

1ST PERSON



Tim Arwood, CEO

Director of Engineering, Sheraton
Orlando Downtown Hotel

Going GREEN in Orlando

Every decade has had its significant contributions to history. The 50's picture perfect Beaver Cleaver society was followed by the rebellions of the 60's. The 70's and 80's were times of economic change. The 90's seemed to herald the end of the Cold War. The first decade of this new century is going to be remembered as the decade that environmental awareness became mainstream and began to grow exponentially.

Many states have begun to usher in this new movement by creating programs known as "Going Green," which economically reward participants committed to become more environmentally friendly. For instance, the state of Florida has de-

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ADVANCING PROFESSIONALISM THROUGH
EDUCATION AND TRAININGNAHLE Enters into Strategic Partnership with AH&LA's
Educational Institute

by Robert Elliott

The foremost strategic goal of the National Association of Hotel & Lodging Engineers (NAHLE) is to advance professionalism in the lodging engineering community through education and training.

It is our belief that the entire industry can take a step forward by advancing the education and training of its engineering and maintenance personnel. For some chains and brands, this is a baby step and part of their standard operating procedures. For others, especially small independent properties, it is a giant step forward filling a much-needed industry void. Towards this single goal, NAHLE is proud to announce that the American Hotel & Lodging Educational Institute (EI) will be providing education and training content for NAHLE's registered maintenance and engineering programs. The American Hotel

& Lodging Association's Educational Institute is the world's largest source of quality hospitality training and educational materials producing materials that are used in more than 1,200 colleges and universities worldwide.

Education and training comes in many forms such as magazine articles, Internet content, product advertisements and networking among your peers to name a few. However, in the field of hotel engineering there are many, maybe too many, education and training programs available for hotel engineers and their staff. Some are quite good such as BOMI and AH&LEI while others may be just as good, but are untested as they are still in their infancy. Recognizing this lack of consistency and uniformity within the industry, NAHLE's partnership with the American Hotel & Lodging Educational Institute ensures the

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

CONTACT

P.O. Box 30844 • Alexandria, VA 22310 • Tel. (703) 888-3731 • website: www.nahle.org

Editor-in-Chief

Robert Elliott (robertelliott@nahle.org)

Art Director

Debbie Shaw (debbie.shaw@gmail.com)

Contributing Writers

Manny Higazzi • August Craanen • Fred Fredricks • Fred Hueston • Art Attaway • Tim Arwood
 (Address all correspondence to articles@nahle.org)

Administrative Issues

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

Advertisements

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ADVANCING PROFESSIONALISM

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training and designation you receive is the same training and designation recognized and accepted by both your industry peers and an international community of colleges and universities. NAHLE training will teach one how to stay up with current technologies, reduce operating and maintenance costs and protect building assets by applying maintenance and engineering solutions to your daily job and the hotel property where you work.

Continuing education and training of the maintenance staff for any commercial building, not just hotels, maximizes an owner's investment by protecting capital assets. For lodging properties, this benefit additionally contributes to guest satisfaction that equates to repeat business and your bottom line. For those of you already in the industry, accredited training such as the American Hotel & Lodging Educational Institute's current Certified Engineering Operations Executive (CEOE) or their Certified Maintenance Manager (CMM) programs, provides a well-defined career path for practicing engineers and maintenance professionals. And, for those of you wanting to enter the field of hotel engineering and maintenance or for those of you that do not have enough field experience to sit for EI's exams, advance training by NAHLE Institute provides you entry into the field and a way for prospective employers to gauge your knowledge and commitment.

NAHLE Institute will be offering their registration designation to those applicants who successfully pass the appropriate testing requirements. NAHLE's program will be broken down into core competency modules such as Building Systems that will be comprised of mini-learning modules including HVAC, Plumbing, Waste Water, Electricity, Lighting, etc. each with their own text book. Applicants will be awarded a certificate of completion for each module successfully completed. Both maintenance professionals completing a single module and managers completing aggregate core competencies will be eligible for listing on NAHLE's registry. NAHLE also intends to accept other industry recognized certifications for building maintenance professionals desiring to be listed on our national registry. Other NAHLE Institute mini-modules planned for publication include Maintenance

Management; Safety and Security; Capital Expenditures and Budgeting; Building Façade; Pools, Spas, Recreation and Parking; Energy Management; Vertical Transport; and Sustainable Operations and Design.

eLEARNING

Initially, NAHLE's training and certification will begin with traditional educational offerings including recognized educational content in hard cover format with online testing to demonstrate one's mastering of core competencies. As demand dictates, regional study-review seminars will be administered in cities throughout the U.S. with testing following the end of two-days of hands-on instruction. And, in an effort to make learning more fun, NAHLE is hoping to develop a maintenance 'competition' for a late afternoon of fun the first evening of the seminar. These competitions will test one's fix-it skills as well as their familiarity and knowledge of common maintenance products and tools. *(If you are interested in sponsoring one of our textbooks or seminars, please contact NAHLE at 703-888-3731)*



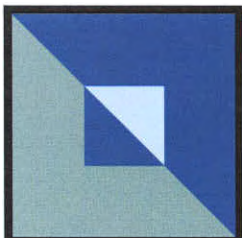
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NAHLE INSTITUTE

Our Institute's educational and training programs are being tailored specifically for the hotel Chief Engineer and his/her staff of maintenance personnel. If you want to learn more about your area of specialty or aspire to become a hotel property Chief Engineer, NAHLE Institute will be offering its members a number of training programs focusing specifically on hotel maintenance and engineering to help you grow your knowledge base and keep that competitive edge.

No matter what your specialty is, NAHLE Institute will have the curriculum, instructors, and prestige to boost your success!

Please go to NAHLE's website (www.nahle.org) for announcements of ongoing program developments.



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Hotel / Resort Restoration

Tile Roof & Facade Restoration

In 2004 & 2005 Hurricanes Charlie and Wilma swept across south Florida causing severe structural damage throughout the area. One of the properties that suffered such damage was the **Ritz Carlton Beach Resort** in Naples, Florida. This 14 story massive structure had a tile roof, which had been severely damaged during the hurricanes. Also damaged was various areas of the building's façade. Most of the damage to the façade was due to flying debris.

