

ISSUE

30

SUMMER 2018

# Lodging Engineer

The Electronic Magazine for Hotel Engineers

## 1<sup>st</sup> Person



**Interview with  
Ryan Washenberg**  
*Island Hospitality  
Dual Property Engineer*

### Featuring:

*Replacing Smoke Alarms in 2020*  
*Stressed Out with Emergency Maintenance Calls*  
*That ol' Dog Still Hunts - Blah, Blah, Blah*

# Lodging Engineer

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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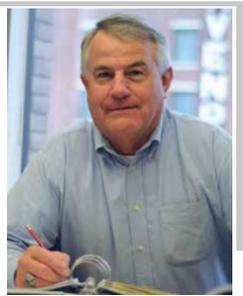


*page 4* Island Hospitality's Brian Washenberger, CDOE, CCE Manages Dual Marriott Properties.

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### **WHY YOU MAY BE REPLACING ALL OF YOUR SMOKE ALARMS IN 2020**

Recent action by the International Code Council will require smoke alarms in all commercial buildings so equipped, including hotels, at not more than 10 years from the date of manufacture regardless if they work or not. This code change is on appeal, but could be devastatingly costly to the hospitality industry.



## *page 16* **Inspection, Testing & Maintenance**

Coffman Engineering returns to Lodging Engineering discussing the importance of Preparedness when hotels are faced with emergencies.

## *page 17* **BLAH, BLAH, BLAH...**

Wondering how to achieve new success at your property when new ideas are running thin and skilled labor is in high demand and hard to come by? Knowledge, leadership and communication are a good place to start.



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### **You Know How All Emergencies Start: STRESSED OUT!**

What started out as an annual event of testing elevators on back power turned into one of those days that can only be redeemed by another trip to Iceland for relaxation and destressing. Tim Arwood spins another entertaining and thought provoking story on hotel engineering.

**HOTEL ENGINEERING**  
**For Full Service Properties**  
*Certified Director of Engineering*  
*Desk Reference and Study Guide*  
**Robert F. Elliott**

1st Person Interview With

# Island Hospitality's Ryan Washenberger



**H**ello Ryan, I am very happy and excited to be interviewing an engineer from Island Hospitality's portfolio. As many of our readers know Island Hospitality is a hotel management company that manages over 165 properties. Given the industry wide challenge to find competent help today hotels also compete with the construction trades for qualified workers. Many new employees know their area of expertise very well but are somewhat new to working in a hospitality environment. As a result of this demand for qualified new hires and some common sense asset management, I first got introduced to Island Hospitality and Chatham Lodging Trust through Kurt James, P.E. Kurt has requested numerous engineers be enrolled in our engineer training programs. I also have the pleasure of working with two of Island's regional corporate engineers, Nick Denardo and Phil Podolski. And, through them and our Certified Chief Engineer (CCE)

training program I met you. I found after speaking with you that not only are you certified as both a Certified Chief Engineer (CCE) and Certified Director of Engineering (CDOE,) but you have a very interesting story to tell as the managing engineer of two adjacent properties located at the Roanoke Valley Airport, Roanoke, Virginia. I am sure our readers will agree. I think in your case managing dual properties creates its own unique set of challenges and I am sure it also provides some economies not found with managing a single property. I would like to start off our interview with a brief discussion of the properties you manage.

**Can you tell us a little about yourself and how you became the managing engineer for two select service properties?** I've been in some type of property management most of my life. For three years I oversaw maintenance and repair for Goodwill Industries of the Valleys. I helped my father with his 40 room hotel, apartments, and single family rental houses. Prior to working for the hotel industry I worked in medical property management which sharpened my skills on the

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challenges of providing maintenance in a healthcare environment. During this time, I covered many rural outlying clinics. These widespread clinics presented me with challenges of increased travel and lack of accessibility to parts in case of emergencies. Additionally, while taking care of these medical properties I continued to build on my professionalism through interactions with the medical staff in the buildings. Currently, I work for Island Hospitalities as Chief Engineer for a Courtyard Marriott and Residence Inn.

## **You manage two select-service Marriott properties. Can you tell us about these properties?**

The Courtyard has 135 rooms and was built in 2002. It has 141 PTAC units and 10 split system heat pumps, two electric duct heaters, and a dehumidification system. Hot water distribution is comprised of three small 399,000 BTU boilers. Both with circulating pumps as well as circulating pumps connected to two holding tanks. The Courtyard has a 10,000 gallon indoor pool and spa. The Courtyard also has WI-FI throughout the building with various WI-FI hot spots.

The Residence Inn has 79 efficiency rooms and was built in 2007. It has 79 VTACS, one rooftop unit, three split system heat pumps, and one electric duct heater. The hot water distribution consists of three small 399,000 BTU gas hot water heaters with circulating pumps on each as well as the holding tank. The Residence has a 13,000 gallon outdoor pool and spa.

**How do the two properties primarily differ from each other?** I find both properties are unique. The Residence has many long-term guests where as the Courtyard caters to more business travelers. I love to see the many returning guests at both properties as it allows our staff the time to build and maintain relationships. The Residence does have more equipment in the rooms from dishwashers, disposers, full size refrigerators, and microwaves. The other major difference is pet policy. The Residence Inn allows pets which creates quite a challenge on the cleaning and maintenance as well as scheduling to get into the rooms for service/repair. I'm blessed to have the two properties adjacent to each other.

**How do you balance your time between two properties and do you find that one property requires more attention or staff time than the other?** I try to balance my time between the two as evenly as I can between staffing, PM's, and WO's. The Residence stays rather full most of the year. The Courtyard picks up strong in the spring and stays rather full throughout the year into the winter months. With the age of the Courtyard it has demanded a little more time with more HVAC units and number of showers/toilets.

