As the nation of Haiti struggles to recover from the devastating earthquake that rocked the nation in January 2010 it has determined to, in the words of former US President and UN special envoy to Haiti, Bill Clinton, “build back better.” Part of that effort is the development of a new national teaching hospital in Mirebalais. Located in the high central Haitian plateau, the new teaching hospital provides world-class medical services to the nation and much needed tertiary care to the majority of Haitians who live outside the country’s main cities. The effort to create the hospital was coordinated by the renowned Boston-based health NGO, Partners in Health, which has over 20 years history partnering in Haiti.

In this presentation, you will hear about the challenges faced while working to build a sustainable hospital model in one of the world’s poorest regions.

Mark Blanchard, CHFM, Director of Engineering at Springfield Medical Care System in Springfield, Vermont is this year’s Spring Seminar Chair. ASHE will award this program 5.0 Contact Hours or 0.50 Continuing Education Units. Online registration for both attendees and vendors is available at nehes.org.

Registration fees are:
- NEHES Active Member -- $150 which includes a free copy of the 2014 FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities
- NEHES Supporting Member -- $250.00
- Non-Member -$250.00

For more info, contact Jack Gosselin at jack@nehes.org

Keynote Address: Rising from the Rubble– Bringing World-Class Healthcare to one of the World’s Poorest Nations

As the nation of Haiti struggles to recover from the devastating earthquake that rocked the nation in January 2010 it has determined to, in the words of former US President and UN special envoy to Haiti, Bill Clinton, “build back better.” Part of that effort is the development of a new national teaching hospital in Mirebalais. Located in the high central Haitian plateau, the new teaching hospital provides world-class medical services to the nation and much needed tertiary care to the majority of Haitians who live outside the country’s main cities. The effort to create the hospital was coordinated by the renowned Boston-based health NGO, Partners in Health, which has over 20 years history partnering in Haiti.

In this presentation, you will hear about the challenges faced while working to build a sustainable hospital model in one of the world’s poorest regions.

Dr. Regan Marsh, MD, MPH, Partners in Health, Director of Emergency Services, l'Hôpital Universitaire Mirebalais

Dr. Marsh graduated from Princeton University in 1999 and then received her medical degree from the University of Pennsylvania School of Medicine. She completed her emergency medicine training at the Harvard-Affiliated Emergency Medicine Residency at Brigham and Women's Hospital. Currently, she works half-time in Haiti at PIH's hospital, and she's the organizational lead for emergency medicine development and capacity building in Haiti.

Jim Ansara, Chairman, Shawmut Design and Construction

In 1979, while a political science major at Amherst College, Jim Ansara began working as an independent builder and in 1982 incorporated as Shawmut Design and Construction with just two employees, specializing in small residential carpentry. Over the next twenty five years, Shawmut became one of the country's largest and most respected contractors and construction managers. Jim was named “Entrepreneur of the Year” in the real-estate/construction category by Inc. magazine and Ernst & Young and he has been honored by the Governor's Office of Massachusetts and Inc. magazine as one of America's Fastest Growing Private Companies.

In 2009 Jim traveled to Haiti for the first time with Dr. Paul Farmer, founder of Partners in Health which provides healthcare for some of the most impoverished people in the world in eleven countries. For the next three and a half years, Jim worked as a fulltime volunteer, directing the design, engineering, and construction of l'Hôpital Universitaire Mirebalais.
Spring Seminar Offers World Class Education Sessions

Enhancing the Built Environment - a New Perspective of Quality for Facility Engineers

Hospital Facility Engineers across the country are increasingly responsible for improving quality beyond responsibility for the built environment. The new reality is that every person on the hospital staff is being measured on their ability to affect every dimension of “quality of care” and “patient experience.” This session, led by Nick Masci, will demonstrate comprehensive quality measures proven by leading CHFMs.

Nick Masci, Lean Practitioner and Vice President | Haley & Aldrich
Nick is a long-time member of NEHES and ASHE. Currently, he is co-chairing a national ASHE advocacy task force responsible for developing learning around “how facility managers affect patient satisfaction” and is a past presenter at three recent NEHES conferences. Nick is a frequent and sought after speaker on the topics of healthcare and LEAN. He is currently a guest lecturer at Wentworth Institute of Technology in their Masters of Construction Management Program.

The High Cost of Low Performers

Does your health care organization have employees who habitually perform poorly? Productivity, patient relations, and employee morale is at stake when organizations retain low performing employees. The costs are high, yet we often engage in magical thinking, hoping the low performing employee either improves or better yet, leaves the organization voluntarily.

This interactive workshop led by Andrea McGill O’Rourke will identify what low, medium, and high performing employees look like and provide you with some communication tools to help you address, not only employees who are low performers, but retain high performing employees, too.

Andrea McGill O’Rourke, Assistant Professor, Franklin Pierce University
Andrea received her Master’s in Social Work from the University of Pennsylvania.

2014 FGI Guidelines Updates

The Guidelines for the Design and Construction of Health Care Facilities has been adopted in many states as the standard for health care facility design. This session will provide an overview of the major changes in the 2014 edition of the Guidelines, targeting those for hospitals and outpatient facilities. Information will be provided to help attendees understand the effects and intent of the changes that will appear in the 2014 edition of the Guidelines. This session will enable you to:

- Identify key changes in the 2014 edition that could affect your design and construction projects.
- Discuss the intent of the changes for health care facilities.
- Design, regulate, and comply with the Guidelines more efficiently.
- Discuss opportunities for future revisions and the process for the Guidelines revision process.

Chad Beebe, AIA, CHFM, CFPS, CBO, SASHE, Director, Codes and Standards, American Society for Healthcare Engineering
Chad Beebe is a registered architect, a Certified Fire Protection Specialist, a Certified Healthcare Facility Manager, and a Certified Building Official. He is currently Director of Codes and Standards for the American Society for Healthcare Engineering (ASHE) of the American Hospital Association. He serves on many national panels and committees that develop regulations for the design and construction of health care facilities. Mr. Beebe is a highly active member of the National Fire Protection Association and of the Health Guidelines Revision Committee (HGRC), the multidisciplinary body responsible for updating the Guidelines for Design and Construction of Health Care Facilities. He is a member of the HGRC Steering Committee and is a principal member of the Technical Correlating Committee for NFPA 99: Health Care Facilities Code.

***Spring Seminar Bonus***
Free for Active Members only. 2014 FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities

This book (a $200 value) is packed with information on the planning, design, construction, and commissioning process and facility requirements for both hospitals and outpatient facilities. Included are general hospitals, psychiatric hospitals, rehabilitation facilities and new chapters on children’s and critical access hospitals.

Outpatient facilities covered include primary care facilities; outpatient surgery facilities; birth centers; urgent care centers; mobile units; outpatient psychiatric and rehabilitation centers; facilities for endoscopy, dialysis, and cancer treatment; and a new chapter on dental facilities.

The book includes new material on safety risk assessments and medication safety zones; increased requirements for commissioning infrastructure systems; and updated requirements for surgery, imaging, endoscopy, and dialysis facilities as well as primary care facilities and freestanding emergency facilities.
President’s Message—Ed Lydon

I am pleased to report that many of the committees are in full swing working on the initiatives that were agreed upon during the fall retreat. That’s a great way to start the new year!

I am learning quickly as your President that there are many moving parts to this organization and there is an appreciation to meet the needs of our members in this rapidly changing healthcare landscape.

Each day, I hear about employment and leadership changes from my colleagues. With that said, the Spring Seminar, put together by the Vermont Chapter is designed to assist the facility managers in meeting these challenges. Also, hard at work, is the committee for the fall conference in Mystic, Connecticut. More exciting news on this program will come soon.

Lastly, the teams behind the NEHES website and newsletter led by Ron Vachon from Maine are always in full swing to deliver pertinent information and news of the Society. Soon, Dave Rosinski, will be rolling out a NEHES online store offering our own branded products. We look forward to this new venture.

The scholarship committee led by Wes Pooler is evaluating offering programs in leadership as well making available funds for members to further education. (Be sure to see the information in this edition of the newsletter regarding Active Member and Intern Scholarship programs offered by NEHES.)

Be on the lookout for a series of meet and greet sessions to develop and advance relationships with our chapters and vendors. Mike Walsh, liaison to supporting members, and Jack Gosselin, NEHES Administrative Director, are at work setting these dates.

Since the society is experiencing significant growth we have been hard at work updating the society board guidance document, a conference and seminar policy to set structure and consistency around the organizing and execution of these events, as well as putting a travel policy in place, and an orientation process for board members.

If you have any questions or concerns, NEHES is here to assist you individually or as chapter. Please do not hesitate to reach out to Jack Gosselin or his administrative staffer, Michele Deane, who are working behind the scenes daily to support the society. Go to Jack@nehes.org or Michele@nehes.org.

