The Engineer of the Year for 2000 Continues to Help His Profession

Of all the volunteer projects Steve Cutter has completed on behalf of the healthcare engineering profession, nothing has given him more satisfaction than participating in the development of the ASHE Certified Healthcare Facility Manager program. The program provides engineers with the opportunity to earn the CHFM designation if they have sufficient professional experience and pass a 110-question, multiple-choice test. Steve continues as a volunteer member of the Certification Program Development Committee, which met throughout 1999 to develop questions for the exam and gather information to evaluate the program’s progress.

Steve’s peers in NEHES formally recognized his work on this committee and on several NEHES projects by naming him the Engineer of the Year at Fall Conference in Sturbridge, MA. The long-time NEHES member (15 years) and healthcare engineer (24 years) is the Director of Engineering Services at Dartmouth Hitchcock Medical Center (Lebanon, NH). He also serves as the NEHES Newsletter Editor, Education Committee Chair, and Website Manager. He has rarely missed a board meeting since becoming an officer in 1997, and worked on Fall Conference in 1992 and 1998. ASHE has named him one of six national honorary CHFM’s for his work on the Program Development Committee.

“I’m very honored and proud to have been selected by my peers for this award,” Steve said. “I thoroughly enjoy networking with other healthcare professionals, and my efforts in the Society have always given me great returns — new friends, new opportunities, and new experiences.”

Steve is also active in the New Hampshire Society of Healthcare Engineers, and has served as its president, vice president, treasurer, and secretary. He joined Dartmouth Hitchcock in 1997 after working at the Cheshire Medical Center for many years.

Jack Gosselin, who chaired the Engineer of the Year Committee, paid tribute to Steve’s work. “He has demonstrated a tireless effort in his activities to support the mission of NEHES. His development and maintenance of the web site (www.nehes.org), facilitation of the NEHES newsletter, and his work on the national level relating to certification make him a deserving recipient of the 1999 Engineer of the Year award.” The award is based on an individual’s contributions to NEHES and exemplary performance in healthcare engineering on a local, state, or national level, as well as service to fellow healthcare engineers.

Steve and his wife, Karen, live in Cornish, NH and have two daughters. He enjoys keeping bees, gardening, fly fishing, and fly tying.

Don Garrison Is Elected New ASHE Region 1 Representative

Don Garrison has more than 25 years of experience in health care and service to several organizations, but he still doesn’t think he’s learned all that he can about his profession.

That’s why Don, who is the Chief Engineer for the Department of Veterans Affairs (Togus, ME), decided to become a candidate for the ASHE Region 1 representative position. He won his election recently and will replace Jack Gosselin in January. Jack, the Vice President of Facilities at Day Kimball Hospital (Putnam, CT), served two, two-year terms, the maximum allowed by ASHE bylaws.

Since Don joined the VA 25 years ago, it has become a 507-acre, 78-structure medical facility that functions like a small community. Don supervises 65 employees in the Engineering Department, who work in construction, engineering, and maintenance. He also directs the VA’s project section, which handles building projects ranging up to millions of dollars each.

Over the years, Don has received many awards and accolades for his work at Togus. The most significant is a letter of appreciation from President Carter, written to Don after he moved his hospital from number 156 to number 1 among VA hospitals in energy conservation. The knowledge gained from his management at Togus has led Don to document his work in a number of published articles. He has been an active member and officer in NEHES and in the Maine Healthcare Engineers’ Society for many years.

He is eager to begin his term as Region 1 representative and thanked NEHES members for their votes. “I am pleased and honored to have been selected as the regional representative. To be recognized by one’s peers is especially gratifying for any engineer. I will devote maximum energy to the position and ensure that Region 1 is well represented. It will be my intention to make a difference for the positive benefit of the ASHE members of the region, and of ASHE as a whole.”

Don became a candidate for the ASHE

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President’s Comments

Hats Off to Joe Mona and his Helpers for a Great Fall Conference

(EDITOR’s note: This month, President Bob Loranger talks about a variety of topics of interest to NEHES members. Bob is the Director of Facilities at New England Medical Center, Boston.)

Many NEHES members, guests, and vendors just attended the very successful Fall Conference in Sturbridge, MA, where they were treated to an excellent educational program and plenty of vendor and colleague interaction. What are some of your thoughts about the Conference?