## **You manage two select-service Marriott properties. Can you tell us about these properties?**

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**As you know, hotels operate 24/7 – 365 days of the year. And, though it is typically more desirable to work a straight eight (8) hour shift this is more often the exception than the normal work week. After you've gone home for the day how do you handle making sure both properties are covered if one or even both of them have a late-night issue?** I make myself available to all staff but I thank my other managers and staff for taking care of many problems on their own without concerning me too much late at night.



We're working hard to cross train night housemen and security to solve some of the problems at night as well. I also have a iPad available for anyone to 'Facetime' me which helps save a lot of false alarms. Additionally, this allows me to quickly see and hear problems, to have things shut-off safely, or have a guest moved if the problem can't be corrected immediately.

**What is different about managing two properties from managing one property with two buildings?** My budgets must remain separate for both properties. Fortunately, Island has a good system in place to keep everything separate. It took me awhile to get two accounts for all my vendors setup, one for each property, but now I have everything pretty well established.

Fire and life safety is my highest concern for both buildings. Establishing a good working relationship with your service provider is key to success, but making sure you understand NFPA codes and forms is just as important.

**I know among our industry one of the greatest challenges today is finding and retaining qualified workers. What do you look for when hiring new staff and how do you train them?** Staffing and training have been quite a challenge since I've been here. For my staff, I try and find someone that wants to work hard and learn new things.

Teaching the engineering staff maintenance skills is a top priority. I try to consistently take on various projects and challenges to build confidence in them. This enhances the staff's confidence to address issues independently. I make sure all my staff work at both buildings studying with one another so that they can do everything the same way.

A good knowledge of wiring schematics, using a meter, and understanding sequence of operation is critical to troubleshooting. I try to show my staff different ways to test items electrically so they can understand what each device should be doing. I mainly stress the importance of using a meter. That is a critical tool for my entire staff to use. I also show them how heat pumps work and have them watch pressures as we clean coils or switch the unit from heating to cooling. The better they understand the building's equipment the more confident they will be to explain situations to guests.

# Lodging Engineer

I also encourage each staff member to use what they have learned to help their associates and neighbors outside of work. It is a requirement of all staff to become CPO certified. Island Hospitalities and Adam Michael, my GM, provide me with the personal satisfaction of mentoring individuals. I only hope they continue to teach others and better Roanoke Valley.

## What path do you recommend or have personally used to grow your own professional development?

I was thrilled to have been able to be involved in NAHLE's Certified Chief Engineer (CCE) program. It has been a valuable tool and a quick reference guide to training my staff. I keep all my manuals that I've studied for my staff to access and grow their knowledge.

I also consider myself very blessed to work for Island Hospitality's management because they place maintenance and building repair at the top of their list. It shows in our GSS scores and surveys. Island Hospitality takes a proactive stance on keeping their buildings running efficiently allowing for little equipment downtime which may negatively impact a guest's stay.

## How do you keep in touch with your staff especially working two properties?

I correspond with each one of my staff when I'm at work. On average we have bi-weekly meetings. I have instructors come in to teach them lock/out tag out and have them certified. I get everyone involved in CPO training and certified. I will show them articles from NAHLE' Lodging Engineer magazine and other techniques used by other professionals on the computer.

For example, we may watch a video on techniques we could use when cleaning PTACs. We have created two carts with the equipment needed to clean these in the guest room.

To encourage a team environment, I also like to take the engineering staff out to eat at various places in Roanoke and bond over different foods. Occasionally, Adam will join us or we may bring some of the housemen along. I've also used my staff to pass out frozen lemonades on hot days to staff or try to get them to occasionally assist with the kitchen staff.

I also stay in contact with my regional corporate



director Nick DiNardo. He's very busy so I do my best to keep everything here running smoothly so he can spend his time elsewhere. But I enjoy when he comes up I get everyone to meet with him and I try to show him most of the new projects we are working on. I like to talk to him when I can just to envision his aspect and take on how we match up with other properties.

## What do you find to be important and what tools do you use to help manage your maintenance and engineering staff?

I believe the key to being a good chief engineer is teaching and explaining the building to your staff, associates, and managers. The more you are upfront about everything the easier it is to explain failures. Everyone makes mistakes and we use them as teaching tools. It's best to keep an open mind, and make a habit of studying other professionals like those found in Lodging Engineer and other professionals in your community.



# Lodging Engineer



*“The Residence Inn allows pets which creates quite a challenge on the cleaning and maintenance as well as scheduling to get into the rooms for service/repair.”*





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***“We keep a good inventory on hand of most items needed during emergencies but it’s always nice to have bright light versus a bunch of glow sticks all over the place. ”***

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I also like to ask questions at many of my supply houses on what is trending in the market regarding equipment and technology. At times, these evidence-based trends require a large initial investment and they are difficult to implement. In the long run, these require less maintenance so I can shift my team’s focus onto other projects. Sometimes I find small motor rebuild shops can still repair things for a fraction of the cost to replace.

**Among all the various relationships you develop among staff and hotel guests and the continuing change of technologies what do you find you like most about hotel engineering and your job?** I enjoy budgeting and planning funds to make both properties efficient and run smoothly. We are currently working on ways to best communicate with guests through role-playing. I have found that being empathetic to the needs of the guest goes a long way in maintenance.

I also find that some people now days seem to be more reluctant to talk about their family/personal time with staff and letting them know what you enjoy doing in your community with your family. I value my time with my family and I share many of my family stories with my staff and associates. I make sure my boys have met staff at both buildings and they love coming to work with ‘daddy.’

Having staff and guests connect on a personal level has helped me build good comradery as well as lower the anxiety of some of the job related stressers that come with this position. Simply put keeping your faith and building a strong family relationship at work is vital to your overall success.