President-Elect’s Message—Paul Cantrell

From the moment I became a member of NEHES as a state representative for New Hampshire and started attending the NEHES board meetings, an eye opening education process began. I don’t believe most people understand the level of commitment that I’ve seen and come to understand by each of the board members. They truly exhibit a passion to educate and assist their fellow facility engineers, to give back to its members, and to continue to get the information that we, as operating engineers, need to make sound decisions.

As a board, we attempt to collect, and disseminate information in a variety of ways. The board understands that so many of us are caught up in the day-to-day operations and never have the opportunity to get outside of the confines of our own hospitals. They understand, too, how important it is to provide members with updated information from code changes to trends that are occurring in the inspection process.

So how does NEHES provide info and opportunities to its members? Here’s just a few of the many ways:

- NEHES has helped subsidize costs for the Twin State Seminar, which is offered during the summer at Dartmouth-Hitchcock Medical Center. That’s right. This is offered at no cost to members.
- We’ve offered scholarships for members that are seeking their MBA, MHA, or just a college education to enhance their engineering background. That’s right. Scholarships—outright grants to further one’s education.
- We’ve offered scholarships to interns to get hands-on experience in a healthcare facility. We enable a student to work at a hospital, learn some of the specifics of the regulations we work under and to get a view of day to day operations. Our hope is that today’s intern will become a facilities’ employee in the future. Where else can a student get exposed to such opportunities but through the NEHES Intern Scholarship Program?
- When you attend one of our conferences or seminars, Active NEHES Members receive a free copy of code books whether it’s NFPA 99 or FGI Guidelines. That’s right. You earn back the cost of your registration by receiving one of these publications for free!
- And though I’m stating the obvious, the speakers and topics at the NEHES seminars and conferences are world class quality. You have the opportunity to learn from regional and national experts on subjects important to your work as engineers.
- State Chapters that want to grow and develop membership and programs also have the opportunity to seek resources from NEHES.

I’m pleased to say that I have just completed my two year term as Treasurer for NEHES. The experience has been enriching and I’m in awe of the commitment and dedication shown by your fellow engineering professionals.

I look forward to the coming year as your President-Elect as I help bring forward this year’s agenda and goals to the organization.

I always welcome your thoughts and suggestions at pcantrel@crhc.org.
NEHES Executive Committee—2014

**Massachusetts**
Stephen Cunningham  
Vice President of Sales  
American Energy Management  
Marlborough, MA

David Dirubbo  
President  
Acella Construction Corporation  
Norwell, MA

Michael Gerhart  
Sales Manager  
Miura North America  
Framingham, MA

Edward Orazine  
Lead Engineer  
EPM, Inc.  
Framingham, MA

David Peck  
Enterprise Solutions Manager  
Environmental Systems Inc.  
Newton Center, MA

Susan Pisano  
Director of Compliance  
Geolnsight, Inc  
Littleton, MA

Erin Proudman  
Life Safety Officer  
UMassMemorial Medical Center  
Worcester, MA

Tom Schiller  
President  
AutomaTech, Inc.  
Plymouth, MA

Hans Strauch  
Principal  
HDS ARCHITECTURE, INC.  
Cambridge, MA

Mike Walsh  
Vice-President  
Suffolk Construction  
Danvers, MA

**Connecticut**
Michael Cody  
General Manager  
Belfor Property Restoration  
Wallingford, CT

Lawrence Pike  
Director, Plant Operations  
Redington-Fairview General Hospital  
Skowhegan ME

**Maine**
Rick Albert  
Director of Plant Operations  
MaineGeneral Medical Center  
Augusta, ME

Benjamin Whitten  
Manager, Operations  
Redington-Fairview General Hospital  
Skowhegan ME

**New Hampshire**
John Dunleavy  
Director of Facility Services  
LRGHealthcare  
Laconia, NH

Lenny Edmunds  
Senior Electrical Engineer  
RFS Engineering  
Laconia, NH

Gene Goodwin  
Vice President of Facilities & Support Services  
Huggins Hospital  
Wolfeboro, NH

Chris O’Hara  
Maintenance Tech  
Dartmouth Hitchcock  
Concord, NH

Robb Russman  
Maintenance Supervisor  
Riverwoods at Exeter  
Exeter, NH

TJ Sprague  
President  
Sprague Floor Covering  
Dover, NH

David Stiger  
Director, Project Management  
Dartmouth Hitchcock Med Ctr.  
Lebanon, NH

**Rhode Island**
Cynthia Wood  
Director, Facilities Operations  
Kent Hospital  
Warwick, RI

**Vermont**
Ashley Bond  
Manager, Property & Real Estate Services  
Fletcher Allen Health Care  
Burlington, VT

Greg Garner  
Facilities Manager  
Green Mountain Psychiatric Care Center  
Morrisville, VT

Gregory Gosselin  
Northeast Regional Sales Manager  
Ensyn GreenFuels  
Woodstock, VT

**Pennsylvania**
Lawrence Ward  
Sr. Vice President  
Vanguard Modular Building  
Malvern, PA

New and Renewing NEHES Members

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Facilities Manager  
Green Mountain Psychiatric Care Center  
Morrisville, VT

Gregory Gosselin  
Northeast Regional Sales Manager  
Ensyn GreenFuels  
Woodstock, VT

**Pennsylvania**
Lawrence Ward  
Sr. Vice President  
Vanguard Modular Building  
Malvern, PA

NEHES Executive Committee for 2014. Your NEHES leadership includes (left to right) President- Ed Lydon, SASHE, CHFM Director Support Services, Northeast Hospital Corp, a member of Lahey Health, President Elect- Paul Cantrell, CE, CPE, CHFM, Director of Facility Operations-Concord Hospital, Treasurer-Alison Brisson, Plant Operations Manager, Wentworth Douglass Hospital and Secretary- Jona Roberts, SASHE, CHFM, - Engineering Manager at Dartmouth Hitchcock Medical Center.
As the chair of the New England Healthcare Engineers' Society Engineer of the Year selection committee, it is my honor to announce that nominations are now being accepted to determine who the next Society member will be to receive NEHES’ most distinguished award. The nomination deadline is May 30, 2014.

The eighteenth NEHES Engineer of the Year award will be presented to a NEHES Active member who has distinguished himself/herself in service to the Society and the healthcare engineering profession. Distinguishing qualities may include service to their institution, their chapter, fellow engineers, and the Society as a whole. Additional detail and criteria can be found on the nomination forms available at www.nehes.org.

The successful candidate will be announced on September 30, 2014 at the NEHES Annual Banquet held during the Fall Conference in Mystic, CT from September 28 to October 1. Please take a moment to review and download the nomination forms at www.nehes.org and nominate a deserving candidate for acknowledgement as the next NEHES Engineer of the Year.

Completed nominations and supporting documents can be mailed or emailed to:

Jona Roberts
Dartmouth-Hitchcock Medical Center
1 Medical Center Drive
Lebanon, NH 03756
jona.roberts@hitchcock.org

Past Engineers of the Year are:

1996 - Mark Cappello
1997 - Tom O’Sullivan
1998 - Jack Gosselin, FASHE, CHFM
1999 - Steve Cutter, SASHE, CHFM, MBA, HFDP
2000 - Joe Mona
2001 - Mark English, CCE, SASHE, CHFM
2002 - Don Garrison, FASHE, CHFM
2003 - Gene Cable, P.E., MSFPE
2004 - Ron Vachon, SASHE, CHFM, CHEC
2005 - Joe Mona
2006 - Bob Lord
2007 - Steve Jalowiec, P.E., CHFM
2008 - Fred Leffingwell, CHFM
2009 - Dave Dagenais, FASHE, CHFM, CHSP
2010 - Ed Lydais, SASHE, CHFM
2011 - Jona Roberts, SASHE, CHFM
2012 - Milt Dudley, CPE, CHFM, CHEC
2013 - Milt Dudley, CPE, CHFM, CHEC
2014 – Milt Dudley, CPE, CHFM, CHEC

State Chapter News

- **New Hampshire Society of Healthcare Engineers Sets Educational Slate for 2014**

  January—Scott Lever presented on How to Manage Construction Projects

  February 21: AJ Giglio will present on Building Envelope Inspection.

  March 21: NEHES Spring Conference

  April 18: ASSA ABLOY will present on Access Control with a Demonstration

  May 16: Scott Lever presenting on Building Pressure Control

  June 20: New Slant on Fire Stopping by Wayne Barrel.

  July 18: Twin State Seminar at Dartmouth Hitchcock Medical Center


- **Recent Chapter Programs:**

  "Planning and Executing Building Envelope Repair Programs"

  Hosted By: Massachusetts Healthcare Facility Professionals Society, Inc.
  Host: Bill Smith bsmith@winhosp.org

  "Are You Managing Your Life Safety Or Is It Managing You?"

  Hosted By: Maine Healthcare Engineers' Society
  Host: Dan Bickford BickfoDa@cmhc.org

- **Rebuilding the Rhode Island Chapter!**

  See the work that Jim Carroll is doing to revitalize the RI Chapter on Page 11.