CAW was given the difficult task of the complete roof and façade restoration to include: tile and decking removal, replacement to the 150 foot high resort structure, repairs to the lower tile roofs, along with cleaning and repairs to the façade structure. One of the major challenges was utilizing one staging area to minimize the impact on hotel guests.

This project required a unique personal fall protection system that would accommodate a 40

man crew. A debris fall prevention system had to be set in place to prevent any of the 500,000 tile roof pieces and 1,200 sheets of deteriorated plywood that was removed from falling over 150 feet to the occupied courtyard and public ground areas.

In spite of the record rain fall during the 4 month project time, CAW rose to the challenge and successfully completed another almost impossible project.



Ritz Carlton Beach Resort
Naples, Florida



Roof top hydraulic hoisting stage
area.



Ground staging area. Used for
loading and un-loading roof.

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View of roof top hoist area



Installing new decking



Ramp access to other roof areas



Installation of safety systems



Overall view



View of low roof areas



Newly completed tile roof



Newly completed tile roof



HIDDEN DAMAGE FROM WATER INTRUSION

Or...The Ticking Time Bomb

PENETRATIONS, TERMINATIONS AND ROUGH OPENINGS

By L. F. Frederick, V.P. Operations

Water Management Consultants & Testing, Inc. - EDI

Establishing a proactive program that identifies and minimizes the damaging effects of water intrusion to your property's building envelope is crucial to the successful training and education of your maintenance staff.

Over the last two decades construction of hotels, motels, and other low, mid and high rise lodging facilities moved at an extremely fast pace. In many cases, it created a greater need for the building maintenance staff at these facilities to understand the exterior building envelope and wall components. Code officials, architects and developers recognized the importance of effective air and moisture barriers for a building's efficiency, health and durability. Responding to new requirements, manufacturers flooded the market with a multitude of new product lines. Contractors and their exterior envelope subcontractors were tasked with acquiring these new product lines, learning new construction techniques, training installation personnel and meeting aggressive construction schedules for completion of project work. This was all done without prior knowledge of the effect these new systems would have on the buildings. Value engineering and use of multiple product lines in the assembly created additional opportunities for mishaps. Compatibility of components and integration of assembly components further challenged builders during this learning curve,

while new sources of air/water entry due to cladding deficiencies were created.

Identification of water staining at specific locations is normally the first visible sign of wall system problems. Microbial growth is commonly the second visible sign of much greater wall system issues and often manifests itself in various forms of poor indoor air-quality. Reaction to and/or remediation of these symptoms by maintenance staff often falls short of actually correcting the primary source of water entry and stopping further damage to hidden interior wall systems. Water management consultants are brought into remediation projects that have become much more costly than they would if proper steps to identify, correct and maintain the primary points of entry water intrusion were put in place.

It is important to familiarize yourself with the following common exterior envelope cladding systems used in the construction of hotel and lodging facilities. But first, let us review the term cladding system, a term used to describe the siding or materials covering the exterior of a building. Common building-envelope cladding sys-

tems for hotels are:

Architectural Block · Stucco · Exterior Insulation Finish Systems · Cementitious Siding · Brick · Stone Veneer · Curtain/Store Front Wall Systems · Wood Siding

Phrases common to mid and high rise construction, but relatively new to some markets of the building maintenance industry are: air barriers, vapor barriers, water-resistant barrier (WRB), membrane flashing, rough opening flashing or wall cavity flashing, diverter flashing, through-wall flashing, drainage assemblies and barrier assemblies.

The cladding systems listed above can be designed to employ several of the systems listed or stand as a barrier system only. It is imperative that building maintenance staff knows and understands the assemblies installed at their facilities so they can create effective maintenance programs to deal with the special requirements of the system in place.

Future articles will delve deeper into each cladding type and its various components. In this article we will identify the three most common points of water entry for all



PENETRATIONS

Lack of proper integration of flashing and sealants of the wall cladding system allows water to pass the water-resistant membrane directly to the sheathing.



TERMINATIONS

Unsealed penetration of dryer vent allows water to pass behind the cladding directly onto the sheathing.



DIVIRTER FLASHINGS

Lack of integration of the water-resistant membrane and use of diverter flashing has allowed water through the drainage assembly and onto the sheathing.

cladding types whether they are Barrier or Drainage Assemblies; Penetrations; or Diverter Flashing and Rough Openings.

For the most part, solid wall areas on a vertical plane readily drain water as sheet-flow down the surface of the wall in a manner that does not afford an opportunity to penetrate beyond the exterior surface. Penetrations at flat wall areas, such as conduits, electrical boxes, fixtures, chases, anchorage of rails or downspouts, vents, louvers, etc. create openings for water to enter the cladding and pass onto the drainage assembly or beyond the drainage assembly to the wall cavity.

Recognition and Detection is Critical for Water Damage Control

Early detection is critical to mitigating possible ongoing or future wall cavity damage. The Building Maintenance team should verify the method of termination of the following cladding types: Stucco, Hardi or cementitious siding, wood siding, brick, veneer or EIFS at all abutments of differing planes.

Another critical area of concern is lack of proper diverter flashing at all roof-to-wall intersections where water is directed at the terminating edge of adjoining cladding. This roof-to-wall interface is the second most costly repair to wall cavity and structural framing components. Building Maintenance should inspect all roof-to-wall junctures and verify proper diversion of water at these locations. Lack of proper termination of wall claddings at grade is another area of concern that can allow water to enter the sill track area and erode the attachment of framing as well as deteriorate the sill track at slab levels.

To prevent one of the most common causes of water damage and avoid costly

repairs to the wall cavity and structural framing components, Building Maintenance should verify correct treatment by the construction team in the installation and integration of the Water Resistant Barrier and Wall Cavity Flashing, as well as treatment of sealant details at rough openings in the wall systems created to accommodate window and door systems. In the case of new construction, the Building Maintenance team might not be on board yet and owners should consider hiring independent consultants to verify installation.

Water entry at window and door systems, and their juncture with the adjoining structural and cladding components, involves multiple interfaces with multiple components all exhibiting differing thermal and dynamic movement capabilities that create stress to this assembly.



Multiple interfaces and components all exhibiting different thermal and dynamic movement create stress to the assembly.