**Any interesting stories or experiences stand out that you would like to share with our readers?** I had an instance early after taking over both properties where we lost a phase or "browned out" at both properties. I quickly got everything shut down to prevent any major damage to the equipment. We lost three transformers in the area after lightning struck the nearby school. I quickly realized how unprepared we were for such a situation. Neither property had a generator and my biggest concern was just accountability. Thanks to the assistant general

manager we were able to find rooms to offer guests to stay. Since then we have gotten some generators to run the hotel computer system and switched most emergency lighting to LED. I also have some battery-powered portable lights setup to light the building above and beyond the emergency lights. We keep a good inventory on hand of most items needed during emergencies but it’s always nice to have bright light versus a bunch of glow sticks all over the place.

**What challenges do you have or see for the future?**

My biggest challenge is keeping up with accountability on work orders. Just creating a good system and getting everyone on board with making the work orders in the computer, getting it to my staff quickly, and making sure it gets prioritized properly with PMs. I challenge my staff to walk the properties and create their own work orders for repairs to be made so that they can preventatively correct things before anyone else comes across them.

With a well trained staff and a strong relationship with other managers most challenges that may arise while I'm on vacation can usually be handled rather easily. My staff is amazing I'm blessed to have a group that tries hard to learn new things and shares that information amongst each other well.

What do you see as key to your success as well Island Hospitality’s corporate success?

Communication among hotel departments could always improve but just working hard and keeping everyone engaged in a team environment is key. We have a strong family relationship here. I try to get my staff to do their best to help everyone around them.

Communication with our guests and the guests’ assurance that they are being taken care of properly allows for a peaceful night’s rest even if some things need to be repaired the next day.

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# WHY YOU MAY BE REPLACING ALL OF YOUR SMOKE ALARMS IN 2020

by

Thomas Daly



*Thomas Daly MSc CSP CLSD CASp is the President and Managing Member of the Hospitality Security Consulting Group, LLC. He retired as the Vice President Loss Prevention for Hilton Hotels Corporation, now Hilton Worldwide and is the former Chairman (twice) of the NFPA Lodging Industry Section.*



**S**moke alarms<sup>1</sup> have been installed in hotel guest rooms and suites since the late '70s. Different building and fire codes required them at various times for both new and existing hotels. Many lodging chains also mandated them<sup>2</sup> in the early '80s where codes did not, largely in response to the significant number of hotel fires in the early '80s<sup>3</sup>.

While battery-only operated smoke alarms were initially approved for use in existing hotel guest rooms and suites, those requirements were toughened in the mid '80s and early '90s in most building and fire codes to require smoke alarms receive their operating power from the building's electrical service<sup>4</sup> and to include a backup battery<sup>5</sup>, so that the device would work during a power failure.

While smoke alarms, with proper maintenance, will function for decades, a recent change<sup>6</sup> to the International Code Council's (ICC) 2018 edition of the International Fire

<sup>1</sup> While the terms 'smoke alarm' and 'smoke detector' are used interchangeably by the general public, these are different devices, with different testing and approval protocols and are functionally different. The term 'smoke alarm' is the correct term for the smoke detection technology typically found in U.S., hotel guest rooms and suites.

<sup>2</sup> Hilton Hotels Corporation first mandated smoke alarms in all guest rooms and suites in all their hotels...owned, managed and franchised in 1983, regardless of when those hotels were constructed and regardless of whether local codes required them.

<sup>3</sup> U.S. hotel fires in 1980 were estimated to be 12,190 by the National Fire Protection Association (NFPA). By 2013

that number had fallen to 3,780 annually, despite the number of hotels and guestrooms in the U.S., having tripled, see 'Structure Fires in Hotels and Motels' September 2015 Richard Campbell NFPA.

<sup>4</sup> 120vac power in the U.S.

<sup>5</sup> A nine-volt DC alkaline battery is the standard.

<sup>6</sup> See the 2018 IFC at Sec. 907.10.

Code (IFC) will require replacement of all smoke alarms in commercial buildings so equipped, typically hotels, apartments and dormitories, at not more than 10 years from the date of manufacture, even if they are working just fine. The IFC does not regulate one and two-family dwellings and townhouses. at not more than 10 years from the date of manufacture.

Since the IFC is adopted in 44 states and the District of Columbia as the basis for state and local fire codes therein, this requirement will begin to effect hotels, once the 2018 edition is adopted. California has already begun the process to do so and adoption is likely in mid-2019 with an expected January 1, 2020 effective date.

Not all states adopt the IFC at the same time with the same effective date, so the impact on the industry will occur over several years, but likely all before 2024.

The 2018 IFC smoke alarm replacement requirement was placed in the IFC at Sec. 907.10 (only), so it clearly impacts new smoke alarms in new hotels and new smoke alarms installed in existing hotels (among other occupancies), per the 'applicability' provisions of the code at Sec. 102.1[1]. What is not clear is whether the requirement affects *existing smoke alarms in existing hotels*.

If the replacement requirement is deemed 'maintenance', then it will apply to existing smoke alarms in existing hotels<sup>7</sup> (among other occupancies), but if the replacement of such smoke alarms is deemed 'construction' then it will not, as 'construction' obligations in the IFC only apply to existing buildings, if such obligations are included in Chapter 11.<sup>8</sup>

Consider that the two largest manufacturers of smoke alarms in the U.S., (Kidde and GENTEX) say in their instructions to users that 'maintenance' is *'inspection, testing and cleaning'*. No mention of 'replacement'.

Replacement requires a knowledge of electrical safety (knowing to turn off the power circuit to avoid electrical shock), the proper wiring configuration (typically multiple wires from the alarm to be connected correctly to the 120vac power circuit and others to interconnect two or more alarms, as in a hotel suite) and the proper location where a smoke alarm can be placed on the wall or ceiling, per the requirements of the National Fire Alarm Code, NFPA 72, adopted by reference in the IFC<sup>9</sup>.