State Chapter Officers

Vermont President
Mark Blanchard, CHFM, Engineering Director, Springfield Medical Care Systems mblanchard@springfieldhospital.org

New Hampshire President
Tim Bishop, Director of Facilities, Riverwoods at Exeter tbishop@riverwoodssrc.org

Massachusetts President
Larry Williams, Director of Facility Services, Nashoba Valley Medical Center Larry.williams@steward.org

Connecticut President
Paul Roth, CHFM, Lawrence and Memorial Hospital in New London, CT proth@lhmhosp.org

Maine President
Milt Dudley, CPE, CHFM, CHEC Director of Engineering at Inland Hospital in Waterville, Maine mdudley@emh.org
Bringing the Patient Room into the 21st Century

Five Ways to Make It Happen

By Andrew Quirk
Senior VP and National Director
Healthcare Center of Excellence for Skanska
New Haven, CT & Boston, MA

More than ever before, healthcare providers are faced with a wide variety of environmental and societal challenges, including managing infection control, the introduction of smart technologies, adjusting to emerging risk factors, and payment reform, just to name a few.

NXT Health, a nonprofit organization dedicated to collaborative design innovation to improve the delivery of care, unveiled Patient Room 2020, an interactive healthcare living laboratory that responds to needs of doctors, nurses, patients and their families by creating a safer, more streamlined, integrated and restorative environment.

NXT Health quickly recruited more than 35 product and service partners to contribute to the creation of Patient Room 2020 through product and service donations, so that it could deliver on its promise to create an environment that could solve some of the greatest challenges facing healthcare design and delivery now and into the future.

Our team was honored to have been one of those partners, providing the project management, permitting and construction estimates for the project. From the innovative designs of lighting experts, software developers, specialty glass manufacturers and custom fabricators, the Patient Room 2020 was built into a 400-square-foot prototype and is on display at DuPont's Corian Design Studio in New York City.

“Hospitals have to do more with less, medical decisions require even more analysis, and we are more dependent on specialized technologies to most effectively treat patients and create an environment in which providers can thrive,” said Salley Whitman, Executive Director of NXT Health. “By streamlining complexities and leveraging evidence-based design and innovation tools, Patient Room 2020 is a catalyst for industry leaders concerned with solutions that save lives, time and money.”

We think this prototype shows at least five important trends that will influence inpatient rooms of the future. They include:

Blending technology seamlessly:
This prototype has what is called a 'patient ribbon,' an overhead canopy, above the patient’s bed, that incorporates life controls, an HVAC diffuser, lighting, audio controls, and a color halo. “Each part of that ribbon has been rethought to house as much technology as possible,” says Christopher Whitelaw, director of research and development at Evans and Paul, a partner in the Corian Design Studio and lead fabricator in Patient Room 2020. David Ruthven, principal designer of Patient Room 2020 calls it his “Swiss Army Knife.” It also addresses the ability to change along with the sea of changes coming as a result of the Affordable Care Act (ACA) without the need for major changes to the built environment. As an example, the ribbon facilitates the growing utilization of telemedicine, the use of medical information exchanged from one site to another via electronic communications to improve a patient’s clinical health status.

Providing the patient easy access to information and controls: A solid aluminum frame mounted on wheels combines two ubiquitous elements: an over-bed table and a touch screen tablet to form a single piece of mobile furniture that could be utilized in a wide range of healthcare settings. The hybrid tabletop provides room to eat on one side and a table on the other side, allowing the patient’s access to educational content, social networks and control of the temperature, audio and lighting in the room.

Having a better bathroom: The prototype has an adaptable bathroom concept that features a sliding door system which can be reconfigured based on care needs. If a patient needs assistance in the bathroom, the expandable door will make the bathroom area larger to accommodate an assistant.

Improving safety via the caregiver station: Imagine a workstation featuring integrated hand washing indicator lights and concealed accessories. The integrated LED light illuminates the sink in color – red if you have not washed your hands well, and green if you have.

Creating a mobile caregiver hub: Caregivers have the flexibility to move around with a deployable bedside work area with embedded technology, simulated UV light sanitation and wireless device charging stations. The project serves as an example of what design can do to address the complex challenges that face modern healthcare delivery. This effort was specifically for a patient room, but the reality is that many of the ideas and outcomes can find their way into the outpatient setting and even into your home.

To schedule a tour of Patient Room 2020 at DuPont's Corian Design Studio, please contact Salley Whitman to book an appointment at swhitman@nxthealth.org.

Patient Ribbon Blends Technology

Creating a Better Bathroom
The Effects of Sound Control in Healthcare Flooring

By Tom Connors
President
ProSpec Solutions Inc
Westboro, MA

As resilient flooring manufacturers we are constantly challenged by healthcare engineers and professionals to improve our products. Initially it was low VOC adhesives, then increase the recycled content in our products, then products that were easier to maintain. The next challenge on the horizon is a move to help engineer our products to assist in controlling sound transmission in healthcare environments.

Controlling sound transmission is one of the easiest, and least expensive, ways healthcare professionals can enhance the patient experience. By providing products that decrease the transmission of sound, we can help create a patient environment more suitable for rest and rehabilitation.

Sound transmission is measured in two ways. Impact Insulation Class (IIC), which measures “impact sound” such as foot traffic and objects dropping on a floor and, Sound Transmission Class (STC) testing which measures the airborne sound from mediums such as televisions and radios.

The ASTM-492 is the standard test for measuring the IIC of a particular floor/ceiling assembly. It is important to note that individual products don't achieve a certain IIC but rather achieve an IIC rating as part of a system. The test factors in the entire floor/ceiling assembly including the thickness of the concrete slab as well as the composition of the ceiling below. For example, a product will test better when placed over an 8” concrete slab as opposed to a 6” concrete slab. Additionally, the addition of an acoustical or drywall ceiling below will increase the performance of a resilient product.

In traditional living environments such as condominiums and apartments the industry standard for IIC is a 50. We feel that it is reasonable to expect the same type of standard in a healthcare environment.

There are multiple ways to achieve these levels of sound control and comfort with resilient products. Products that have attached underlayments such as recycled rubber or cork are popular. Recycled rubber and cork are both sound absorbers that also contribute to an increased awareness of the environmental properties of our products.

There are products on the market like USF Contract’s “Stratum” which achieves a 62 IIC result when tested over a 6” concrete slab with no ceiling. “Stratum” is a luxury vinyl tile that can be installed using a floating or glue down installation method.

Ecore Commercial Flooring makes a wood grain, heterogeneous sheet vinyl called “Forest RX”. “Forest RX” is the result of a 2mm sheet vinyl, fusion bonded to a 5mm recycled rubber underlayment. The result is a product that achieves a 52 IIC on a 6” concrete slab with no ceiling underneath. By providing cushion underneath your resilient flooring you can also increase the ergonomic comfort under foot of your staff as well as provide reduced fall impact in rehabilitation facilities. “Forest RX” has proven to reduce fall impact by 17% when compared with traditional sheet vinyl flooring. (DIN Test 18032).

Zandur “Sustain” cork rubber is another popular solution. “Sustain” is a vulcanized rubber tile with cork integrated into the manufacturing process. The cork acts as a sound absorber as well as increasing the comfort under foot and dramatically increasing the slip resistance when compared with traditional vinyl flooring.

Finally, there are multiple sources for “stand alone” underlayments. These underlayments are products that are installed directly over existing concrete slabs and have a separate floor covering installed on top of the underlayment. Compatibility is the key when it comes to using these products. Insuring that the proper adhesives, dry times and materials are used in paramount to a successful installation.

As healthcare facilities professionals we are constantly challenged to improve the patient experience while still protecting the bottom line. Providing sound control underlayment under resilient flooring is an effective and cost conscious way to accomplish these goals.
Certified Healthcare Facility Manager

Advancing Your Career

Want to stand out from the rest of the pack? Want to be the best of the best?

Consider earning the Certified Healthcare Facility Manager (CHFM) designated through the American Hospital Association.

The CHFM certification recognizes the expertise of professionals who have advanced knowledge in health care facility management. As a CHFM, you will demonstrate your comprehensive knowledge in the field to your peers, work colleagues, and other health professionals.

The CHFM Program has three components:

- Eligibility requirements that are a blend of education and experience and profile the individual who is likely to be successful on the Certification Examination
- A 110-item multiple-choice Certification Examination that tests tasks that are performed regularly in practice and are considered important to competent practice
- A renewal requirement. Certification is valid for three years at which time it must be renewed through retaking and passing the Certification Examination or documenting 45 contact hours of continuing professional education.

How do I start my journey toward CHFM?

Download the CHFM Candidate Handbook and Application which contains eligibility requirements, a complete content outline for the exam, sample test items, instructions on applying for the exam, and an application.

Preparing for the Exam—Self Assessment

How does the Self Assessment Exam work?
The CHFM SAE is an online practice test that parallels the format, content, cognitive levels and difficulty of the CHFM Certification Exam. It can serve as a diagnostic tool to assess strengths and areas for improvement in the content areas covered on the exam. To see a self assessment demo, click here. To purchase a self assessment exam, click here. (ASHE member price is $115.)