ROUGH OPENINGS

Window and door system frames are created, for the most part, through joining head, jamb and sill components of varying materials and attaching this assembly to the structural wall system with fasteners.

Water entry through the joinery is seldom taken into account by new construction teams because it is assumed that these components are water tight and do not allow passage of water. Head flashing, sill pans and wall cavity flashing are designed to create a path that is supposed to direct “incidental moisture” away from the wall cavity, out and down the drainage assembly, or out and over the barrier assembly. It has been our experience that mechanically adjoining window and door assemblies are not all created equal, or always installed as recommended by the manufacturer. The term “Incidental Moisture” as referenced above does not describe physical water running down the assembly, but in reality, describes moisture that enters the drainage assembly through diffusion, vapor drive, capillary action or through small defects in the cladding that may over an extended period build to the

point of needing an avenue for escape from the assembly.

Multiple interfaces and components all exhibiting differing thermal and dynamic movement create stress to the assembly.

Lack of proper through-wall flashing at junctures of differing cladding types, such as Hardi over stone or stone veneer, stucco over brick, stucco over stone, EIFS over stone veneer, etc., are also areas of concern. If all components are not properly interfaced, wall cavity damage may cause costly repairs as the components age. Building Maintenance should inspect all through-wall flashing at these junctures and verify

proper diversion of water at all locations.

Improper handling or racking of window and door systems can happen anywhere along the line as window and door systems leave the manufacturer, are loaded on a truck, shipped, unloaded, stored on job sites, transported from site storage to

the building's rough opening, and finally installed as window and door systems. All of these conditions can create varying degrees of stress on the systems and can cause openings for water entry beyond the abilities of the drainage assembly or barrier assembly. These stresses can also breach factory installed internal seals and their warranties.

Areas of concern at rough openings are identified as: (1) Lack of integration of Water Resistant Barriers and flashing in a manner that sheds water away from the wall cavity behind the drainage assembly, (2) Improperly installed head or sill flashing, (3) Improperly installed sealant details at juncture of window/door systems and the cladding, (4) Lack of "dry line" sealants between window/door system at rough opening, (5) Cracks in the frame of the window or door system, (6) Unsealed fastener penetrations, and (7) Unsealed joinery of the window or door system at jamb-to-sill locations. Building Maintenance can eliminate future costly repairs with inspection and verification of existing conditions for these areas of concern, as well as the subsequent correction of discrepancies and incorporation of cor-

rection procedures into the maintenance program. Taking these steps will ensure the building's continued efficiency, health and durability as intended by the design and construction team.

Establishing a Procedures Manual for the Maintenance Team

A. Review available plans and specifications to verify intent of design at the following locations:

- Below grade waterproofing
- Structural wall components (metal framing, wood framing, CMU, concrete, etc.)
- Exterior sheathing type
- Drainage assembly (WRB, flashing and dry-line sealants)
- Manufactured window/door systems
- Waterproofing at decks and walkways
- Waterproofing / elastomeric paint and sealant at vertical surfaces
- Cladding type (stucco, brick, stone, Hardi, etc.)
- Roof system

If no plans and specifications are avail-

able, the maintenance staff should perform whatever light destructive inspection is necessary to identify the manufacturer of each of the above components.

B. Acquire manufacturers' warranty documents, installation instructions and maintenance requirements for each of the above components.

C. Identify "Installation Critical Locations" from the plans, specifications, manufacturers' installation guides and warranty requirements for each of the above components.

D. Use "Due Diligence" investigation of documents, and visual or light destructive investigation, to create a maintenance manual that is component and warranty specific to your building.

For more information on establishing an in-house proactive program, you can contact Water Management Consultants & Testing Inc. at 850-837-1336, or online at www.watermc.net or ffrederick@watermc.net.



Safety Tip

Treating A Burn

Almost all of us have experienced some kind of a burn and it is never a pleasant experience. They can be quite painful and it helps to know how to treat a burn and do so quickly. The severity of burn and its care are determined by its size, location and depth. Burns are basically categorized into three major types with corresponding treatment.

1st Degree Burns are the least severe and usually only affect the outer layer of skin. The burn area is painful and red. Treatment: If the burn is small, less than say three or so inches, you can treat it yourself. Run cool water over the affected area for five (5) minutes (longer for chemical burns) or you can apply a cold compress, though not frozen. On everything but a chemical burn, use an antibiotic cream. Then cover the area with a sterile bandage or gauze dressing. You should seek medical help if the burn

is caused by electricity, larger than three inches in diameter, covers much of your neck, face, hands, feet or groin or a major joint. Also if the burn shows signs of infection or drainage you should seek medical help.

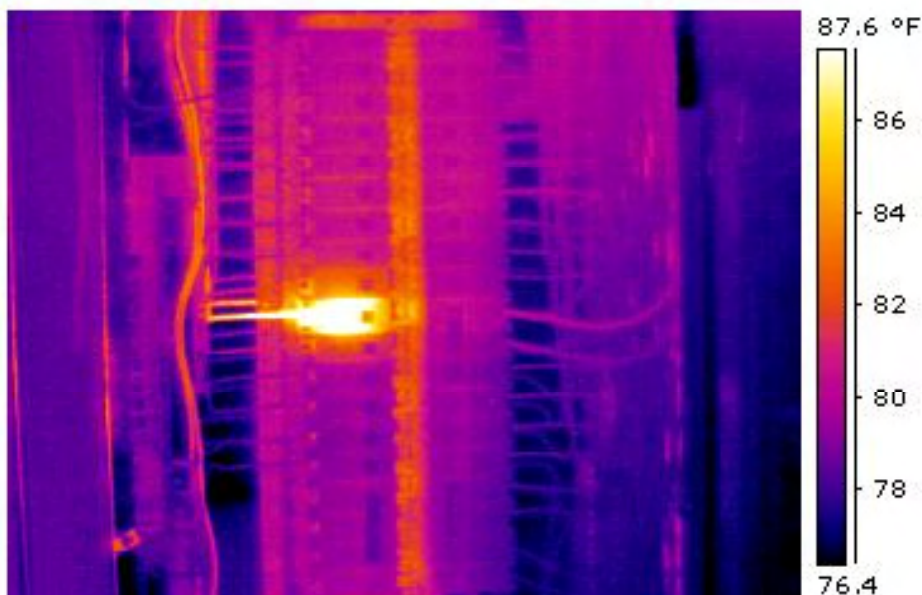
2nd Degree Burns go beyond the surface layer of skin. Blisters are present and the skin is red, swollen, and painful. Treatment: If the burn is small, treat it as described above except run the cool water for fifteen (15) minutes instead of five (5). Don't break the skin or the blisters. And, see your health care provider as soon as possible.