You don't want an amateur doing this work, so this is clearly not 'maintenance' but is 'construction' with installation by a trained and qualified person being necessary.

To clarify that question, the Hospitality Security Consulting Group, LLC, acting as the technical advisor to the American Hotel & Lodging Association (AH&LA), filed a request for a code interpretation to the International Code Council's Fire Code Interpretation Committee in January 2018, arguing, in part, that this new provision in the 2018 code was not also placed in the IFC's Chapter 11 '*Construction Requirements for Existing Buildings*', leaving open the question of the impact of this new provision on existing buildings so equipped.

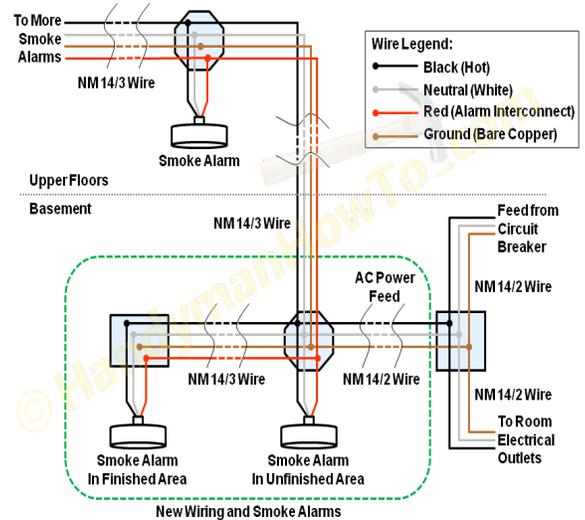
<sup>7</sup> See the 2018 IFC at Sec. 102.2

<sup>8</sup> Ibid., at Sec. 102.1[3].

<sup>9</sup> See NFPA 72 (2016) Fig. A-29.8.3 for limitations on where smoke alarms can be placed on walls and ceilings.

On May 16, 2018 the ICC issued its interpretation concluding that the replacement of smoke alarms is 'maintenance', thus the replacement obligation applies to existing smoke alarms in existing buildings, once jurisdictions adopt the 2018 IFC and assuming they make no amendments to exclude or change this provision.

That interpretation is now on appeal to the ICC's Board of Directors as it, in our view, is clearly at odds with a plain reading of the code's text and contrary to the code's intent.



This potential smoke alarm replacement impact on lodging is enormous financially. With about 5 million hotel guest rooms and suites and typically with one smoke alarm in each guest room with two smoke alarms in suites (one in the living area and one in the sleeping area), there are about 6 million smoke alarms in U.S. hotels. If about 50% of U.S. hotels are more than 10 years old, then so are their smoke alarms. So about 3 million smoke alarms would need to be replaced in the first year of the 2018 IFC's adoption at a per unit cost of about \$50 (material, shipping, taxes and labor to replace, using in-house engineering personnel – electrical contractors would be much more expensive).

Cost to the industry in the first year will be about \$150 million, with a continuing about \$17 million in each year thereafter...forever.

And where is the cost/benefit analysis?

There have been no hotel fire deaths in the United States in hotels constructed since 2006. Why? Because, in addition to smoke alarms, the multiple safeguards in contemporary building and fire codes, including but not limited to fire resistive construction; self-closing guestroom/suite entry fire doors; sprinkler systems with quick response sprinklers; fire alarm systems; mandatory fire resistance requirements for upholstered furniture, mattresses, carpeting, wall covering and draperies; mandatory fire drills and a trained hotel staff and a significant reduction in smoking in hotels preclude fires from resulting in harm. These requirements in both the International Building Code (IBC) and the IFC are so comprehensive that the fire problem in hotels has largely been eliminated.

But the ICC won't take 'Mission Accomplished' for an answer and continues to regulate for regulations sake and damn the cost to affected industries. Shameful.

So, prepare for the worst, but never give up, never surrender.

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# How Prepared is Your Hotel for an Emergency?

**Inspection, Testing and proper Maintenance of fire protection systems plays a crucial role in the readiness of your hotel to handle multiple emergencies.**

**H**ow prepared is your hotel to handle an emergency? News stories regularly cover natural and man-made disasters such as storms and tornadoes, earthquakes, large fires, active shooter events and terrorist strikes. Many smaller incidents receive a short burst of coverage on social media and quickly fade from view.

In any emergency large or small, lives and health, property protection and business continuity depend on preparations made months and even years in advance. Daily attention to detail by hotel engineers is a must to insure emergencies will be successfully managed, or even mitigated.

*How prepared are you to manage an emergency at your property and return to normal operations? Experience suggests the success or failure of a hotel to manage and later recover from an emergency is directly linked to sound Preparation. How well you prepare your property for an emergency can impact the exposure of guests and employees to unwanted dangers along with the time and cost of recovery.*

Sound preparation has multiple components; this article, third in a series by Coffman Engineers on fire protection topics, overviews Inspection, Testing and Maintenance or *ITM* of fire protection systems and features. Maintaining these assets in a state of readiness is a major foundational block in effective emergency preparation.

These protective systems and building features can play vital roles in emergencies, apart from fire, that may strike a hotel. Voice capable fire alarm systems can be used to communicate to building occupants during various emergencies. Emergency lighting and signage can aid in the evacuation of buildings from multiple threats. Fire-resistant features can be used to form protective barriers.

The hotel engineer plays a significant role in maintaining readiness to handle emergencies that may be experienced in a hotel. To be successful, you must be knowledgeable of the capabilities and readiness of your property's emergency systems, have solid relationships with management and house staff and maintain close connections to emergency response agencies such as local police and fire departments.