I said in the Board of Directors’ meeting during the conference, “There by the grace of God and Joe Mona (conference chair) we are all here.” Normally, there is an equally tasked committee of eight to ten people to put on the seminar. A few other members (Steve Shaw, golf and scholarship; Kevin Keating, guest program; Jack Gosselin, Dawn LeBaron, Don Garrison, Bob Okerholm, Steve Cutter) did step up to assist, but Joe Mona did 85% of the work. Our hats are off to Joe!” (See December issue of the NEHES Newsletter for more coverage of the Fall Conference.)

Did you have favorable feedback from vendors?

Yes. Most vendors wanted to sign right up for Fall Conference in Maine next year while we were in Sturbridge.

How did the shorter Conference format work out?

It’s really hard to tell. We would have liked 100+ members there instead of the 60 who did attend. We plan to do a poll to see why more weren’t there. We know it’s not the location — it’s the most central one we can find. Maybe it’s because many hospitals aren’t paying the seminar fees, or they aren’t paying any travel or hotel expenses. We will talk about ways we might offset these expenses at the coming annual retreat for officers and board members in November. Joe Mona, as president for the year 2001, will run the retreat. We have an excellent board coming up. Bob Okerholm, a veteran of 10-plus seasons of board membership, is stepping in as president-elect, and he’ll be of great assistance to Joe.

Can you provide members with an update on this year’s (2000) Facility Survey?

It was passed out at Fall Conference to members who attended the annual business meeting. Those members who did attend the conference but not the annual meeting will receive it in the mail along with their educational certificate for attending the conference.

How can we line up more sponsors for the newsletter?

I would like to encourage members to invite their favorite vendors to become a newsletter sponsor, and again thank our first sponsor, Thyssen Dover Elevator.

How many engineers have taken the first step toward earning the title of Certified Healthcare Facilities Manager through ASHE?

The first 100 engineers in the U.S. have taken the initial pass/fail benchmark (even yours truly passed). This may be taken in most major cities at a local H & R Block. Once you qualify and are listed to take the exam, you walk in, take the exam on the computer, and have the results the same day. We will include more information on the test in the December issue of this newsletter. The program will really kick off shortly after the first of the year when the study guide becomes available to engineers. This certification program is offered for members and non-members. For further information, contact me, RLorangerl@lifespan.org, or call ASHE, (312) 422-3800, and request an information package.

Retaining current members and signing up new members will continue to be priorities for the NEHES Board of Directors next year. Several members have stepped forth to work on these efforts, especially the recruitment of members from continuing care facilities.

Are there other membership strategies in the works?

ASHE is willing to pilot a joint membership fee program so that engineers could join both NEHES and ASHE. ASHE and NEHES each have about 300 members, but barely 50 to 70 engineers are members of both organizations. Some facilities are restricting engineers to one membership but aren’t necessarily restricting the dollar amount they’ll let engineers spend to join professional societies. Paying a slightly higher fee to join NEHES and ASHE could be a membership boon to both groups and allow members to join both who couldn’t do so otherwise. I am personally going to champion this pilot program. (See related article on membership elsewhere in this issue of the NEHES Newsletter.)

Don Garrison Is Elected

(continued from page 1)

position because he believes it is an excellent learning opportunity for him professionally. “Secondly, I have always sought ways to recognize healthcare facilities’ people because they do so much and most of the time with little appreciation. If I can help someone be more appreciated at their facility by working on programs in ASHE that do this, then I will be pleased,” he said.

Don also wants to explore and create additional ways to educate facilities people. “I believe if we are to survive and be successful, we must continually educate ourselves. NEHES does an excellent job helping engineers educate themselves to changes.”

Don won’t be a newcomer to ASHE — he has been a member of its Facility Management Committee for about four years.

He urges engineers to join ASHE as well as NEHES and their state chapters. “Being an ASHE member is an excellent way to get timely updates on topics of importance to facilities people. Membership has so many benefits that it is hard to understand why everyone involved in running a healthcare facility is not a member. ASHE tries to put a cost to the benefits it provides, and it’s somewhere around $300 in direct savings returned back to members for their yearly membership fee,” Don said.
Member in the Spotlight

Hospital Adds State-of-the-art Wellness Center to Serve Outpatients

When Tom Humphrey talks about the new 60,000-square-foot addition to his facility, it’s hard to believe that he is referring to an outpatient Wellness Center instead of an athletic facility at an exclusive prep school or college.