3rd Degree Burns are the most severe type of burn. They involve damage to all layers of the skin. The skin may look charred black or white and is typically painless. Treatment: Cover the burn area with a clean cloth and either call 911 or get to an emergency room right away. If you are assisting the burn victim, check vital signs such as breathing and a pulse. If either are not found, begin CPR and call 911.

Switchboard Maintenance

By August Craanen

One of the most neglected maintenance items in a hotel is the switchboard. Once problems are detected, it is often too late because power interruptions and guest inconvenience are already a fact. Only authorized and properly trained personnel should be permitted to operate or handle any part of the switchboard. Maintenance employees must follow all recognized safety practices such as those provided by NFPA's



Infrared thermography is the only diagnostic technology that lets you instantly visualize and verify thermal performance.

National Electrical Safety Code, OSHA and other local safety regulations. All units of the switchboard requiring maintenance must be de-energized, tested for potential, grounded and 'tagged out' before removing covers and barriers for access to primary circuits. (Smaller properties might outsource this to licensed and qualified contractors.)

Keep in mind that power circuit breakers are also capable of storing mechanical energy in the form of contact closing springs. Make sure breakers are open and springs are properly discharged and/or blocked before working on the mechanism. Always refer to the breaker's maintenance manual for specific safety considerations.

Maintenance Program

A well-executed maintenance program can provide the following benefits:

Longer life of a switchboard and fewer replacements

Reduced time on repairs and overhauls, with the option of scheduling them at more opportune times

Fewer failures with unexpected outages

Timely detection of any undesirable operating conditions that require correction

Improved plant performance and increased operating economies

Maintenance Records

A maintenance file should be established which includes the following:

A record of all installed switchboards and their maintenance schedules

Nameplate data of all the equipment and its major components, instruction books, renewal parts lists, bulletins and drawings

A list of all items which have to be inspected and what adjustments are to be checked

A record of past inspections and test results

Maintenance Tests

Insulation resistance tests of a switchboard's breakers and bus can be useful in determining the condition of the insulation if they are performed regularly. Since definite limits cannot be given for satisfactory insulation resistance, a record must be kept of the readings and comparisons made. Deterioration of insulation and the need for corrective action can be recognized if the readings are progressively lower after each test.

Infrared thermographic testing can be performed to identify developing and hidden problems that are not yet visually apparent to the naked eye. Many fires could be prevented if switchboards, main electrical distribution panels, and transformer connections had regularly infrared-scanned (thermo-graphics). This technology is a proven method of preventative maintenance, and will allow problems to be identified and solved before their full impact

is felt. A proper infrared predictive maintenance program will allow you to identify problem spots and repair or correct them prior to failure, thereby preventing service interruptions and guest inconvenience. Everything that uses or transmits power produces heat. Nearly everything gets hot before it fails, making infrared cameras extremely cost-effective and a valuable diagnostic tool in many diverse applications.

After the switchboard has been serviced and adjusted, its operation should be checked before it is returned to service. This can best be done by putting the breaker in the test position and operating it with its associated control and protective devices from a separate source or supply.

Maintenance Equipment

Adequate maintenance equipment should include:

Spare parts for at least those parts of the switchboard that are vital to operation.

The manufacturer's recommended list of spare parts can be used as a guide in combination with operating experience to determine variety and quantity of parts to be stocked.

A well equipped shop should include the following:

A test cabinet or inspection rack for power circuit breakers

A source of control power for checking the operation of electrically-operated breakers

A selection of test instruments—multimeters, clamp-on ammeters, instrument transformers

Lifting means for handling large breakers

An insulation resistance tester (Megger™ or equivalent)

Frequency of Inspection & Test

It is generally good practice to inspect equipment three to six months after it is first put in service and then inspect and main-

tain it every one to three years depending on its service and operating conditions. This suggested schedule is only a guide. Conditions that can make more frequent maintenance necessary are:

- High humidity and ambient temperatures
- Corrosive atmosphere
- Excessive dirt and dust
- High repetitive duty
- Frequent interruption of faults
- Older equipment
- History on preceding inspections

As the switchboard is often the point of sale and guest services, it's imperative to maintain it with the least amount of downtime. You can make sure it is done correctly and timely.

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DEPARTMENTAL REVIEWS

- Prepare policies and procedures for engineering / maintenance departments
- Emergency & contingency planning
- Review of job descriptions
- Staffing schedules, competency evaluation
- Training need assessments
- Maintenance contracts review

DEVELOPMENT & TRAINING

- Review and preparation of job descriptions
- Development profiles and training

EVALUATION OF PROPERTY MAINTENANCE CONDITIONS

- Review preventative maintenance programs
- Review of work order and maintenance request procedures
- Evaluation of maintenance programs
- Property maintenance inspections
- Maintenance contracts review

SURVEY INVESTIGATE AND INSPECT PROPERTIES

To determine capital improvements required for physical plant, guest rooms or tenant spaces and equipment

- Condition surveys
- Determine useful life of equipment and systems
- Prioritize system and equipment replacement (prioritize expenditures)

ENERGY CONSERVATION

- Staff training
- Energy walk-through evaluations
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- Energy audits

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From Greenwashing to Platinum Smelting

By Art Attaway

Greenwashing, being the practice of doing a little green and a lot of advertising; and platinum, being the LEED program's most environmentally complete package of property compliance. There is a broad range in between.

What does it take to be a green hotel? I think it can be argued that any real effort to help the environment is a step in the right direction of environmental responsibility, and should be acknowledged. Agencies and associations are doing just this. The Florida Green Hotel program has three palm tree rewards, but will hand out acknowledgements with one palm tree for a partially compliant property. Two palms for more effort. The LEED (Leadership in Energy and Environmental Design) program has silver, gold, and platinum ratings. The private group Green Seal isn't so easy. You either meet their compliance standards or you don't. The internet based travel group, Green Travel Hub (Rezhub.com), allows a self evaluation and checklist (don't be a greenwasher!). But soon, very soon, expectations are going to increase, and guest's expectation is going to be the salient point.