**Our previous article briefly touched on inspection, testing and maintenance (ITM) needs of your hotel's fire alarm system. In this article we will discuss:**

- The meaning of the terms: Inspection, Testing and Maintenance.
- An emphasis on continual visual inspection of your property. For maintenance needs and most testing, you will often rely on licensed outside contractors. Inspection however is primarily a visual effort and should be on-going.
- Examples of common fire protection challenges often encountered during inspections of hotel.
- A brief review of how to work with standards published by the National Fire Protection Association (NFPA). We include a free link to access information provided by NFPA that we hope you will find useful.

## **“Inspection”.....”Testing”.....”Maintenance”**

Let's review each portion of the term included in “ITM”.

### **Inspection**

Inspection is the most basic review of equipment and systems. It typically involves a visual examination of a specific piece of equipment, system or component plus the associated area/environment.

NFPA 25 provides the following formal definition directly applicable to water-based fire protection but illustrative of the concept:

*“A visual examination of a system or portion thereof to verify that it appears to be in operating condition and free of physical damage.”*

Various codes, several of which we will touch on below, establish the frequency for formal inspection procedures that must be documented. Effective hotel engineers; observant of the changing conditions within their property, perform informal “inspections” as part of a daily routine.

To sum up the many code paragraphs that address the concept of “inspection”; as you walk through your hotel, ask yourself several basic questions:

- Is a given fire protection device in the proper location?
- Does it appear in functional condition?
- Will anything, in physically close proximity, interfere with performance?

If you answer “No” to any of these questions or are unsure, follow-up in a timely manner. Don’t wait for a formal inspection; keep your protective systems in good working order.

## Testing

NFPA 25 indicates “Testing” is a “procedure to determine the operational status of a component or system by conducting periodic checks”. Testing activity can involve demonstrating a piece of equipment is operational, for example the test of an emergency light. Test results can also involve tracking numerical results such as fire pump performance and sprinkler pressure readings.

Much formal testing of your protective systems will involve use of third party firms experienced and licensed in your jurisdiction.

## Maintenance

Maintenance consists of those activities required to keep a system in operating order, for example the replacement of batteries in a fire alarm control unit. Additionally, it involves replacement/repair of damaged or aging components. Most regular maintenance and replacement/repair work should be handled by experienced third party contractors licensed in your jurisdiction.

## The New Hotel Engineer

Let’s imagine a newly designated Hotel Engineer (the “NHE”) on the first day on the job at an existing property. The property is older but in a location with terrific potential. A new Owner has recently purchased the facility and is preparing plans to reinvent the place!

On the first day on the job, the NHE takes an initial tour of the property. Several circumstances quickly cause concern including sprinklers covered with noticeable layers of dust, painted sprinklers along with beaten and yellowing fire alarm devices. Guestrooms equipped with single station smoke alarms reportedly produce unwanted alarms regularly.



*Smoke Alarm in Guestrooms*

## What should be the NHE’s course of action?

Before getting to the specific issues uncovered by the NHE, several brief reminders.

1. Insure automatic sprinkler supply valves as well as water supply valves are in proper alignment for operation. Except for testing valves, this generally means OPEN!
2. Review the condition of the hotel’s fire alarm control unit. Normal operation should have no alarms, troubles or supervisory signals a condition we call “Clean and Green”.
3. Review your wet chemical fire protection systems at kitchen hoods and each is in working order with up-to-date ITM certification.

## Automatic Sprinklers Concerns

Individual automatic sprinklers typically require little attention; NFPA standards stipulate at a minimal an annual inspection should be made of each unit. Visual inspections should always include the following:

- Check for physical damage to the sprinkler
- Note any sign of leakage
- Obstructions in the spray pattern of the unit
- Deterioration such as signs of corrosion, “detrimental to sprinkler performance”
- Loading of the sprinkler with dust or other airborne debris, “detrimental to sprinkler performance”
- Painted sprinklers

A typical sprinkler found in hotel guestrooms is depicted in the next photo; a sidewall Quick Response (QR) unit installed within the past ten or so years provided with signage to discourage room occupants from tampering with the sprinkler.



*Dust Loaded Sprinkler*



*Painted and Caulked Sprinkler*



**Let’s review two of the sprinkler issues identified by our Newly Hired Engineer.**

## Loaded Sprinklers

The next photo depicts an existing sidewall automatic sprinkler that has been in service for approximately thirty years. A key concern involves the obvious physical condition of the unit, but the situation should be a “red-flag” for additional systemic concerns.



The unit is clearly heavily loaded with dust and airborne debris (an indicator of airborne quality concerns that also should be addressed). There is indication of corrosion.

If your inspection results uncover a similar condition at your property, review as soon as possible with a qualified sprinkler contractor. The contractor may be able to clean a mildly loaded unit with no other issues, but heavily loaded units must be replaced. Cleaning should be left to an experienced contractor. The cost of replacement of a sprinkler is modest relative to the cost of recovery from an unplanned discharge of sprinkler water.

## Painted Sprinklers

From time-to-time we are asked; How can paint be removed from sprinklers? The brief answer is: *Paint Can Not be Removed, a Painted Sprinkler MUST be Replaced.*



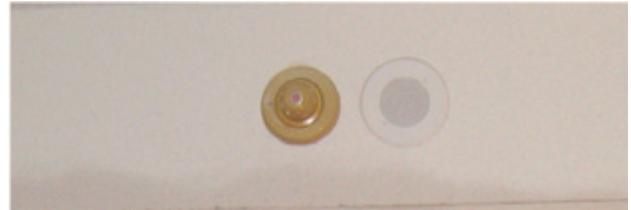
NFPA standards only permit coating to be applied by the original manufacturer of the sprinkler. Any coating applied following manufacture voids use of the unit. Replacement is the only code-permitted course of action.

## Fire Alarm Devices and Smoke Alarms

The housings of fire alarm field devices and smoke alarms deteriorate over time; once white housings often fade, some very significantly. However, signs of aging do not automatically render fire alarm equipment unfit for continued service.

