helps achieve an optimum balance between function, performance, quality, safety, and cost. The proper balance results in the maximum value for the project.

The term VE is tossed around a lot in the hotel industry. It means many things to many people. To a structural engineer it may mean resizing a steel beam so that less total beams are required or to a carpenter it may mean using a more expensive No. 2 stud at 24 inch on-center rather than a lower cost stud placed 18 inch on-center. Some people think it is just simple cost cutting. Others think it is reducing the size of a project. Others believe deferring a project is VE. Actually, VE is the means to ensure that a hotel achieves its goals at a price within the established budget, quality, scope of work, and schedule.

What is the Process for VE?

VE follows a structured thought process to evaluate options.

Gather information to better understand the project.

- What is being done now?
- Who is doing it?
- What could it do?
- What must it not do?

Measure.

- How will the alternatives be measured?
- What are the alternate ways of meeting requirements?
- What/Who else can perform the desired function?

Analyze.

- What must be done?
- What does it cost?
- What metric are you using for comparison?

Generate ideas.

- What else will do the job?

Evaluate

- Which Ideas are the best?

Develop and expand ideas.

- What are the impacts?
- What is the cost?
- What is the performance?

Present ideas.

- Sell alternatives to your supervisor.



What is the Goal of VE for a Hotel Engineer? How do You Achieve this Goal?

The goal is to ensure the lowest possible cost without sacrificing scope, quality, or schedule. VE should be an ongoing process and a team activity. All decisions must meet the VE goals.

As a hotel engineer you should ask questions like, “I understand this project, but why does it have to be completed in this particular way?” You should ask, “Are you absolutely sure this is the most cost effective method that meets the hotel’s goals?” You must encourage discussion.

As a hotel engineer, you must listen, but more importantly hear what others are saying. As the hotel engineer in this process, you must always stay focused on the solution, not on who is to blame. You should not let situations become volatile. Remain calm; discuss, don’t argue; solve the problem; don’t create another one.

“The best results are achieved by a multi-disciplined team with experience and expertise relevant to the project.”

What are Examples of VE?

You are an employee at a 5 star hotel chain and the lobby flooring is being replaced. The hotel manager wants a marble floor and has established a budget for high quality marble floors. As the hotel engineer you recommend high quality granite because you can obtain it in a bulk order and also replace the floor in another part of the hotel at the same price as the marble. This is VE because you can accomplish the goal of having stone flooring material in the lobby. You have also accomplished a second objective, high quality material consistent with the established budget. Finally, you accomplished a third goal because granite is often found to more easily maintained and is more durable.

Another example is you are ordering supplies and tools with a \$2,000 budget. In a prior order, there were numerous flaws in the supplies and tools and you were unable to return them. You are now able to obtain the needed tools and supplies but at a price that is higher by 5 percent. This higher price is an appropriate use of VE because you have a guarantee of quality and will be able to do a return.

Many hotels vacuum their hallways every day. When looking at this task from a VE perspective, especially if there is reduced occupancy, you should ask whether the frequency of vacuuming can be adjusted with no negative impact or guest perception. Perhaps the activity can be done every other day or some other weekly frequency.



What is Not VE?

As the hotel engineer you recommend a lower cost chiller that delivers the same tons of cooling though less efficiently. This is not VE because the operating cost differentials will greatly exceed the savings in up front capital cost.

Your outdoor renovations are over budget and you recommend eliminating two outdoor sprinkler systems as a value engineering recommendation. The two sprinkler systems may be a key component in lawn maintenance.

When do you use VE? How Do I Use VE?

With VE you should assess all costs, decisions, and investments in relation to the impact they have on a hotel's performance. You use VE throughout a project. Hotel engineers are great resources in the VE process. Motivate your team members and challenge them to achieve the hotel's goals. VE is not cost cutting, or reducing the size of the project, or deferring the project. VE is achieving the hotel's goals at a price consistent with the established budget, quality, scope of work, and schedule.

VE includes the value of training. Training is almost always the first to be cut in an economic downturn and then everyone wonders why the quality of service has gone down. Training is an investment and any reduction should be carefully considered. Training can be a great way to uncover dissatisfaction and redirect energies towards quality service.

What is the bottom line?

VE examines and ensures long-term stability for tomorrow. By looking at your work in terms of value creation, you can improve results for both the hotel and yourself.

WHO'S ON THE MOVE?

Lodging Engineer recognizes “Brock Wooten” as this Issue’s 1st Person



Brock Wooten, CDOE

Please congratulate Brock on his recent promotion to Engineering Manager!

Brock graduated from the University of South Carolina-Beaufort with a degree in Business Management. He began his career with Destination Hotels in 2009 at Terranea Resort as part of the opening team with the Purchasing Department. Brock then transferred to Engineering in 2010 as an entry level engineer quickly climbed the ladder and began his path to becoming a manager in the field. Brock transferred to Lansdowne Resort in June of 2013 in efforts to pursue his next step in the engineering field and was the first engineer to go through the Engineer MIT program for Destination Hotels.