Forbesonline.com recently rated the top ten "Green Hotels" in the country. And I cannot say it was solely based on LEED criteria. Cited were elements of focus from ladybugs being used in place of pesticides to using dead standing pines to timber and use for walls, floors, and furniture. Washable fabrics, free of Scotch-guard, indigenous plants, recycled paper products, organic fiber beds and bed linens, paper key cards... all considered. Some had significant capital investments like wind and solar energy plants and hy-

drocarbon powered dry cleaning plants. One property used solar energy to provide heat for the floor, so your feet do not get cold. In Alaska, they used native driftwood to make furniture, and for all of the wood surfaces such as flooring. I really think the 5-Star and 4-Diamond rating are soon to include these "type" luxury amenity expectations.

I remember, just a decade ago, being amazed on the Emerald Coast of Florida, when we had to specially select and position exterior lights on the Oceanside so as not to interfere with the sea turtles coming ashore to lay their eggs. We also could not cut, and had to plant extra, sea oats. An acquaintance of mine recently described a Caribbean resort property that included the guest in the release of baby sea turtles during the annual migration to the sea. If you are as old as I am you will remember when "safety meeting" and "safety committees" were introduced. Well, it will soon, very soon, be "eco committees and meetings". One small but well known hotel chain has a Vice President of Environmental Affairs in their corporate office. I doubt they are alone.

We should embrace the program and use it for its many purposes, to help save the earth, cut cost, and as a Public Relations opportunity. Other industries have rushed to compete as being the most green. The Prius is the current gold standard in the auto industry, Whole Foods in organic and whole foods in the grocery industry, and Starbucks Fair Trade products in the food supply industry. Starwood's "Element" Properties all are required to be LEED certified from the ground up. Most states now have a green hotel certification program. The EPA Environmental Protection Agency) with it's Energy Star program, and private organizations are all in the game. But the hotel industry lags significantly behind in finding ways to be green. The hospitality industry is in the top five largest industries in the country, meaning sales income, employment, and taxes. We have the ability to make a significant impact in this area of focus.

So, what can you do? Well, start with getting all of these rating systems. I will tell you where. But there are several areas that won't even hurt, because they make an immediate impact and actually "save"



money. Return on investments range from 3 to 24 months, and then dollars start falling to the bottom line. In fact, most of the programs will ultimately save money and help make an environmental difference at the same time; things like guest room energy managements systems, fluorescent lighting and bulk soaps and citrus cleaning products. One company offers free parking if you are driving a hybrid automobile. Be creative. Look at your property. See what is innovative and insightful to be done. Urban properties may not be able to use ladybugs for pesticides, but you can find other responsible and creative ways. Did you know indigenous plants require far less water and maintenance than transplants? And, even though most properties have guest towel and bed linen savings programs, the housekeeping staffs are not properly trained to follow the system. Many frequent travelers report that even though they said "don't change the bed" and hung up their own towel, they came back to find all fresh linen products anyway. EcoMeet and Green Wedding programs are cropping up in more than one location.

And deeper, the LEED program just announced the LEED EB: OM program. EB meaning "existing building" and OM meaning "operations and maintenance". In the past, the LEED program compliance was largely up to architects, designers, owners, and anyone who controlled capital budgets. Now, the Green Building Council is making it easier for property managers and operators to make a difference. So HVAC and energy management, solar and wind turbine power, and expensive recycling systems are no longer the only way to be LEED certified as a property. Leave the low VOC (volatile organic compounds) wall coverings, carpets, and adhesives to the design group, and worry about what you, the hotel engineer, can affect. Water flow control valves and waterless toilets, environmentally friendly and bulk cleaning products, paper key cards are all things you can do. You don't have to find driftwood,

dead standing pines, and virgin forest. Just buy recycled paper products.

The NIST (National Institute of Standards and Technology) has created a Windows® based computer program named BEES (Building for Environmental and Economic Sustainability), that analyzes various data and aspects of product usage, such as life cycle, initial cost, replacement cost, and environmental merits to determine the "really" most ef-



ficient products. BEES lets one evaluate the carbon footprint and cost from cradle to grave. This is important because often indigenous materials, once you factor in labor and disposal, do not stack up to the environmental impact associated, say with substitute based petroleum products, or products outside the 50 or 500 mile LEED scoring system. While primarily used by Architects and Designers, this could be a good tool for anyone in control of budget planning for a renovation or new construction project. The program can be obtained in the form of a free download from the NIST @ brfl.nist.gov/oac/bees.html.

Also watch for information coming from the ASTM (American Standards for Testing and Materials) who has now formed a "Green Building Committee" and is coming out with updated ASTM standards. The second edition of ASTM International Standards on Sustainability in Buildings (not specific for hotels) is now available on CD-ROM. The compilation, which includes 111 standards, addresses

environmental problems and challenges related to the design, construction, and operation of environmentally sound and resource-efficient sustainable buildings. The standards identify compliance with federal mandates that call for environmentally preferable products, energy efficiency, and sustainable buildings. The text covers building materials, performance of wetlands, and general principles for life cycle assessment as well as sustain-

able design, construction, and operation of buildings. A complete list of the standards can be accessed by visiting www.astm.org/ and entering GREEN05 at the site search. ASTM has recently received approval of its residential / multi-family housing "Green" standard. This standard was developed in cooperation with the NAHB (National Association of Home Builders) and has provisions affecting R-1 mixed-use occupancies (hotels). You should also watch for ANSI (American National Standards Institute) and ISO (International Organization for Standardization) programs.

There was a time, and may still be, when the operational reluctance was fear of a negative guest reaction to (perceived) less services, or "different" services and amenities. Well, the world has shifted its focus and what would have hurt business before will now help. Educating employees and guests is extremely important. The more educated they are the more they will support the efforts. Identify what you do, and why, in your printed literature. Put a loop on the guest / meeting information system in the lobby, and the television when it hits the information channel. Include it in your advertisements. Have employee meetings to identify the programs and their value. Wear it proudly. Because soon, very soon, you will be standing at the station watching the train pull away (with your guests on board).