## Fire Alarm Devices and Smoke Alarms

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As an example, fire alarm speakers and manual pull stations have routinely been reused during technology and code mandated upgrades of fire alarm systems.

If you find older equipment, review with your fire alarm service provider. All equipment manufacturers provide service guidance regarding the support available for legacy equipment.



For smoke alarms, those stand-alone devices often installed in guestrooms, we are clearly in a time of technology and code evolution. For over a decade, manufacturers have been required to indicate the date of manufacturer on the backplate of the device. Most have recommended replacement at ten years of age.

More recently, manufacturers have begun to supply units with integral “ten-year” lithium batteries. This development eliminates nuisance “low battery” but will require the entire unit to be replaced at the ten-year mark.



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A final point on smoke detection. When investigating nuisance and unwanted alarms, don't simply focus on the detector unit. In some instances, changes to HVAC or exhaust systems have caused detection units to trigger. The device may be working to specifications, the atmosphere surrounding it has changed.

## The Role of NFPA Codes and Standards

The fire codes and brand standards applicable to operating hotels in the United States reference numerous documents published by the National Fire Protection Association or NFPA. Hotel engineers should have a working knowledge of key provisions of these standards, especially as they apply to ITM requirements

NFPA maintains several hundred technical standards but a few have applicability to the hotel industry. The following table provides references to ITM requirements found in specific NFPA standards.

NFPA Standards-ITM Information			
Number	Year	Title	Key Information
10	2018	Standard for Portable Fire Extinguishers	Chapter 7
13	2016	Standard for the Installation of Sprinkler Systems	Various
17A	2017	Standard for Wet Chemical Extinguishing Systems	Chapter 7
25	2017	Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems	Chapter 5: Sprinkler Systems
			Chapter 8: Fire Pumps
			Chapter 13: Common Components
			Chapter 15: Impairments
72	2016	National Fire Alarm and Signaling Code	Chapter 14
80		Standard for Fire Doors and Other Opening Protectives	
101	2018	The Life Safety Code	Section 7.9.3 Emergency Lighting Equipment
110	2016	Standard for Emergency and Standby Power Systems	Chapter 8: Routine Maintenance & Operational Testing

As you can see, for most protective systems and features the pertinent NFPA standard provides ITM requirements. The exception involves “water-based” systems such as automatic sprinklers and fire pumps. NFPA 25 is dedicated to ITM issues for these systems including requirements for impairment management.

So, how can you access NFPA documents? Once you establish a profile, limited but free access is available at NFPA's website (add link). Functions such as printing, copying, etc. are not available within the free NFPA platform however the service is useful for reference checks and background reading. Hard copies of standards and full electronic access are available at a cost; the free service lets you focus on your basic information needs.

## Thoughts on the use and understanding of NFPA documents include:

■ NFPA codes and standards are updated on predetermined cycles; each document has a date of publication. When dealing with an NFPA document you should know the date of publication of the standard applicable to your hotel. Within the NFPA on-line platform you will find multiple editions of most standards and widely used documents can typically be found in both English and Spanish language formats.

■ NFPA standards are organized in a series of numbered chapters followed by annexes designated by letters. Chapters contain mandatory language. Annexes are not mandatory; they provide illustrative explanatory material, diagrams, etc. “Annex A” of NFPA standards typically provides non-mandatory, explanatory information keyed to applicable material within the mandatory chapters.

■ Use caution in reviewing NFPA requirements. The fire protection field uses a great deal of technical language; seek advice from knowledgeable sources including fire officials, equipment manufacturers and fire protection engineers in understanding requirements.

## Guidelines for an Effective ITM Program

1. Maintain accurate record drawings of life safety systems, equipment and components. The inventory of these records should include as may be applicable at your hotel: automatic sprinkler systems, fire pumps, water storage tanks, fire water underground supply mains, kitchen hood and other special fire suppression systems, fire alarm systems, mechanical smoke control systems, fire extinguishers, emergency lights and signage, and emergency generators. Hotels should also maintain drawings showing key fire walls and inventories of fire doors and smoke/fire dampers.

2. Develop and maintain accurate checklists reflecting the items in #1 above to track formal inspection activity. Maintain discipline with respect to the timing of all in-house inspection activity.

3. Determine specific manufacturer's instructions for the equipment provided at your property. Product technical sheets and ITM manuals are widely available on the internet.

4. Audit third party ITM contractors to insure proper services are being conducted.

5. From time-to-time make house staff aware of the need to be vigilant with respect to the condition of life safety equipment. Insure they are aware of the importance you place on the condition of this critical equipment.

6. When repairs are required, make action on life safety equipment a priority. Quick attention to required repairs sends a positive message of the high priority you place on emergency preparedness. Delayed response sends the opposite message.

7. Develop a strong relationship with your fire alarm and fire protection contractors. Insure they are properly licensed and insured to meet the requirements of your specific jurisdiction and brand. Ask questions if you are unsure of anything. Use the NFPA fire code resource as needed to conduct your own independent review of technical issues.

8. Provide specific guidance to outside contractors working at your property to insure they understand the protective systems in-place and actions required to avoid false alarm and damage, such as painting of system components. Hold them accountable.

9. Properly instruct house staff assigned to painting work. Let them know what is to be painted, how to protect fire protection equipment, provide any required impairment instructions and the steps to take to return protected or impaired systems to normal operations. \*\*\*



Byron Briese, P.E.

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The Top 10 reasons to make your building...  
How to reduce your maintenance expenses by...  
Best ways to save energy...

## Blah, Blah, Blah



By  
Richard Manzolina

**A**fter 25 years in this business, I'm done with articles that tell me how to run my building better, more efficiently, or new ways to save energy. Not because I've done it all or have the most efficient building. Not by a long shot. But rather, it's because I'm just tired. I'm spent. Exhausted. Day after day, the problems keep flooding in and the mad dash ensues as I run around the building putting fire after fire out. Honestly, I don't remember the last time I did anything proactive, preventative, or solely designed to improve my operation. Instead, my days are filled with solving crises and fulfilling the priorities of others.