Let's get to know Brock...

What's your DREAM splurge? I would love to spend a summer driving around the country and going to a baseball game at every MLB park.

How do you spend your PLAY time? I love being outside and enjoying the outdoors whether that be out on the golf course, on the river, with my dogs or out riding my motorcycle.

What's your dream RETREAT? Taking my Dad on a trip to go watch The British Open at St. Andrews.

SURPRISE us with something about yourself... I was fortunate enough to earn an athletic scholarship to play baseball in college.

Last year, Brock Wooten entered into a rigorous management training program, requiring him to read several texts, study all aspects of building operations, work in all operating departments, and successfully attain a Certified Director of Engineering (CDOE) accreditation from the National Association of Hotel & Lodging Engineers (NAHLE). Not surprisingly, Brock completed his program assignments in just a matter of months, on his own time, and eventually scored an impressive 98% on his accreditation exam!

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LOCKING HOTEL/MOTEL REFRIGERANT ACCESS PORTS



by James Bowman, national technical manager--HVACR, RectorSeal Corp.

A hotel/motel ground-level air conditioning or kitchen refrigeration condenser and even a seemingly inaccessible rooftop package unit is a target for the fast-growing world of teenage huffing and black market refrigerant theft.

Googling the words “refrigerant huffing” provides a wild ride through the world of teenage substance abuse. Teens are killing themselves at record rates for a quick mental high in part due to accessible refrigerant ports on air conditioning systems and restaurant refrigeration systems with outdoor condensers, such as refrigerated buffet tables, walk-in coolers, reach-in coolers, etc.

Ironically, refrigerants themselves are only available to heavily licensed trades people from manufacturing down to wholesalers and HVAC/R field service techs.

For teens however, they only need a table knife to depress an air-conditioner refrigerant access port’s inner needle, often referred to as the American Valve or the Schrader valve (similar to a bicycle tire valve). Teens let the refrigerant escape into a garbage bag over their heads for a fast high--or in hundreds of documented cases--death. The telltale sign is an air conditioner low on refrigerant, but a service tech can’t find a leak. Some signs are more obvious, such as a used garbage bag, table knife and vomit left near the unit.

In an age of frivolous litigation, all building owners will be targeted by the lawyers of parents with children foolish enough to huff substances that inevitably freeze the lungs and kill brain cells.

The website of United Parents to Restrict Open Access to Refrigerants (UPROAR) at <http://www.uproar.org> lists countless heartfelt stories by parents of fallen teenage children, most notably, UPROAR’s Mona Casey, who co-founded the consumer advocacy group after losing her son to refrigerant huffing.

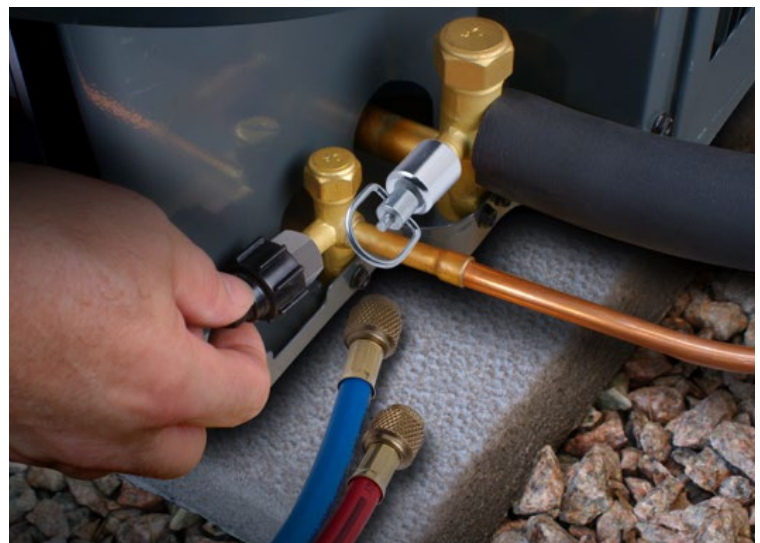
Casey and UPROAR prompted HVAC/R product developers to conceive a locking Schrader valve cap that prevents tampering. Now locking caps are included in building codes, such as the International

Mechanical Code (IMC) M-1101.10, which mandates them on newly installed units. The new 2015 code, which goes in effect in 2017 will require a locking cap installation on all existing refrigeration systems if they’re opened for servicing

There are many different styles, but the most effective locking caps are those that have a key or special tool that’s only available through HVAC/R wholesalers. Locking cap styles using tools available at retail hardware stores, such as spanner or Allen wrenches can be easily thwarted.