In 1983 at the Hyatt Regency Phoenix we had a new Rooms Exec, Chief Engineer, and General Manager, all within 3 months. We were looking to make a difference. Our new "Chief" put three kicking halogen lights on a lower flat roof that illuminated the 27 story tower so you could see it from the airport, 7 miles away, and beyond. Our building stood out beyond all others in the downtown area. The GM beamed with pride. We were the talk of the town! And we would be the talk of the town today, but in a much more negative way. It made sense then. It was good then. But now we have to look for more environmentally friendly ways to stand out.



- Supports the use of alternate energy sources (wireless room energy management systems, fluorescent light bulbs, and fluorescent fixtures are easy).
- Participates in energy conservation programs.
- Compact Fluorescent Lighting (back of the house and some public area lighting can easily and affordably be changed).
- Uses Energy Star appliances.
- Uses Green Key Card (change out plastic for paper)
- Uses bulk soap and toiletries (as op-

- Xeriscaped or Native Plant Gardens (saves water and maintenance man-hours)
- Fresh-Air Exchange (windows that open)
- Is A State Certified Green Property (look for information within your state)

Websites:

Green Travel Hub - Rezhub.com

GreenSeal.com

Green Hotel Association, Texas - Green-hotels.com

Green Building Council - USGBC.org

“We should all embrace ‘going green’ to help save the earth, cut costs, and benefit from it as a public relations opportunity.”

As you can see, there is an abundance of “standards” materials, actually an overwhelming amount. Don’t know where to start? Look up the privately run “Green Seal” program, established in 1995. They have a checklist of what to do to get your seal. Find the LEED EB: OM requirements through the local chapter of the Green Building Council, or investigate the Energy Star program run by the EPA. Check with your state to see if they have a program. In Texas there is the “Green Hotels Association”. In California and Florida it is the “Green Lodging Program”. Find the sources in your state, and do what you can. It’s good for everyone.

The Green Travel Hub website ranks these categories; this may be a good starting place:

- Sheets and towel reuse program (remember to train and check)

posed to individually wrapped)

- Recycles: newspapers, disposables, service items, in-room recycling
- Educates staff and/or guest about greenness, and/or participates in green programs
- Composts waste food
- Offers organic food
- Uses non-toxic Earth Friendly cleaning agents (citrus based is good and works).
- Uses re-usable service items (no disposable cups, plates, silverware, etc.)
- Gives to non-profits
- Conserves water
- Low-flow showers/toilets (this can be a simple valve replacement, and a brick)

(LEED & LEED EB:OM)

NIST.gov (BEES)

ANSI.org

ISO.org

ASTM.org

Run by the State of California: Integrated Waste Management Board

Green Lodging Program, California – ci-wbm.ca.gov/epp/greenlodging/

Run by the State of Florida EPA

Green Lodging Program, Florida – dep.state.FL.US/greenlodging/

Publications:

Green Hotelier

Green Lodging News

Soon, very soon.



MOISTURE: STONE ENEMY NUMBER ONE

Moisture can be the underlying cause of many problems showing up on marble and other natural stone. Fred Hueston, internationally recognized stone forensic expert, tells you how to identify these problems and what can be done about them.

As a stone and tile forensic consultant, I am frequently called upon by hotel engineers regarding problems they are experiencing with their marble or other natural stone or tile. Many of these problems—yellowing of certain types of marble, discoloration, flaking and spalling to name a few—all have one thing in common: they are all problems as a result of moisture or water intrusion.

Water can enter a stone installation from flooding, broken pipes as well as natural disasters such as hurricanes, strong winds, etc. Moisture problems can also result from excessive water used in maintaining the floor.

Water is an essential ingredient for the setting, cleaning and restoration of stone but it can also be its number one enemy. The following is a description of the most common of these problems, their prevention and remedies.

A WHITE POWDERY SUBSTANCE ON THE STONE SURFACE

Efflorescence appears as a white powdery residue on the surface of the stone.



It is a common condition on new stone installations or when the stone has been exposed to a large amount of water, such as from flooding. This powder is actually a mineral salt from the setting bed.

The solution: To remove efflorescence do not use water. Buff the stone with a clean polishing pad or #0000 steel wool pad. The stone will continue to effloresce until it is completely dry. This drying process can take several days to as long as one year.

SPALLING (PITS IN THE SURFACE OF THE STONE)

In the efflorescence condition above, the salts are deposited on the surface of the stone. When the mineral salts migrate and do not make it all the way to the surface, a condition called subflorescence occurs. In subflorescence the salts crystallize just below the surface, causing stress within the pores of the stone. This manifests as a condition known as spalling which appears as pits in the surface of the stone. Subflorescence is very common on green marbles and very common on almost all stone surfaces where de-icing salts are used.

Subflorescence is difficult to repair but not impossible. First an assessment must be made to determine the extent of the damage. If it is found that the damage is not too extreme, the stone may be able to be filled with an epoxy. A stone expert should be called in to evaluate and perform testing and discuss possible remedies.

YELLOWISH / BROWN STAINING ON THE STONE

Many light colored stones contain natu-

rally occurring deposits of iron. Iron is a mineral found in stone and can occur randomly throughout the stone. If iron is present, it will begin to oxidize when exposed to water or other oxidizers such as acids and household bleach. Stone can remain for years without yellowing, then over time may slowly turn yellow and in severe causes may turn completely brown. This oxidation process is accelerated when the stone is saturated with water. This process of oxidation is similar to the rusting of metal. If you expose a brand new nail to water and air it will turn brown and rust. The same process is occurring with the iron in the stone. If water and/or air is eliminated the iron will not oxidize. This is the reason certain white marble suddenly turns yellow. The process is difficult to reverse. It is advisable to contact a stone restoration contractor to try to remove the staining. However, in many cases even the best techniques may not work and replacement of the stone may be necessary.

Before assuming the marble is yellowed due to iron, be sure to attempt cleaning and stripping with a good alkaline based stripper.

The yellowing of stone is a common problem. New installations should be sealed with a good quality penetrating sealer (impregnator) which will help prevent oxidation of the iron by keeping moisture out.