So by now you're probably wondering, "ok, so if you're so spent, why are you writing this article?" Good question. And to be honest, I'm not sure I have a good answer. After all, this publication deserves creative perspectives, innovative thinking, and inspiring authors who can capture their reader's attention and bolster the reputation of this fine periodical. But left to my own devices, I'm not sure I could have mustered the mental fortitude I needed to come close to meeting these lofty goals. So out of desperation, I did what any good engineer would do...I asked Google for help.

Now I realize one can literally ask questions of Google, but in this instance I simply entered the I simply entered the phrase "Hotel Engineering"

in the search box; purposely leaving some ambiguity in my search term to see what this 500 billion dollar search engine could come up with. (Yes, I Googled Google's market valuation). With the click of my mouse, I fully expected to find cutting edge articles on innovative technology, building techniques, new tools & software, and industry trends...just the inspiration I would need to get the old creative juices flowing again. But much to my dismay, all the top search results spoke to the same, *less-than-inspiring* topic...staffing. Or more specifically, job postings. Hundreds of them stemming from hard brand websites, to job aggregators, to associations...all seeking what I have learned to be one of the most elusive creatures in nature...a qualified engineer willing to work for what we can afford to pay.

These surprising search results weren't all that surprising once I gave it some thought. Truth be told, I have the same problems. It's hard to find, and even harder to keep, truly qualified maintenance staff. People that are consistently productive and professional, who aren't afraid to make a decision, who know the difference between a box wrench and a crescent wrench, and who can be trusted alone or in front of a guest. And it's not going to get any easier. Tools and technology are getting more complex

while skills and acumen are dropping...and all while the demand for better wages is on the *rise*. So I guess it makes sense that the most common activity in cyberspace, as it relates to our business, is finding the people we need to *run* our business.

So as I contemplated this phenomenon, I started to realize, maybe I did have some useful advice to offer after all. I mean, I think I've had more than my fair share of success stories over the years when it comes to grooming successful engineers. Across three decades, scores of former staff have called on me, wanting to follow me to further their careers. They tell me "things just aren't the same without you", and to this day, I get pictures of their kids and grandkids, along with lots of holiday wishes come Christmas and Father's Day. Bonds like this don't live on unless true connections are made, and there is trust and respect between leaders and their staff. So I ask: am I doing something right?

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***“Tools and technology are getting more complex while skills and acumen are dropping...and all while the demand for better wages is on the rise.”***

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Now in the interest of full transparency, my efforts to attract and retain talent haven't always been smashing successes. Truth be told, for every rock star I've had the pleasure of leading, there's been a groupie or two who are more than happy to sit back and wait to be told what to do, seemingly striving for perfect mediocrity. But I've groomed more than a few especially talented individuals into Chief Engineers and Directors of Engineering, and to this day I enjoy some of the lowest turn over among my peers. So yes, maybe I am doing something right.

**And, here are some of my *not-so-secret* secrets for achieving this success.**

\* **Build it and they will come; teach them and they will stay.** This one seems obvious but I have not seen it done in practice very often. It's imperative that we recognize, embrace, and foster the natural desire of our team members to learn and grow. And by growth, I don't just mean brief trainings on how to use a multi-meter or replace a ballast. I'm talking about big picture learning that focuses on how to run maintenance departments, how to manage staff, and how to deal with contractors. Basically, how to manage your own building...which more often than not is the stated goal of my most ambitious team members.

In trying to bring such an in depth training program to fruition, I quickly realized there were few resources specifically suited to our industry. So I built my own, and the first step was easy...NAHLE. NAHLE's certification courses for Chief Engineers and Engineering Directors are right on point, and offered a great start. But for me, books alone weren't enough. Using the backdrop of the certification programs, I layered in interdepartmental training, technical training, case studies, leadership and management texts, and most importantly, dedicated one-on-one time to go over each and every aspect of the program with my team members. Did it work? It has for me and several determined team members who decided they didn't want to change filters for the rest of their lives. In fact, just today I received a call from a former employee who's now a chief engineer. He went from running house calls to running his own building with a six figure salary in less than four years. Yep, I think I'm doing something right.

\* **Cleanliness is next to godliness...even in mechanical rooms.** I firmly believe the quality of the work environment directly impacts the growth and retention of the team. Seems obvious, but keeping a pleasant and attractive work environment for a maintenance department can be no small feat. Too often, our “shop” is nothing more than an afterthought; some crevice behind an air handler that no one else was willing to claim as their own. But there’s truth to the adage, home is where the heart is. And if that home is clean, comfortable and well appointed, you’ve got a fighting chance of keeping those staff members instead of losing them to a contractor where they’ll make more money but be exposed to the elements and have to deal with the fits and starts of working in the trades. So what does a “well appointed” shop look like? For me it has to include...

\* **Air conditioning and heat:** this is their home eight hours a day, they need to be comfortable.

\* **Connectivity:** today’s engineer uses a PC or smart device as much as any other tool. Have computers, a printer, and internet access readily available so they can watch training videos, search for parts, use the building automation system, etc.

\*

\* **A place for everything and everything in its place.** Partnering with Grainger, I’ve established an orderly product inventory system. My staff always has what they need and doesn’t have to spend inordinate amounts of time searching for tools and parts. We even have a vending machine that keeps the critical tools and supplies (drills, batteries, infrared thermometers, etc) secured but easily accessible so they are always available and we know who had them last. And speaking of tools, don’t forget the tool boxes. We engineers love our tools, and in the trades we typically have to buy our own. But in my operation, I budget with capital funds to buy tool sets for the team, saving them a bundle. Then I put them under lock and key for every engineer to call their own. Lastly, get everyone a mail box. Not everything can be emailed, and old school cubbies or mail boxes are great ways to distribute parts, leave notes or pictures, etc. Seems simple and obvious, but they have been absent in every engineering operation I have ever inherited.