Preparing for the Exam—CHFM Review Course Set for NEHES Fall Conference

**CERTIFIED HEALTHCARE FACILITY MANAGER EXAM REVIEW COURSE** As a special bonus for NEHES members, a CHFM review course will be held at the NEHES Fall Conference in Mystic, CT on Sunday, September 28, 2014. Cost for the review course is **FREE** for NEHES current active members or those that have applied for active membership and been accepted by 5/31/2014 and free to ASHE Region 1 active members that are attending the conference. All other attendees $150.

Designed to give you an edge in preparation for the Certified Healthcare Facility Manager (CHFM) exam, this course will help you gain confidence in the five key competency areas of the CHFM test: maintenance and operations; code compliance; planning, design, and construction; finance management; and administration. Through a combination of lecture, CHFM-formatted practice test questions, and study materials, you will feel more prepared to take the CHFM exam.

The one day course offers participants 7 CEUs (equivalent to 7 contact hours), on-site course materials that supplement your learning and a certificate of course completion. The course will help you apply your knowledge and experience in answering application and analysis questions, implement suggestions for preparing for the CHFM exam and help to identify the topic areas that are your strengths.

(Please note: The workshop fee does not include the CHFM exam fee, nor does it register you for the exam. Participation in this program does not guarantee a passing score on the exam.)

The online registration form will be available on June 1, 2014 on the NEHES Home Page. Questions may be directed to Jona Roberts, NEHES Secretary. jona.roberts@hitchcock.org

Just Announced! CHFM Exam Planned for October 1 After Fall Conference

As we go to press, Jona Roberts informs us that plans are underway to have the CHFM Exam available to take after the NEHES Fall Conference on Wednesday, October 1.

“We are pleased to offer the review course on Sunday, September 28 and to follow it up with the actual CHFM exam on Wednesday, October 1,” said Roberts. “We are in the process of confirming that a proctor is available for the test taking on that day.”

Until final details are set, tentatively mark your calendars now for the testing date. “We will offer the test at the Mystic Marriott. Because of the location, the test will be done on a paper hard copy rather than a computerized test,” said Roberts. “The exam results are typically available within two to three weeks.” Check the NEHES website for updates.
Thinking about advancing your education? NEHES can help cover the cost and is now accepting applications for Active Member scholarships and Intern Scholarships.

**Active Member Scholarship Application**

Active Member is defined as those individuals who are directly employed in or by healthcare-related facilities (those that provide patient care), and who have responsibility in healthcare facility operations (e.g. facilities management, plant engineering, planning/design/construction, security, safety, clinical engineering, and telecommunications).

Deadline: January 1 – December 31 until budget is committed.

The Active Member Scholarship shall be awarded to Active Members pursuing a degree.

Applications will need the following information:

- Name, Title, Current Employer, Employer Address, Tenure with Current Employer, Years worked in Healthcare, Current level of education, Degree / Educational Program (enrolled or planned),

Attach the following:

- A brief resume with focus on healthcare-facilities-related experience and education.
- A short essay (less than 200 words) that outlines your educational path associated with disciplines within healthcare facilities management.
- Provide a brief outline of activities that support your local chapter and/or NEHES.
- Outline a budget for your educational path with information about total cost, employer and member contribution, and requested scholarship.
- Name and address of the educational institution to which the check may be sent.
- Copy of employer policy on tuition reimbursement/educational assistance.
- Letter of recommendation from the President of the applicants’ local NEHES chapter, including information such as: how long the applicant has been a member of the state chapter; activities the applicant has participated in at the chapter level; projects the applicant has been involved in at their healthcare organization.

Scholarships shall be awarded on a rolling basis until all funds have been allocated. The maximum that may be awarded for an active member scholarship is $2,000.

**Intern Scholarship Application**

The Intern Scholarship shall be awarded to an intern working for an Active Member’s institution.

Deadline: Anytime between January 1 – April 15

The proposals should include:

- The NEHES member’s name and title.
- Member Institution and address.
- A description of the member’s facilities.
- An outline of the project, including the number of hours the intern would be utilized and the expected hourly wage to be paid.
- A short narrative on how the completion of the work will benefit the member’s organization.
- The qualifications required of a student intern in your organization.
- The learning objectives of the intern.
- If a partial scholarship is awarded, is your organization prepared to subsidize the balance?
- Name and address of the healthcare institution to which the check may be sent. Checks will not be mailed until the intern has worked for 4 weeks or more.

Intern Scholarships shall be awarded on a rolling basis until all funds have been allocated. Intern Scholarship awards are up to $5000.

For additional information or to submit an application for either the Active Member Scholarship or the Intern Scholarship, contact:

Wes Pooler, CHFM
Director of Facilities Management
Fletcher Allen Health Care
111 Colchester Ave.
Burlington, VT 05401
Phone: (802) 847-0321
wes.pooler@vtmednet.org

**Advanced Education Opportunities in Engineering or Facilities Management**

**Massachusetts Maritime Academy** offers a B.S. degree in Facilities Engineering and an M.S. in Facilities Management.

**Owensboro Community and Technical College**—Offering an Associate Degree specific to Healthcare Facilities Leadership. The program is available entirely online and in-state tuition is charged regardless of where the student resides. This program was developed in collaboration with the American Society for Healthcare Engineering (ASHE) and the Kentucky Society of Healthcare Engineers (KSHE).

**Wentworth Institute of Technology**—Offers an online and on campus M.S. in Facility Management.
Strain gauge is typically made from capacitive sensors. The piezoresistive piezoresistive strain gauge and sensors; the most common of which are migrated over to the use of dead and have issues with contamination. However, with focused improvements in safety and efficiency, many sensing technologies have been found less reliable in these applications.

Low-differential pressure transducers accurately measure the very low differential pressure of a critical room space pressure relative to the adjacent space pressure; usually an adjacent corridor or anteroom. The differential pressure gradient is used to prevent airborne infections or contaminants from moving from a protected space to contaminated space, or vice versa.

Pressures can be either positive for protective isolation (operating rooms, clean rooms, etc.), or negative for airborne infectious isolation control.

Over the years many different sensing technologies have been used to monitor the differential pressure in critical environments, however, with focused improvements in safety and efficiency, many sensing technologies have been found less reliable in these applications.

One such example is the flow through sensor (i.e., hot wire anemometer); while less expensive it is far more susceptible to long-term stability issues at low ranges and have issues with contamination.

Most critical environments have migrated over to the use of dead-ended sensors; the most common of which are piezoresistive strain gauge and capacitive sensors. The piezoresistive strain gauge is typically made from silicon and joined to a steel substrate through metal-to-metal bonding. The piezoresistive strain gauge offers good resolution and bandwidth and is often chosen for cost-sensitive applications; however, there are limitations to this sensor.

Their high sensitivity to temperature changes and tendency to drift are disadvantages. The primary problem, however, is that this type of sensor cannot be made large enough for sensed pressures to deform the diaphragm effectively. Although the diaphragm could be made thinner, it would compromise its strength and integrity. Making the silicon diaphragm larger would make it cost prohibitive. When used in low pressure ranges, the result is noise and compromised long-term stability. Consequently, they are much better suited for high-pressure ranges.

Capacitive transducers have become a mainstay in critical applications. The principal advantages of capacitive pressure sensors over piezoresistive pressure sensors are increased pressure sensitivity and decreased temperature sensitivity.

A capacitive transducer configuration consists of a compact housing that contains two closely spaced, parallel, electrically isolated metallic plates. These firmly secured plates are mounted so that a slight mechanical flexing of the assembly, caused by a minute change in applied pressure, alters the gap between them, thereby creating a variable capacitor. The resulting change in capacitance is detected by a sensitive linear comparator circuit, which amplifies and outputs a proportional, high-level voltage signal. The extremely small deflection of the diaphragm helps minimize hysteresis and repeatability errors while providing fast response times.

This rugged design provides greater measurement accuracy, long-term stability and higher output level than competitive technologies which is why it is the preferred solution for critical environments.

The integrity of the ventilation control system is essential in maintaining a contaminant-free environment. Whether a room is to be maintained at a negative pressure to prevent contaminants from escaping into adjacent areas or a positive pressure to protect patients from outside non-sterile air, the proper pressurization of a room is essential.

Critical environments require the highest accuracy at the lowest of pressure ranges, which is why it is essential to use a capacitive based transducer in these stringent applications.

When it comes to accuracy and long-term stability at the lowest pressure ranges, building owners and designers are rewarded when they rely on capacitive sensors.

For more info, go to Setra Systems.

The NEHES Board of Directors will award $200 and a certificate to a Society Active member who contributes the best high quality article for our newsletter. The winner will be recognized at the Awards Banquet during the 2014 NEHES Fall Conference. Active members are those individuals who are directly employed in or by healthcare-related facilities (those that provide patient care), and who have responsibility in healthcare facility operations.

Articles describing experiences that NEHES members have had in their facilities that would benefit other members are of particular interest.

Articles eligible for the contest will be those that have been submitted for the 2013 Q4 newsletter, and for the Q1, Q2, and Q3 2014 newsletters.