Like many other hospitals across the country, Monadnock Community Hospital in Peterborough, NH is changing to provide the outpatient services that the health care industry now expects. The Wellness Center, the most recent evidence of this trend at the facility, just opened its doors to patients and the community.

As Director of Engineering Services, including construction management, Tom was responsible for the project. Planning began several years ago, he said. “We went around to look at several different places like this around the country. There’s nothing around here like this. It’s geared for the 20-year-old to the 90-year-old.”

The facility contains physicians’ offices, areas for physical, occupational, and massage therapy and cardiac rehabilitation, exercise equipment, two indoor pools (one for exercise and one for therapy), saunas, steam rooms, and an indoor track.

“This is a medically-based wellness center,” Tom said. “You go through a medical assessment and the staff sets up a program for you to take care of problem areas. You have a trainer and other people who work with you. They address such conditions as high blood pressure and high cholesterol. This is not a Gold’s Gym, but there is a fitness membership component for employees, staff, and the public. It serves the entire Monadnock region.”

Tom’s responsibilities, in addition to construction management, are engineering, transportation, and facility master planning. A native of Antrim, NH, he started work at the hospital 25 years ago as a maintenance mechanic after graduating from technical school.

He joined NEHES and the New Hampshire Society of Healthcare Engineers 12 years ago. He has served twice as NHSHE Fall Conference chair, as president, and as the alternate representative to the NEHES board.

Members of the New Hampshire chapter are friends as well as colleagues, Tom said. “Over the years, we’ve developed a bond and trust with each other. We keep in contact almost on a daily basis, and keep each other informed about issues. We’re a very close-knit group and our families do a lot together socially.”

New Hampshire engineers chose Tom as their Member in the Spotlight because of all the changes and additions he’s handled lately at his facility, according to Jim Woods, society president and Plant Operations Manager at Concord Hospital.

In addition to his hospital job, Tom also works as a facility maintenance consultant. Many of his clients are “the small mom and pop operations, small clinics that have added on and become a little facility. Now they have a building to take care of. I set up a computerized program for them so they can track their building systems and follow a preventive maintenance program,” Tom said. “I also do life safety inspections for the local fire department. When a new building or school opens, I do inspections and give the department a report.”

Tom and his wife, Nicole, and two sons live in New Ipswich, and he enjoys golfing.

Chapter in the Spotlight

Rhode Island Begins Targeting Long-term Care Facilities for Members

Bob Okerholm is the only healthcare engineer employed at a long-term care facility who’s a member of both NEHES and its Rhode Island chapter. Only two of his Rhode Island peers have joined NEHES. That’s why the Rhode Island Healthcare Engineers’ Society has started a new campaign targeting nursing home professionals for chapter, and maybe eventual NEHES, membership.

“We are working on membership letters to all of the state’s 60 or 65 nursing homes,” Bob said. He is beginning his first term as RIHES president and will become the NEHES president-elect in January. He has worked as the Director of Maintenance and Security at Saint Elizabeth Home (Providence) for 16 years and joined NEHES in 1985. He was Rhode Island’s alternate representative to the NEHES Board of Directors and a chapter vice president, and he’s looking for someone to replace him as the chapter’s representative to NEHES.

Normally, RIHES counts as members at least one engineer representing every hospital in the state. Currently, that number is down to 22 from 25 because South County, Rhode Island, and Kent County Hospitals each have a vacant Facilities’ position.

Chapter members have “all different titles, but basically do the same jobs,” Bob said. “We meet monthly at each other’s facilities and are planning our programs for the year.”

Other chapter officers are: vice president, Don Croteau, Assistant Director, Facilities Management, Landmark Medical Center (Woonsocket); treasurer, Jim Gilmore, Director of Facilities Management, Newport Hospital (Newport); and secretary, Lee Larson, Site Manager of Facilities, The Miriam Hospital (Providence).
Thanks to Current and Future NEHES Officers Who Volunteer Time

With the close of the year 2000 not far ahead, it's time once again to thank the NEHES Board of Directors and officers who have volunteered, and will volunteer, their time to the Society. Some will fill not just one, but two or more terms as officers.