\* **Coffee, coffee, coffee.** This is a big one. And it’s not just coffee. I stock bottled water, tea, and maybe a soda or two. It’s not meant to be a snack shop, but the team likes and appreciates good coffee or alike. I make sure to partner closely with our coffee vendor and the F&B team to have a great brewer and quality product in my shop at all times. The staff appreciates it and it keeps them close to home.

Oh my, now I’ve done it. Here I spent the better part three paragraphs saying I was too spent to offer any wisdom or advice for your engineering operations, yet I’ve gone and done exactly that. Maybe there’s a little hunt left in this dog after all.

\*\*\*



*This Ol' Dog Still Hunts...occasionally*



# You know how all emergencies start - Stressed out!!!

BY TIM ARWOOD

**Y**ou know how all emergencies start, from the same old mundane routine we cycle through, day to day, month to month and year to year. One of the most stress filled days I ever had, was an annual event testing the elevators on back power. I had never had an issue before with such a test, but I had only been hired as the Chief Engineer a month earlier and after two weeks in the job I was still learning the intricacies of the building. The building had set unoccupied for seven years and, after an almost complete renovation it had finally reopened. With new chillers, AHUs, hot water heaters, kitchen equipment and all plumbing lines replaced, the property was ready for business. It was a simple scenario, the two main 4000 amp breakers (fed from separate transformers) would be tripped and then under generator power, the elevators would be tested for dependability during a power outage. Breakers were tripped and the test went smooth as silk, however when the battery powered motor that recharg-es / pumps up the spring that closes the breaker was en-gaged, smoke began to bellow out of the breaker filling the basement with a burning smell. The power to the recharge motor was shutoff and the smoke cleared. Our electrical contractor who had replaced most (but not all) of the elec-trical system in the building was inbound in the Bat mobile, along with the GM and my newly hired assistant.

The electrician deemed that breaker should be racked out and the load be transferred to the tie breaker and the load carried through one transformer instead of two (redundancy).



“Phrases like *'suggest replacement'* instead of *'highly recommend'* or *'a priority'* can place urgent items on the back burner for far too long.”

So there was only one issue, we opened the cover and there was no tie breaker, referring to the build-out documents the \$14 million the owners spent on the base build-out had deemed breakers should be refurbished. The tie breaker had flat out failed during the due diligence and sent out to be remanufactured, but had not returned yet!!! So, the GM set up conference call between management, owners, and I. The old Westinghouse breakers needed a three to six week lead time, wow we were in a fix. But then the electrician and the electrical build-out foreman that had overseen the job interrupted the meeting tapping me on the shoulder and in his rugged not so polished way told the group they needed me assisting in ending the crisis instead of being sucked into a conversation that wasn't going to. So as I walked down the hall I saw a pallet with a just delivered tie breaker (*the universe was looking out for me that day*). Thirty minutes later we were back up. We racked out the breaker that smoked and it was sent out a year ahead of the Capital Plan to remanufacture.

This situation was a testament to how important it is that when consultants do studies and evaluations that their report be to the point on what needs to be done now or can wait. Your Asset Manager needs reports to be concise and convey a sense of urgency on issues discovered. Sometimes overwhelming jobs require overwhelming getaways, so what would the remedy be???? Well I was one more emergency away from a trip to Iceland, but next issue I'll give you one more war story!!!





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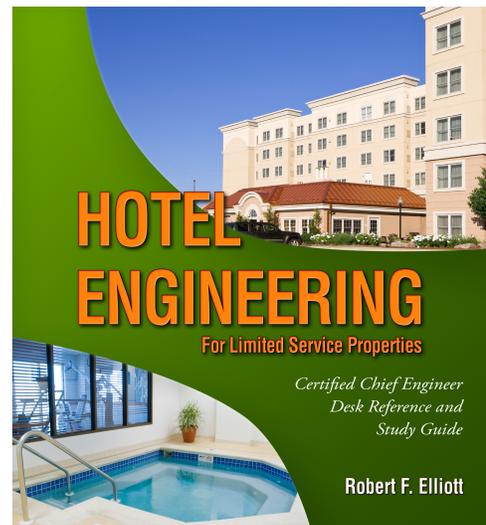
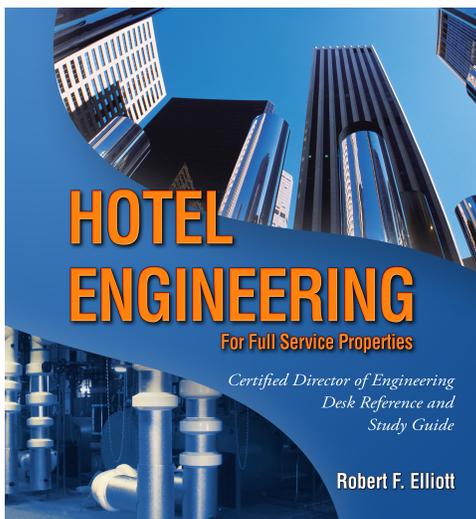


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**Certified Chief Engineer** Our (CCE) program is designed for limited-service property engineers and maintenance professionals who are often hourly employees. 19 Chapters – 265 pages

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

# 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. NAHLE provides technical phone support.

**Reporting:** Nahle has online software available should you want to track study hours for limited-service candidates.

**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. We can also provide monthly reports with exam scores and completion results for groups of properties.

**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.

**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. 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 (<https://cew.georgetown.edu/wp-content/uploads/2014/11/Certificates.FullReport.061812.pdf>).

**Program Candidates Provided Free Job Postings On NAHLE's Website**



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**Full Service Properties**
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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:**

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