Submit your entries and ideas to Ron Vachon, NEHES Board—Chair of Newsletter and Website, rvachon@stmarysmaine.com
• **DiGirolomo Named ASHE Region I Director**

  John DiGirolomo, FASHE, CHFM, CHSP CHEP, the Senior Vice President for Facilities and Real Estate at St. Barnabas Hospital in Bronx, NY has recently been named ASHE Region I Director.

  DiGirolomo replaces Dave Dagenais, FASHE, CHFM, CHSP, who is now the President-Elect to the ASHE Board of Directors.

  DiGirolomo is a member of the Board of Directors of the American Society for Healthcare Engineering, Vice Chairman of the National Advocacy Committee and has served for three years as President of the Healthcare Facilities Management Society of New Jersey.

  He is also a Life Safety Code Surveyor for the Joint Commission and a member of the National Fire Protection Association (NFPA).

  “I am honored to serve as the Region One Representative of the Board of Directors of the American Society for Healthcare Engineering,” said DiGirolomo. “I am grateful for the trust placed in me by the ASHE Leadership and it is my goal to serve the membership in our quest to optimize the health care physical environment.”

• **Join the NEHES LinkedIn Page for Information and Discussion**

  One of the NEHES goals for 2014 is make sure that our professional society is taking advantage of all the social media communication channels possible to make information accessible and immediate for our members.

  There’s no better place to begin a social media journey than with the NEHES LinkedIn Page. Here is what you will find:

  • There are currently 208 members on the LinkedIn page. You have the opportunity of searching the list to see who is currently a member.
  • Members have the opportunity to post or respond to a discussion topic of interest to members.
  • The page is moderated so that members will not receive spam-like messages or a barrage of advertisements.

• **2014 NEHES Fall Conference to Feature Education & Networking**

  NEHES members, Steve Jalowiec and Paul Roth are promising a very special experience as the NEHES Fall Conference arrives at the Mystic Marriott in beautiful Mystic, Connecticut on September 28 through October 1.

  There will be world class educational sessions, opportunities to meet with dozens of vendors and a chance to catch up with colleagues in the healthcare engineering industry. Of course, there will be the NEHES Annual Meeting and Awards Banquet, one of the highlights of the three day conference.

  In your spare time, you’ll want to take advantage of the many attractions in this seaside area. You’ll enjoy the array of museums that celebrate the nautical history and you won’t want to miss the one-of-a-kind Titanic Exhibit at the renown Mystic Aquarium. (You may even want to stop by at Mystic Pizza, the place made famous in the 1988 coming of age film with the same name.)

  Watch for details soon on what will be a very memorable Fall Conference. Click for tripadvisor

  “Things to do in Mystic, Ct.” Want a map of Mystic? Click here.

• **Re-energizing Rhode Island**

  If Jim Carroll has his way, healthcare engineers in Rhode Island will meet in the next month to establish the Rhode Island Healthcare Engineers Chapter once again.

  “In recent years, the state chapter has lacked structure and members like its counterparts in other New England states.

  “My goal is to establish a solid foundation in Rhode Island where colleagues can exchange technical ideas, experiences and challenges faced by the members,” said Carroll. “I’m still reaching out to several people and getting some replies of interest back from fellow engineers.”

  Jim Carroll is the Director of Facilities Management at Butler Hospital (Care New England) in Providence, RI. If anyone is interested in joining the revitalized chapter or in helping to bring it together, contact Jim at jcarroll@butler.org

• **Apply for FASHE/SASHE Now**

  Applications for senior and fellow status (SASHE and FASHE) are due on March 1. Submit your application now to be recognized for your contribution to the health care facilities management field. Enhance your professional portfolio and gain the recognition of your peers and colleagues. Click here

• **Supporting Member Meetings Set**

  Supporting Member Liaison, Mike Walsh, will be hosting a series of luncheon meetings throughout New England to bring together NEHES supporting members. “We are holding town hall style meetings to discuss how we can enhance the supporting member experience within NEHES. The meetings will be informal with plenty of time for discussion.”

  Feb. 27 Haley & Aldrich, 465 Medford Street, Suite 2200 in Boston, MA.
  March 21 NEHES Spring Seminar– Leominster, MA
  March 28 SMRT, 144 Fore Street, Portland, ME
  April 11 Elliott Hospital Conference Ctr.– Manchester, NH
  April 25 Tecton Architects, 146 Wyllys Street, Hartford, CT (CT & RI groups)
  May 7 Fletcher Allen Healthcare, Burlington, VT
  May 21 TRO JB Office, 22 Boston Wharf Road, 7th Floor, Boston, MA

  All meetings will start promptly at noon with lunch provided. For more information or to RSVP, contact Mike Walsh at mwalsh@suffolk.com
**Events & Dates to Remember**

- **March 16-19, 2014**  
  ASHE Summit & Exhibition on Health Facility Planning, Design, & Construction  
  Orlando, FL

- **March 21, 2014**  
  **Click to register!**  
  NEHES Spring Seminar  
  DoubleTree by Hilton  
  Leominster, MA  
  Organizers: Vermont Healthcare Engineers’ Society  
  Chair: Mark Blanchard

- **July 18, 2014**  
  Twin State Seminar  
  Dartmouth-Hitchcock Medical Center  
  Lebanon, NH

- **August 3-6, 2014**  
  ASHE Annual Conference and Technical Exhibition—Chicago, IL

- **September 28, 2014**  
  CHFM Review Course  
  Mystic Marriott—Mystic, CT

- **September 28—October 1, 2014**  
  NEHES Fall Conference  
  Mystic Marriott—Mystic, CT  
  Connecticut Healthcare Engineers’ Society  
  Chairs: Steve Jalowiec and Paul Roth

- **October 1, 2014**  
  CHFM Exam—Mystic Marriott—Mystic, CT

- **For full list of ASHE Calendar of Events**

**GOOD READS AND WEBSITES**  
Resources recommended by NEHES Members for NEHES Members

**NEHES Member, Ron Vachon** recommends reading:

**Leadership and Self Deception; Getting out of the Box**  
by Arbinger Institute

“It kind of puts you in perspective.”  
—Ron Vachon

“This is a profound book, with deep and sweeping implications. It is engaging, fresh, easy to read, and packed with insights. I couldn’t recommend it more highly.”  
—Stephen R. Covey, author of The 7 Habits of Highly Effective People

**NEHES Member, Ron Vachon** recommends this website:

**Office of Construction & Facilities Management Technical Information Library, Standards, Alerts, and Contracting Guidelines**  
www.cfm.va.gov

“I once worked for the Veterans’ Administration and I find this a good source of information.”

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The Joint Commission Arrived at My Door...Literally!

by Ed Lydon, SASHE, CHFM
NEHES President

On Monday, January 6, 2014, I was sitting in a Joint Commission preparedness committee meeting at Beverly Hospital. We were discussing areas needing further improvement and, importantly, we were in the window in which the Joint Commission may arrive. We expected the Joint Commission no later than April and like many organizations had strategically blocked out some dates in January and February to avoid survey.

During our meeting we were feeling confident that this would not be the week as it was Monday afternoon and many of the surveyors were wrapping up training in Chicago over the weekend from what we heard through the rumor mill.

Well surprise, surprise! On Tuesday, January 7, 2014 we had a large contingent of Joint Commission surveyors arrive at our front door, eight surveyors in total, two more than expected. The lead surveyor, a very seasoned surveyor with outstanding academic and professional credentials, apologized for shorting the survey process by a day and for our inconvenience they add two additional surveyors. What do you say? My response, “Thank you. We look forward to hosting your team and the experience and wisdom the team brings to our organization.”

As this was a surprise for us, we quickly mobilized our team as well as our survey command center. We overhead paged “We want to welcome The Joint Commission today for our triennial survey”. The opening conference occurred within an hour of the arrival. The surveyors were well credentialed and had many years of healthcare leadership experience. Two of the surveyors were physicians. We had four facilities that would be surveyed—about 760,000 square feet.

The Life Safety (LS) surveyor was from Massachusetts, who had a number of years as an intermittent surveyor and was experienced in managing facilities. The surveyor was informative and presented well early in the process. He made us feel comfortable and appreciated the need to explain the standards as the process progressed.

We began with the document review, which in some ways was overwhelming as we presented volumes and volumes of documents for all four locations. In hindsight, I would agree with the surveyor that it would be best to look at the documents pertaining to the building we were going to survey for the day. We had plenty of time as the LS surveyor would be with us for three days.