EROSION

Erosion is a condition found when stone is exposed to constant amounts of water. This is especially true with marble that is used in water fountains. While marble is a very decorative material, it is one of the

worst materials to use in or around water. Marble is composed of calcium carbonate. Calcium carbonate is a water soluble mineral. Quite simply this means it will dissolve in water. If you want proof, visit the Grand Canyon.

Erosion can be recognized by a slow deterioration of the stone surface. With polished stone the polish will be worn off. In older installations, the stone may become very soft, brittle and in extreme conditions, it will powder.

(To the architects or designers reading this article I beg you not to use marble for water fountains. If you do, plan on very high maintenance costs and plan on replacement in about five to ten years if not sooner.)

Stabilizing Erosion

If you are faced with trying to stabilize a marble fountain that is already deteriorated there are some treatments that can be applied that will extend the life of the marble. These treatments are generally called consolidants and serve to replace the natural binders that are lost through erosion. Consolidants can be tricky and quite often will cause discoloration of the surface. It is strongly advised to contact a qualified stone restoration contractor to provide this service for you.

WHITE CRUST-LIKE FORMATION ON STONE SURFACE

You may find a white crust-like formation on your stone surfaces, often on outdoor stone stairs, water fountains and other areas where the stone is exposed to water. This is probably from mineral crusts or lime putty originating from the soil, setting

bed or from the water itself. The crusts are a deposit of hard mineral salts consisting of calcium and magnesium. These salts are similar to efflorescence in that they are a mineral. They differ in that they form a hard crust which can be difficult to remove.

Crust Removal

There are only two ways to remove these mineral crusts: by abrasion and with the use of chemicals. The mineral salts should be removed with an abrasive. I have found that a stiff non-ferrous wire brush can work well. Brushes can also be purchased that attach to an electric drill. Be careful not to get too aggressive and damage the stone surface.

Quite often abrasion alone will not remove all salt deposited. Strong acidic chemicals will be required. These chemicals can be purchased from most chemical companies that supply stone cleaning products. Be careful when using these products around calcium based stone since the acid can also damage the stone itself. Because of the potential pitfalls with resolving this problem, this is another problem that may be better left to a qualified stone restoration contractor.

Prevention

The best prevention from mineral salts is to prevent moisture from entering the stone. On steps and fountains make sure all grout joints are caulked with a waterproof material. When installing steps outdoors make sure a waterproofing barrier is used. It is also a good idea to use a good stone impregnator on all surfaces to impede water from entering the stone.

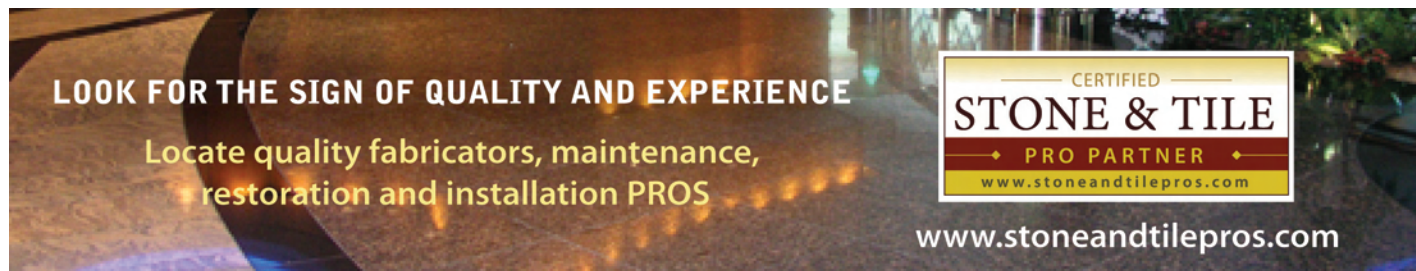
Important Note: Stone impregnators will not waterproof stone. Do not use them where hydrostatic pressure is a concern. Impregnators are not water-proofers and are not recommended for outside installations.

HOW TO REMOVE MOISTURE FROM STONE

The first thing that needs to be done is to remove as much standing water as possible. Use a wet-vac to get all water off the surface. Next place some air movers or fans on the floor to circulate the air and accelerate evaporation. If the area is small enough you may want to rent some dehumidifiers. The stone can take several days to several weeks or even months to dry out. Many of the problems described earlier may not show up right away. Once the floor is dry, you may need to have a qualified stone consultant perform some testing and evaluations.

As you can see moisture can be the cause of many stone and tile problems. Proper care must be exercised to make sure new installations are installed properly and that existing installations are monitored and maintained to avoid costly and often irreversible damage. It is not surprising that a majority of the inspections and issues I deal with as a Stone Forensics professional are caused by moisture intrusion.

To learn more about these and other stone and tile related issues, visit the case studies pages at www.stoneforensics.com. To submit any questions you may have, visit the Resource Center at www.stoneandtilepros.com.



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To Leak or Not to Leak? That is the Question.

By Manny Higazi

Hi everyone! Let's talk about something interesting and somewhat annoying: What a leak means to you. Let's just say a water leak is like a timing device waiting to go off with a big splash. I know many of you have come across a leak here and there with buckets just catching the drip. Yes, we catch the drip because we have plans to fix it one day. But, the leak continues and sometimes is forgotten. That's when the timing starts--tic tock, tic tock. Then one day the monster will awaken and give you that big splash you've been putting off for some time. So when you come across a leak, think of preventive measures while the leak is still a drip and not a splash—before it's too late.

I had a bad experience occur in our property's boiler room. Hidden in the back wall was a five-inch main that had been leaking for some time when I took over engineering for this hotel. I wanted to get it repaired, but management was not ready for a shut down as we were busy with occupancy. The elbow was rotted and not looking well. I soon found myself busy exploring other areas of the hotel and came back two weeks later to find that it did not drip anymore, it was now squirting like a kid's pump-action water pistol. I now had to make arrangements for an overnight repair and a complete shut down.

Keeping this experience in mind, I say fix it now, not later. The good thing about water leaks is that they are noticeable and not invisible like a gas leak. Water leaks untreated will also cause what I call 'water pipe cancer.'