Besides the moral obligation of deterring huffing, locking caps can also protect expensive refrigerant from theft. As a result of skyrocketing prices due to EPA-sanctioned restrictions and a 2020 outright ban, refrigerant R-22 is a sought after black market commodity today. All thieves need is a refrigerant recovery machine, commonly found in pawn shops, to gain access to a non-locked Schrader valve and fill up a 30-pound cylinder that’s now worth hundreds of dollars.

A final advantage to locking caps is prevention of slow leaks from ill-seated Schrader valves. Without a locking cap, air conditioners can leak refrigerants to the earth’s atmosphere, which costs the owner money and damages the earth’s ozone layer.



“The most effective locking caps are those that have a special key.”



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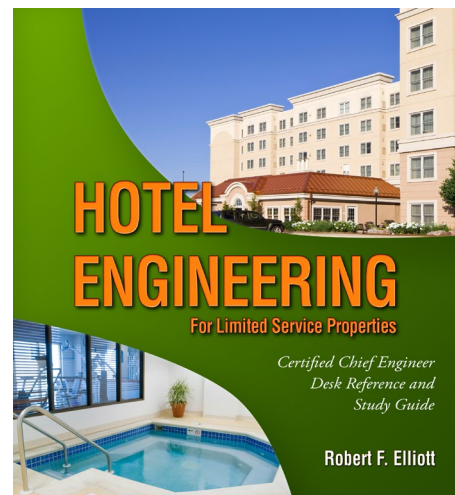
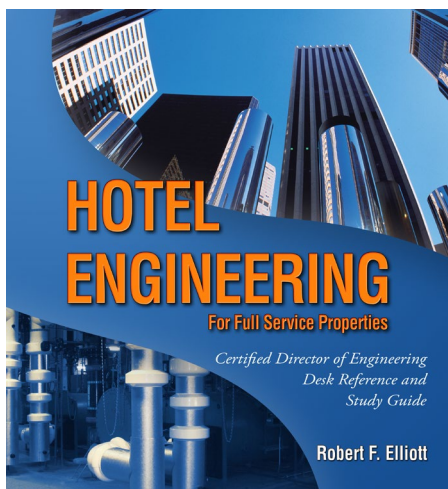


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Certified Director of Engineering

Certified Chief Engineer



Training Today's Hotel Engineer To Be Tomorrow's Asset Manager

Certified Director of Engineering

The (CDOE) is designed for full-service property engineers and their department heads or second(s) in command. 31 Chapters – 437 pages

Certified Chief Engineer

Our (CCE) program is designed for limited-service property engineers and maintenance professionals who are often hourly employees. 19 Chapters – 265 pages

Our Curriculum is written in plain English with simple and easy to understand words. Our program includes information related to the planning and organizing of tasks, overviews of building engineering systems, and the financial and ethical skills required to operate effectively within a hotel organization. The limited-service program includes many common CDOE chapters as well as additional chapters that among others, focuses on; low-rise wood-frame construction, through-wall penetrations, saline pools, moisture infiltration and PTAC units.

The following provides a detailed program chapter analysis:

Management	Building Systems	Building & Grounds
<p>Both Full & Limited Service</p> <ul style="list-style-type: none"> INTRODUCTION ** PRIORITIZE TASKS / TIME MGMT. ** PROJECT MANAGEMENT ** ENVIRONMENTAL HEALTH & SAFETY ** EMERGENCY RESPONSE PLANNING ** MAINTENANCE OF THE HOTEL ** <p>Full Service Only -----</p> <ul style="list-style-type: none"> REPORT & LTR. WRITING* RECORD KEEPING* BUDGETING* SUSTAINABLE OPERATIONS* CONTRACTING FOR SERVICES* BUSINESS ETHICS* PROPERTY ACQUISITION/ DISPOSITION* RISK MANAGEMENT* BUSINESS CONTINUITY* 	<p>Both Full & Limited--</p> <ul style="list-style-type: none"> ELECTRICAL SYSTEMS ** LIGHTING SYSTEMS ** FIRE & LIFE SAFETY SYS ** PLUMBING SYSTEMS ** HVAC ** VERTICAL TRANSPORT SYSTEMS ** <p>Full Service Only----</p> <ul style="list-style-type: none"> SECURITY SYSTEMS* ENERGY MANAGEMENT* BUILDING MANAGEMENT SYSTEM* 	<p>Both Full & Limited---</p> <ul style="list-style-type: none"> BUILDING DESIGN & CONSTRUCTION ** PARKING STRUCTURES ** SWIMMING POOLS & SPAS ** INTEGRATED PEST MANAGEMENT ** <p>Full Service Only-----</p> <ul style="list-style-type: none"> BUILDING COMMISSIONING* WASTE MANAGEMENT* <p>Limited Service Only--</p> <ul style="list-style-type: none"> MOLD & MILDEW* PTAC UNITS* THROUGH-WALL PENETRATIONS*
<p>FULL SERVICE = *</p> <p>LIMITED SERVICE = *</p>	<p>Both programs are available for \$685 each.</p>	<p>Additional test is \$125 per.</p>

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Program Attributes

Transferable: By focusing on the principles of management, building engineering systems, and the hotel building and its property grounds, we created a curriculum that is easily transferable across different hotel brands and property types.