The following is a sample of statements and questions we were asked during the survey:

- We informed the surveyor we are applying the CMS Categorical waivers of August 30, 2013 (Survey and Certification, S&C 13-58-LSC). Their comment? “You did an excellent job with showing the documentation. Please let me know if you need assistance in this area.”
- We informed the surveyors of our equal equivalencies we had in place with The Joint Commission.
- We reviewed all the PFI’s and had a discussion regarding time periods, as I had set two years to remove cable and wire from touching the sprinkler system piping.
- Reviewed Life Safety Drawings, we showed our types of occupancies, suites, egress routes, exit ways, compartments, etc.
- We discussed our building maintenance program (BMP).
- We discussed our LISM plan and how we used the process.
- The first documents reviewed were our emergency generator logs.
- They asked how much fuel was in each generator and did we have an emergency battery pack lighting external to the generator.
- Surveyor explained that CMS would be going with manufacturer recommendation for preventative maintenance on equipment.
- During the document review of fire protection systems (inspection, testing, and maintenance), the survey compared 2012 to 2013 documents. Most importantly they looked for review and response for any change in inventory as well as corrective actions taken in a timely manner (45 days or PFI).
- Surveyor engaged us in a discussion as to what is a true supervisory device.
- We were missing one fire pump flow curve, which was quickly resolved.
- Reviewed all medical gas reports.

TOUR:

- Looked for evidence that the elevator doors are fire rated. We provided a letter from our elevators vendor explaining that rating of the doors could only be viewed from on top of door.
- Reviewed fire ratings on door as well as look for UL rating on the door hardware, which includes retracting door closures.
- Reviewed fire compartment door gaps and under cuts.
- Checked the pressurization of every surgical room, sterile processing area, soiled and clean utility rooms with a tissue. We had an Abatement Technologies, Hand Held Differential Pressure Monitor (Model HHPM) available to demonstrate.
CMS allows alternate preventive maintenance schedules

The Centers for Medicare and Medicaid Services (CMS) recently issued a memo clarifying that hospitals may use alternative preventive maintenance schedules for most hospital equipment, clarifying a 2011 decision that required hospitals to follow manufacturer recommendations for many pieces of equipment. The change could be beneficial.

After CMS issued the 2011 memo, ASHE and other industry organizations met with CMS to discuss the issue. CMS issued another memo on Dec. 20, 2013, clarifying that hospitals could set their own alternative preventive maintenance schedules under certain circumstances.

CMS says hospitals that choose to use alternative maintenance activities or schedules must develop, implement, and maintain a documented Alternate Equipment Management (AEM) program to minimize risks to patients and others. The AEM program must be based on generally accepted standards, and CMS mentioned several examples of resources available to help hospitals set up AEM programs. For medical equipment, hospitals can consider using the American National Standards Institute/Association for the Advancement of Medical Instrumentation document: ANSI/AAMI EQ 56:1999/(R) 2008: Recommended Practice for a Medical Equipment Management Program. For guidelines on physical plant equipment maintenance, consider the ASHE publication Maintenance Management for Health Care Facilities.

CMS notes that hospitals cannot use AEM programs when forbidden by other federal or state laws or other Conditions of Participations requirements. For example, all imaging and radiologic equipment must be maintained per manufacturer's recommendations. Hospitals cannot use AEM programs on medical laser devices and new equipment without a sufficient amount of maintenance history, CMS noted.

QUESTION: The 2012 Code is very clear that alcohol-based hand rub (ABHR) can only be installed in corridors that are at least 6 ft wide. (Health care and Ambulatory health care occupancies. Section 19.3.2.6 and 21.3.2.6)

• Can ABHR be installed in corridors that are less than 6 feet wide in “adjunct areas” (18.2.3.4(4))??

ANSWER:

There is no restriction on the use of ABHR in most occupancies, like there is in health care. Last cycle, there was an attempt to put the ABHR requirements in Chapter 8 with occupancy chapters granting permission to do so. Unfortunately, a lack of coordination resulted in most occupancy chapters picking up the requirement and the Chapter 8 language had to be deleted (via a Certified Amending Motion).

In processing the 2015 Edition, the language is proposed to go into Chapter 8 and occupancy chapters have picked up the provisions. In other words, I don’t think the 2012 Code prohibits the use or regulates the use of ABHRs in most occupancies. The question about other areas within a health care occupancy is not as clearly addressed.

CMS has come out with specific requirements for both Hospitals and Ambulatory Care Facilities. The big issue that came up was the amount of ABHR in a
QUESTION: What happens when a wire is touching or on a sprinkler pipe?

Sprinkler pipe and hangers are designed to hold 250 Lbs more than the pipe and water (NFPA 13 (1999) Section 6-2.1.3); and George Mills himself at our Fall Conference in Vermont (2011) stated he really only intended that surveyors write up bundles of wires secured to sprinkler pipe. But, we also know that HITF did discuss this and there is a Code section somewhere that supports the notion that wires cannot be supported or draped over sprinkler pipes. So there is code legitimacy, BUT, A wire draped over a sprinkler pipe has been going on for 50 years, surveyors will always be able to find this, and in my experienced opinion there is no hazard to worry about – as long as it isn’t a bundle of wire. So this needs attention, and I’m assuming you all are already on top of this.

ANSWER:

Sprinkler piping shall not be subjected to external loads by materials either resting on the pipe or hung from the pipe. NFPA 25 (1998 edition) 2-2.2” Pipe and Fittings.

Sprinkler pipe and fittings shall be inspected annually from the floor level. Pipe and fittings shall be in good condition and free of mechanical damage, leakage, corrosion, and misalignment. Sprinkler piping shall not be subjected to external loads by materials either resting on the pipe or hung from the pipe.

Exception No. 1*: Pipe and fittings installed in concealed spaces such as above suspended ceilings shall not require inspection.

Exception No. 2: Pipe installed in areas that are inaccessible for safety considerations due to process operations shall be inspected during each scheduled shutdown.

A-2.2.2 - The conditions described in this section can have a detrimental effect on the performance and life of pipe by affecting corrosion rates or pipe integrity or otherwise rendering the pipe ineffectual.

A Hospital With No Water?

West Virginia Hospitals Keeping Things Running, Even Without Water (Excerpts from an article by Matthew Weinstock H&HN Assistant Managing Editor)

On a typical Saturday or Sunday, Charleston Area Medical Center Health System uses approximately 7,200 gallons of water at its three hospitals in West Virginia’s capital city. Usage jumps to 11,000 gallons on a weekday.

So, you can imagine the call to action that went out recently when health system officials, like everyone else in the Kanawha Valley, were told that they couldn’t use tap water. At all. For anything. A freak accident at Freedom Industries dumped thousands of gallons of 4-methylcyclohexane methanol — a chemical used to clean coal before it is burned, among other things — into the Elk River. The contamination set off a rush on bottled water at grocery stores, Sam’s Club and just about everywhere.

During the next 22 hours, health system officials worked with vendors — Coca-Cola, Pepsi and others — to get bottled water and ice shipped in.

Challenges remained, like getting laundry done and sterilizing surgical equipment. In fact, the three hospitals carted 460 surgical trays to their sister hospital 28 miles away. Staff at the 70-bed Teays Valley Hospital worked around the clock to sterilize the trays and get them back to Charleston.

While getting the command centers up and running, the health system’s Level 1 trauma center, the only one in Charleston, had to go on diversion. Transfers were halted. Elective surgeries cancelled.

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For complete article.
Revised Standard for Ventilation in Healthcare Facilities


The standard can help designers by providing the minimum requirements for the design of ventilation systems for healthcare facilities to provide environmental control for comfort, as well as infection and odor control.

When the standard was first published in 2008, it was the first American National Standards Institute (ANSI) standard in the nation to specifically address ventilation in healthcare facilities.

Energy efficiency is one trend that has been on the rise for all classes of buildings. Provisions for the application of energy recovery are now specifically addressed in the standard. However, as the standard stipulates, if energy recovery systems are utilized, the systems cannot allow for any cross-contamination of exhaust air back to the supply airstream.

The standard also addresses some issues that may reduce costs to build and operate healthcare facilities. Standard 170 allows relative humidities as low of 20 percent for some rooms. This may result in smaller capacity of humidification equipment, lower operating costs and reduced maintenance costs. The standard permits some use of plenum returns in outpatient facilities, which in turn may result in lower construction cost and operating costs.

Additionally, some hospitals are interested in utilizing displacement ventilation to reduce operating costs. The standard addresses the application of displacement ventilation within patient rooms.

To complete article from Healthcare Design.

Support Staff—Key to Patient Satisfaction

Patient satisfaction is based on many variables including the physical environment, employee engagement, process improvement, and other factors. In November, the ASHE Insider ran an article article highlighting hospital design elements that enhance the healing environment and improve staff and patient satisfaction scores. This article, which features information from a Press Ganey conference in Orlando in November, discusses the affects of employee engagement and operational improvements on patient satisfaction. The Bassett Healthcare presentation at the conference demonstrated the positive influence that support staff, including facility management professionals, can have in patient satisfaction scores.

Kara Travis, senior director of patient services and relationship-based care at Bassett Healthcare, spoke about her journey with six hospitals, 25 clinics, and more than 20 school-based health centers. She successfully led an initiative to put patients and families at the center of care. This resulted in significant improvements in employee engagement and patient satisfaction. For example, inpatient units that foster strong working relationships between the nurse leader and support services have resulted in improved cleanliness scores. In some units, the scores increased by 12 points in a six-month period.