Pipe cancer is where the water leak starts to drip along the pipe creating calcium deposits--yes, that green stuff. Once formed, it builds on the pipe and starts to eat away at it, making this leak a bigger problem down the road. Instead of replacing an elbow now you may find yourself replacing an entire pipe section. And since we are on this topic, let's set aside a day on our calendars and call it "SPLASH DAY." That's where we go around our building and do a complete overall check for leaks. This will include all guestroom bathrooms, water shut off valves under sinks, ceil-



ings, water hose valves, boiler rooms, all kitchen faucets and sinks, etc. This list can be big or small depending on the size of your hotel. Think about it for a second. We all come to work and just go about our business not thinking twice about a leak until we get a complaint. I will be the first to admit, that I do it too.

So let's start with this preventive measure and see what we face. I would like to hear feedback on what you find. It will be interesting to our readers, and it helps me to address your problems and know that you are getting something out of my articles. Better yet, if you have a story on this topic, share it with us. This is what NAHLE is all about, sharing ideas and experiences with one another so we can be more productive and professional in doing a great job maintaining our property. Thank you for reading my article and try to stay dry. I leave you with this question: To leak or not to leak, what are you going to do about it?

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GOING GREEN IN ORLANDO

continued from page 1

veloped a program designed to promote hotels and resorts that adapt greener practices and Orlando seems poised to lead the charge. Florida's Green Lodging Program (<http://www.dep.state.fl.us/greenlodging/default.htm>) is one of the nation's pioneering efforts to reduce the hotel industry's environmental impact on state landfills and resources. The Program requires that each hotel design a personal Environmental Guideline, which

is intended to reduce each hotel's environmental footprint. The guidelines serve as a blueprint for each department within the hotel facility to follow to achieve the property's goals for recycling and conservation.

The 'Green Industry' will bring energy conservation, waste management, and recycling into a new era. Recently on a trip to the west coast of Florida, I noticed several hotels flying the Green Lodge flag, as several certified Orlando properties proudly do. Many hotels had added very large signs by their entrances with the Green Lodge logo signifying (and boasting a little) that they have achieved

a "One Palm" rating, the first designation in the state's 3 tier program. I believe this is only a small preview of what will soon become a true industry standard that will be incorporated into our nation's infrastructure.

What's next for the Green Program? I think in the not so distant future that sunshine states, such as Florida and Arizona, will see solar cells popping up on the tops of hotels and other commercial buildings with large flat roofs. So stay tuned for further developments! ■



UPCOMING INDUSTRY EVENTS

MAY

May 28th 2009 5:15 PM
Puget Sound Hotel Engineers Association
Alexis Hotel
(www.pshea.net/)

JUNE

June 8-11
National Fire Protection Association (NFPA)
2009 CONFERENCE & EXPO
Join us at McCormick Place in Chicago
Read our conference blog. (<http://nfpa.typepad.com/conference/>)

June 23-24, 2009
AH&LA Summer Summit
AH&LA Stars of the Industry (6/24)
Hilton Chicago, Chicago, Illinois
(<http://www.ahla.com/content.aspx?id=3122>)

June 28-30, 2009
BOMA Annual Conference and the 'Every' Office Building Show
Pennsylvania Convention Center, Philadelphia, PA
(<http://www.bomaconvention.org/boma2009/custom/splash.html>)

Summer 2009

USGBC, The American Society of Interior Designers (ASID), and The Hospitality Industry Network (NEWH) are sponsoring the Sustainable Suite Design Competition to help drive green design practices within the hotel industry. Entries are due by August 31, 2009, and judging will be completed by October 1, 2009. For more info, go to: (<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1966>)

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A CLOSING NOTE FROM OUR DIRECTOR

As our nation's 26th President, Theodore Roosevelt said...

"Every man owes a part of his time and money to the business or industry in which he is engaged. No man has a moral right to withhold his support from an organization that is striving to improve conditions within his sphere."

I firmly believe that each and every one of you will reap tremendous reward both personally and professionally by being a member of NAHLE. It is my personal conviction that together we can build this association toward the common goal of engineering excellence in the lodging industry. What each and every member brings to the table contributes to the whole. So please join, share your knowledge and help us grow **your** association. The cost is only 39.95 per year, the value is immeasurable. (<http://www.nahle.org/Join>)

Robert Elliott
Executive Director



Dedicated to Engineering Excellence

NAHLE Membership Services

Current Member Services:

- * Newsletter- an electronic newsletter (Lodging Engineer) that members download featuring informative articles and product advertisements specific to hospitality engineering and maintenance,
- * Blog – an electronic forum where you can discuss articles in Lodging Engineer, current events, news items, products or exchange ideas and information with your peers,
- * Job Bank - a single source for finding and posting hotel engineering and maintenance job openings,
- * Events – lists upcoming events, meetings and local chapter functions of interest in calendar format,
- * Institute - a searchable database of past articles, federal regulations, and ADA / maintenance checklists,
- * Buyer's Product Guide - an electronic buyer's guide which lists service vendors, suppliers and product manufacturers and searches for vendors near you,
- * Links – to websites including commonly used standards and regulations such as OSHA Lockout / Tagout safety or Department of Justice' ADA checklist, Material Safety Data Sheets and other trade associations promulgating standards or of mutual interest.

Membership Services in Development:

- * National Registry - an electronic registry listing all lodging

related building maintenance professionals including; NAHLE designations, AH&LEI and other trade association certifications, local jurisdictional licenses, and union cards,

- * Online Educational Training - engineering and maintenance modules in all disciplines. Completing training leads to a certificate of completion and listing on NAHLE's National Registry. AH&LA's Education Institute is providing educational content,

- * Seminars - regional meetings and review seminars for building maintenance educational training.

Membership Services Under Consideration for Future Development:

- * Forum - web-based forum to exchange ideas among your peers with threaded discussion,

- * Warranty / Permit / License Management - a document management system that tracks your warranties, permits and licenses for you in one spot and sends you an email of an impending expiration,

- * Trade Show - regional trade shows featuring "special olympics" for maintenance personnel coupled with national vendors / sponsors showcasing products, education, and peer networking,

- * Student Chapters - develop student high school chapters and partner with schools to develop course curriculum.



National Association of Hotel & Lodging Engineers
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Lodging Engineer is the comprehensive resource written just for hotel and lodging engineers. It's full of information about all the issues you face every day and the difficult problems that come unexpectedly. The National Association of Hotel & Lodging Engineers (NAHLE) strives to advance industry professionalism through education, training, access to your peers, and more.



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