Informed Decision Making: When hotel engineers become better informed, their decision making process improves and they in turn tend to lead others, especially their own staff, to a higher quality standard. This new level of professionalism is best reflected in your property's appearance, staff productivity and efficiency and increasing the useful life of your property's building systems and equipment.

Hotel Centric: Both our Certified Director of Engineering (CDOE) and our Certified Chief Engineer (CCE) programs are written exclusively for hotels and lodging properties. From the heart-of-the-house to the property's perimeter access, NAHLE's certification programs are all about hotels and the unique environment of mixed-use occupancies.

Self-Paced Study: Our programs are designed for engineers to study at their property and learn at their own speed. An experienced engineer should complete our full service (CDOE) program in about 40 hours typically stretched out over a few months. While the limited-service (CCE) program averages about 20 hours of study. Our curriculums are both based upon the engineer remaining on property and studying on the job.

Online Registration & Technical Support: Both Nahle and EI register candidates online and provide technical phone support.

Reporting: Nahle has online software available should you want to track study hours for limited-service candidates. We can also provide exam results for groups of properties.

Multiple Property Roll-Out: Our programs are designed for management companies to enroll multiple engineers in the program at the same time and have all candidates working toward their certification concurrently.

Online Exams: Candidates are designated as a certified engineer upon the successful completion of multiple sectional tests administered online by EI. The CDOE program has two tests and the CCE has three tests. Each sectional test is comprised of numerous multiple-choice test questions drawn from the Study Guide's individual chapters. A minimum passing score of 70% is required. Applicants may take Sectional tests twice.

Track Study Time: CCE (select-service) applicants may track their study time on NAHLE's website by accessing their own unique membership login. Hours of study may be entered for each calendar day in increments of 15 minutes and notes may also be typed in for future reference. A downloadable log of an applicant's total study time is available.

Certificate of Completion: Upon successful completion of the course, NAHLE issues an electronic certificate suitable for high quality color printing. The certificate designates the candidate as successfully completing the educational requirements to become a Certified Chief Engineer or Certified Director of Engineering.

All Program Candidates Provided One Year Free NAHLE

Membership: Free job postings. Access to *Lodging Engineer* magazine.

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NAHLE - Membership Services

- **Lodging Engineer** - NAHLE's official digital trade magazine focuses specifically on hotel engineering and maintenance. All articles are exclusively written for *Lodging Engineer (LE)*. Members can access archived issues and print pdf versions. The electronic version of *LE* magazine also contains links for accessing additional product information including advertisers' websites.
- **eNewsletter** - our weekly eNewsletter focuses on current events and regulatory issues. Links to other online articles and magazines are provided allowing members to download featured articles and product advertisements for hotels.
- **Forum/Blog** – a electronic forum where 'members only' can exchange ideas and information with their peers in a threaded discussion format.
- **Job Bank** – a single source for finding and posting hotel engineering and maintenance job openings.
- **Calendar** – lists upcoming events, webinars, and meetings
- **Resource Library** – an organized and searchable database of both print articles and video. Documents include past LE articles, federal regulations, case studies, and maintenance checklists, etc. Videos are searchable and include 'how-to instructions' and product information.
- **Buyer's Product Guide** – an electronic buyer's guide which lists service vendors, suppliers and product manufacturers. Searches for local vendors by zip code.
- **Warranty / Permit / License Management** – a document management system that catalogues and tracks time sensitive information and documents such as warranties, permits and licenses. Program tracks unlimited number of documents in a three level searchable database that you create. The program sends you and other identified recipients a reminder via email of a future specified date or impending expiration that you choose .

Nahle's Value Proposition: Investing in your staff's professional development challenges engineers to apply their knowledge to the very same systems they are responsible for maintaining on a daily basis. Educational training creates trust and loyalty among your employees. And, perhaps most important, uniform education and training creates an environment of informed decision making. For hotel engineers and maintenance workers, completing a certificate program can be the most cost effective way to **Catch Up, Keep Up and Stay Ahead** of the competition. ([Read more at Lodging Engineer](#)) Studies show that men who complete certificate programs of less than one year earn roughly 10% more than those who do not have such a certificate ([Georgetown University Study 2012](#)). More and more owners expect their engineers to know and apply what is quickly becoming 'common knowledge.'



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Asset Management Begins at the Property

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

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

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

Contact us today:

703.922.7105 or Certification@nahle.org

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