Travis joined the Bassett Healthcare team with a background in hospitality marketing and operations management. She spent three years reporting to the vice president of facilities as senior director of support services. She managed the call center, security, emergency preparedness, housekeeping, food service, environmental and safety, transportation, and regional maintenance.

Over the course of those three years, she restructured and empowered one team at a time to create a patient-centered environment based on hospitality principles. She was able to get the right people into the right jobs and
promoted people who were focused on relationship-based care into leadership positions. Travis said support services professionals really are the ambassadors of relationship-based care because they are the least intimidating and the most approachable in the eyes of the patient.

Front-line staff went through training and then drove the change. They were empowered to develop relationships with patients and families. Every non-clinical staff member was trained to answer call bells because, according to Travis, 80 percent of calls are typically related to non-clinical needs and include simple comfort requests such as water or an extra blanket.

This enabled the nurses to focus more time on patient care and clinical needs. Patient satisfaction scores improved as patients experienced the positive changes and caring environment.

Travis sustains this success by making sure support staff is included as an integral part of the communication teams. This promotes front-line feedback and encourages empowerment and engagement across work groups.

When asked about the biggest challenges of making these impressive changes, Travis said it takes time and you need a few success stories to get everyone on board. She also added that it’s important to recognize and celebrate progress.

Have you found innovative ways to improve patient satisfaction scores in your facility?

7 Ways To Improve Patient Satisfaction, Experience, And Customer Service, From Consulting In Hospitals And Healthcare—by Micah Solomon in Forbes. See full article

Safer Chemical Ingredients for Use in DfE-Labeled Products

The Safer Chemical Ingredients List contains chemicals that meet the criteria of the Design for the Environment (DfE) Safer Product Labeling Program. This voluntary program recognizes products that are high-performance and cost-effective using the safest chemical ingredients.

At present, more than 2,500 products carry the DfE Safer Product Label. This list of safer chemical ingredients is arranged by functional-use class and will assist product manufacturers in identifying chemicals that the DfE program has already evaluated and identified as safer. Click for info on DfE’s Safer Chemical Ingredients List.

Where Does Your Facility Stand on Electronic Cigarettes?

Chicago recently banned electronic cigarette smoking in bars, restaurants, and most other indoor public places. The city is treating e-cigarettes the same as other tobacco products, according to the Chicago Tribune.

Many hospitals and health care systems have also banned e-cigarettes in recent years. Some use a broad “no tobacco” policy that prohibits tobacco products of any kind on the hospital campus.

Of course, opinions vary.

“They are electronic, alternative smoking devices that simulate the sensation of smoking. They do not expose the user, or others close by, to harmful levels of cancer-causing agents and other dangerous chemicals normally associated with traditional tobacco products.”

-- Craig Youngblood, president of InLife, an e-cigarette company.

“They are nicotine delivery devices intended to be used like a cigarette. What happens to someone who stops inhaling the tars of cigarettes and inhales only nicotine? We don’t know. There is at least the potential for harm.”

-- Norman Edelman, MD, chief medical officer, American Lung Association

What is your facility’s take on e-cigarettes? Do you have a ban on all tobacco products, or only traditional smoking?

OSHA Targets Healthcare Safety

Did you know that a hospital is one of the most hazardous places to work? In 2011, U.S. hospitals recorded 253,700 work-related injuries and illnesses, a rate of 6.8 work-related injuries and illnesses for every 100 full-time employees. This is almost twice the rate for private industry as a whole.

OSHA created a suite of resources to help hospitals assess workplace safety needs, implement safety and health management systems, and enhance their safe patient handling programs. Preventing worker injuries not only helps workers—it also helps patients and will save resources for hospitals. Download the overview* and click the poster below to learn more about the resources available.

Webinars—The Wave of Advanced Learning

If you have never attended a webinar, you are missing out on the latest trend in online educational opportunities. (And webinars are usually no cost or low cost and easily available from a computer, tablet or Smartphone.)

Many webinars require online registration to attend but most are also available online after the session has been held and can be viewed at your convenience. Here are a few sites with upcoming webinars and webinar archives of interest to healthcare engineers.

- Webinars from the American Society for Healthcare Engineers can be viewed here.
- Webinars from The Joint Commission can be viewed here.
- The Wisconsin Healthcare Engineering Association has numerous divisions with various webinars. Here’s one to start your viewing.
- The Environmental Protection Agency has numerous divisions with Go to their site.

There are many online services that could help you to conduct your own webinar. Go to Meeting and Meeting Burner are only two to consider.
New And Revised Diagnostic Imaging Standards Effective July 1, 2014

The Joint Commission has made changes to its standards for accredited hospitals, critical access hospitals, and ambulatory healthcare organizations that provide diagnostic imaging services, including ambulatory organizations that have achieved Advanced Diagnostic Imaging certification.

The changes, effective July 1, 2014, with additional requirements to be phased in by 2015, relate to either quality and safety issues that more fully address the evolution of healthcare delivery practices, or expand the current requirements, such as those related to magnetic resonance imaging.

Phase one focuses on computed tomography (CT), nuclear medicine (NM), positron emission tomography (PET), and magnetic resonance imaging (MRI) services.

Phase two, to be implemented in 2015, will focus on fluoroscopy, minimum qualifications for clinicians who perform imaging exams, and cone beam CT used in dental offices and oral-maxillary surgery practices.

The new and revised elements of performance are available on the Joint Commission’s website. The requirements will be published in the 2014 Ambulatory Care, Critical Access Hospital, and Hospital Comprehensive Accreditation Manuals scheduled for publication in March 2014 and in the spring 2014 E-dition® update. Click for info.

New Construction Management of Healthcare Projects Book

Filled with best practices and the latest industry trends, Construction Management of Healthcare Projects describes the unique construction requirements of health care facilities, including building components, specialized functions, codes, and regulations.

Detailed case studies offer invaluable insight into the real-world application of the concepts presented.

This authoritative resource provides in-depth information on how to safely and successfully deliver high-quality health care construction projects on time and within budget. For more info.

What Hurts Your Patients Can Also Hurt Your Staff

By Ann Scott Blouin, R.N., Ph.D., FACHE
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I clearly recall my first needle stick as a young staff nurse. I was recappping a used needle (which was the correct procedure at that time) and accidentally missed. I remember a feeling of dread; could I have contracted something from my patient? Fortunately, I didn’t. But from that time forward, I handled all needles with extra care around my patients and myself. Later, evidence showed that recappping needles resulted in more harm than good, exposing staff to unnecessary danger. As a result, medication management practices changed.

As we strive to reduce patients’ healthcare-acquired conditions, such as infections, and protect them from potential harm, it’s important to understand that serious safety events can harm clinical and support staff, too. There is a strong inter-relationship between keeping your patients safe and keeping your employees and physicians safe, a point made in The Joint Commission’s excellent publication “Improving Patient and Worker Safety: Opportunities for Synergy, Collaboration and Innovation.”

For example, keeping the environment protected from fire and incendiary devices leads to critical life safety for patients and the staff who care for them.

Disposing of hazardous waste properly can prevent transmission of infection, sharps injuries and inadvertent exposure to carcinogenic agents.

Chronically fatigued staff are prone to medication and judgment errors that can potentially result not only in serious patient safety events, but they can cause physical and psychological harm to themselves and other staff. A greater number of sharps injuries, car accidents and falls happen to staff who have chronic, inadequate quality and quantity of sleep and rest.

‘Connecting the dots’ between patient and worker safety is enabled by sharing data and safety information among risk management, human resources, occupational health, security and safety, and performance improvement departments. There is a very real relationship between staff’s perception of an employer who keeps them safe and their feeling of job satisfaction (Lucian Leape Institute, National Patient Safety Foundation, “Through the Eyes of the Workforce: Creating Joy, Meaning and Safer Health Care,” March 2013).

A key tenet of a safety culture is that staff is treated with respect. And what better way to illustrate that than by devoting attention to how to keep staff as well as patients safe?

Ensure to the best of your ability that you consider staff safety and well-being in all they do for your organization, just as you do for the patients you serve.

ECHO Website Launched

The Environmental Protection Agency’s primary website for providing public access to regulatory compliance and enforcement data was recently modernized and updated. Enforcement and Compliance History Online (ECHO) is a go-to resource for information about environmental inspections, violations, and enforcement actions for more than 800,000 regulated facilities, receiving two million queries a year.

The new site offers more frequent data refreshes and improved navigation to more easily find information of interest. The new site features cross-statute (multimedia) searching.

Media-specific searching and other new features will be phased in to ECHO throughout 2014 until all key features from the previous system are replaced.

A quick search resulted in finding both hospitals located in Lewiston, Maine. It also showed information for a nearby pharmacy, convenience store and high school. Click here to find your report.
Those responsible for the management of commercial buildings are well aware of the extra variable that having an asbestos containing material (ACM) can add to a renovation or maintenance project. Over the years, a standard of care has developed, and with a little up-front planning, ACM can typically be managed without significantly impacting the project schedule or budget.

Often, ACM can be managed in place without significant long-term monitoring or maintenance. Over the past few years, building materials containing polychlorinated biphenyls (PCBs) have also been identified as an issue requiring management. Though the management requirements for ACM and PCBs both are driven by the Federal Toxic Substances Control Act of 1976 (TSCA), as overseen by the United States Environmental Protection Agency (EPA), this is where their management similarity ends. Whereas the EPA has delegated most of the day-to-day oversight of ACM identification and abatement to states and there is most often a well understood process for completing abatement, there is no such state delegation of the management of PCBs in building materials. Property managers are often faced with balancing multiple conflicting objectives when deciding which PCB management approach to apply, often leading to uncertain schedules, budgets and outcomes.

Experience from around the country has shown that the TSCA regulations were not created with the management of PCBs in building materials in mind. Some consider the issue one of fitting a "round peg in a square hole."

There has been a focus on addressing PCBs in paint, caulk and other sealant materials found in commercial buildings and schools. From the early 1940s through late 1970s, PCBs were used as an additive to these, and other, building materials, sometimes in the field. Caulks have been found to contain up to 10-20% of PCBs. With no clear regulatory path, today’s building owners, facility managers and financial institutions have little guidance for when to look for PCBs in these materials, or how and when to address them. As a result, there is a pressing need for guidance on how to address the potential for the presence of PCBs in building materials and how to manage PCBs in a way that avoids delays and unacceptable uncertainty in their management.

What do the TSCA regulations say?

Any building material that was manufactured with PCBs found to be present at or above 50 parts per million (ppm) is an ‘unauthorized use’ (known as a PCB Bulk Product Waste) and must be removed and disposed of at a TSCA-approved facility.

Assessments must be completed to evaluate if the PCB Bulk Product Waste has impacted adjacent materials. A material is impacted if it contains PCBs at 1 ppm or more. These impacted materials are classified as PCB Remediation Waste. TSCA does not say when to look for PCB Bulk Products, require EPA notification or provide a schedule for its removal once found. TSCA does outline requirements for performing PCB Remediation Waste removal, remediation or isolation.

If PCB Remediation Waste remains within the building structure after abatement, a Deed Notice is required and typically long-term maintenance and sampling. EPA has issued several white papers and guidelines on when to investigate for PCBs, yet there are no specific regulatory requirements for removal schedules or agency notification. The attached flow chart is part of the approach suggested by EPA materials.

What activities would require some action?

If you are preparing to renovate or demolish a building that predates 1980, EPA recommends testing for PCBs. In addition, EPA recommends testing peeling, brittle, cracking or deteriorating caulk in other buildings where these materials are accessible. In assessing necessary actions, you will need to consider a building’s age, construction style, construction materials, as well as evaluate EPA’s current guidelines, and planned work in the area when developing a plan of action.

How and when should I proceed?

A current trend is for contractors to make inquiries about disposal plans for caulk and other materials that may be considered to contain elevated PCB levels. If you wait to put a PCB management plan in place after the contractors are brought in, it can lead to project delays and unforeseen costs. A thorough knowledge of the regulations and an applicable project plan in the early stages can help you manage schedules, budgets and risk. When developing a plan, the nature of the work, schedule of the work, budget and public perception should all be taken into account. In some cases, expending more money in the short-term to remove all the PCB impacted materials provides greater schedule and regulatory certainty, better public acceptance and sometimes lower costs over the building’s full life cycle. For more info, click here.
An early warning fire alarm system is only effective if occupants and staff take timely and appropriate action. False or unwanted alarms do cause cry-wolf syndrome, slowing staff response and even fire departments respond slower and with less apparatus to an “automatic alarm activation.” There is also the resulting serious disruption to normal business and to patient care.

A facility with 600 smoke detectors versus a same size facility with 60 smoke detectors will have an inherent higher propensity for unwanted alarms. Should we be installing so many smoke detectors and are they required by Code? Given the already required total package of fire safety features would additional smoke detectors really be beneficial for life safety? We'll save that question for another day and address a different question.

Should the smoke detectors be programmed for alarm verification allowing up to one minute delay from detection to alarm, but also preventing unwanted alarms by ignoring a transient “fire signature”?

Modern addressable fire alarm systems have extraordinary functional capabilities. One feature available is alarm verification as part of notification sequencing, called notification logic, controlling alarm signals and automatic voice messages. The design team must decide if alarm verification should be activated for all or some smoke detectors and that team should include the facility manager and safety officer.

NFPA 72, 2013 Edition has no change in requirements for this feature compared to the 1999 Edition, currently referenced by CMS and The Joint Commission. The definition quoted from Section 1-4 (1999) is: “Alarm Verification Feature: A feature of automatic fire detection and alarm systems to reduce unwanted alarms wherein smoke detectors report alarm conditions for a minimum period of time, or confirm alarm conditions within a given time period after being reset, in order to be accepted as a valid alarm initiation signal”. That essentially means the initial detection of a fire or smoke condition is ignored by the detector or by the panel; and if the condition continues then the alarm signal is activated.

NFPA 72 Section 3-8.3.2.3.2 (1999) requirements for alarm verification are summarized as follows:

a) The feature is not initially enabled unless conditions or occupant activities are expected to cause nuisance alarms. Such enabling is protected by limited access.

b) The total delay to sound alarm is not greater than one minute.

c) Actuation of any other type initiating device (such as pull station or water flow) causes alarm without delay.

d) When the alarm verification feature is enabled, disabled, or changed, there must be a Record of Completion.

There is additional helpful information in the Annex note A-3-8.3.2.3.1 and in the NFPA 72 Handbook. To summarize:

- Modern smoke detectors are far less prone to nuisance alarms, so alarm verification should be used only where absolutely necessary.
- Alarm verification is not intended to compensate for design errors or lack of maintenance.
- However, it is very useful for reducing false alarms from a dusty gust of wind or spray of aerosols.

True, the NFPA 72 language is vague, not strictly prescriptive, and allows for the design team and AHJ to make decisions concerning activating this feature.

Alarm verification timing can be different by Manufacturer and by programming, of course as long as the 1 minute limit is compliant. A couple interesting variations not addressed by Code are 1) the confirmation period and 2) a second smoke detector trip. 1) The length of confirmation period after the detector is reset can vary. A detector “trips” (my words) and is reset, after 1 minute it is active and ready again. If nothing trips it for say the next one minute, called the “confirmation period”, it will again go into verification mode. So if something hits it at 1½ minutes after it becomes reset, there will again be the 1 minute delay. This is why a person could spray a detector once every two minutes and never have it activate the fire alarm system. For any constant condition such as smoke in the area in amounts above the threshold value (smoke obscuration setting) the alarm should activate at one minute. Another variation is 2) what happens if a second smoke detector is “tripped” during this first detector’s verification 1 minute time period delay? Some manufacturers have the alarm immediately activate at any point when a second detector trips, but Code does not require that to happen. These two variations would be within the programming details for the system.

What about Life Safety Code, NFPA 101? Section 18.3.4.3 in 2000 and 2013 Codes do not prohibit alarm verification. EC News September/October 2002, by Dean Samet, stated that alarm verification was prohibited for health care occupancies based on NFPA 101. He was correct back then, as this was before the 2000 Code was adopted. Prior Editions of NFPA 101 for health care occupancies required occupant notification, “without delay” which was interpreted to mean alarm verification not permitted. The words “without delay” were removed from NFPA101 Chapter 18 and 19.

So, NFPA Codes allow the alarm verification feature and the associated delay for alarm activation. But the question remains: should your design team choose a one minute delay in early warning? What effect might this have for life safety in a fire event? It all depends on the fire ignition and fire growth scenario, the combustible materials involved, the room configuration, and the patient exposure and staff presence/response capabilities. Speaking from experience, a minute is a very long time when confronted with a fast growing fire.

The Department of Veterans Affairs cadre of fire protection engineers made an AHJ decision directed to all VA medical centers published in their VA Fire Protection Design Manual, 6th Edition: “Smoke detectors are to be installed only where required by the National Fire Codes, this design manual, or where required by an equivalency. All smoke detectors shall be photoelectric type only. Alarm verification shall not be used for smoke detectors installed for the purpose of early warning.”

Duct smoke detectors would be an excellent example of a smoke detector not installed for early warning and could be programmed for alarm verification. Another helpful consideration might be that non-required smoke detectors installed for reasons other than Life Safety Code compliance could reasonably be on alarm verification as they are not of necessity serving a life safety early warning purpose.

Whether or not to activate alarm verification, and for which detectors, is a very important life safety risk analysis decision. Hopefully, balancing the above considerations particular to your medical center will lead to the best possible design decisions.

“False alarm” from a hospital duct detector at the tail end of a construction project, alarm verification NOT active. Two trucks and three paid firefighters showed up, none of 20 volunteer firefighters responded. Code does NOT require duct detectors to activate an alarm, it can be only a supervisory signal.

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Fire Alarm System Design Alarm Verification Feature—Help or Liability?