Officers for the current year are: Bob Loranger, Director, Facilities, New England Medical Center (Boston), President; Joe Mona, Director of Facility Systems, Lawrence General Hospital (Lawrence, MA), President-elect; Jeff Thomas, Manager of Plant and Engineer-

ing, Mercy Hospital (Portland, ME), Treasurer; and Dawn LeBaron, Director of Facilities Management at Fletcher Allen Health Care (Burlington, VT), Secretary.

The 2001 slate of officers includes Joe Mona, President, and Bob Okerholm, Director of Maintenance and Security, St. Elizabeth's Home (Providence, RI), Presi-
den-elect. Jeff and Dawn will continue in their positions.

A complete list of officers and Board members will be published in the NEHES Newsletter next year.

When Disaster Strikes, the Red Cross Sends Bob Bunzick to Help

Two years ago, a bout with bladder cancer — which he ultimately overcame — forced Bob Bunzick to prematurely leave his job as Assistant Director of Facilities for Toby Hospital (Wareham, MA). Then a kidney removal followed; fortunately, that organ wasn't cancerous.

Despite his health problems, however, Bob has continued his commitment as an American Red Cross volunteer and is even pursuing certification as a Red Cross national reservist, a paid position that entails work all over the U.S. for as long as he's needed.

The longtime NEHES and South Shore chapter member and resident of East Harwich, MA became involved with the Red Cross several years ago. Bob had been a volunteer firefighter and a Rotary Club member, and decided to answer a Red Cross ad.

He soon became a local Red Cross board member and Disaster Chairman, and now he's one of the volunteers tapped when the Red Cross needs someone at the scene of national disasters to assess damages. He and other volunteers set up a temporary office in a school or other public building and work with all of the appropriate local, state, and federal officials to arrange disaster aid.

Bob's first national assignment was in northern Vermont in 1997, following severe flooding. Then came Puerto Rico in 1998, after Hurricane George, and Vermont again, after more flooding.

Last year, Bob served in Greenville, NC after Hurricane Floyd caused flooding. This year, he headed to Washington State and to South Dakota during the forest fires, and will return from Miami in November after acting as a Red Cross liaison officer in the Federal Emergency Management office.

Flooding this fall damaged or destroyed thousands of homes in Miami, Bob reported.

"One of the job requirements is that you must be diplomatic," he said. "I have been successful in dealing with local governments and I enjoy it. It's a very interesting job, you get to see what's going on, and it's very satisfying to be able to help, but it can be a double-edged sword.

"Sometimes what you see is pretty horrible. When I did damage assessment in Washington, I saw 40 homes that were totally destroyed. Only three homeowners were insured."

Bob will continue his volunteer work and receive more Red Cross training to certify him in the future as a reservist. His health is good, although he gets more checkups than most people do. "I was very lucky," he said.

He also continues his interest in NEHES and the South Shore Engineers' Society, and is South Shore's representative to the NEHES board.

"It's very good for your career to be in these groups," Bob said. "I really believe that none of us know as much as all of us know, and meeting other people with similar problems is very valuable."

When he's not taking part in Red Cross work, Bob keeps busy renovating the house he and his wife, Marge, have owned for 28 years, and seeing his three children and four grandchildren. He also likes to cook and to travel.

Where are They Now?

This is the first of several interviews with retired members that the NEHES Newsletter plans to publish. What have retirees been doing since retirement? How are they using their considerable management and technical skills to the benefit of their communities? Are they still attending local chapter and NEHES meetings?

If you have suggestions for future subjects of these articles, please give their names to Steve Cutter, Newsletter Editor, by email, Steven.D.Cutter @Hitchcock.org, or by telephone, (603) 650-7148.
Perspectives on Job Stress: Questions to Ask Yourself, Co-Workers, What to do Next

By Greg Harubin
Director of Facilities Operations
Day Kimball Hospital
Putnam, CT

The hard thing is that sometimes you don’t know that stress is creeping up on you until it arrives full force. Knowing all the bad stuff about stress makes it even worse because when it hits hard and you realize you’re on it, that just adds one more thing to be stressed about. Terrific!

You’ve got to first realize that there is a problem, which is not so easy to do when you’re knee deep in problems. Try reflecting upon some of your recent behavior, or ask a trusted co-worker if you’ve been acting any differently. If they say “not really,” don’t let them off the hook. They may feel afraid to tell you how bad it is. So ask them, “Not even a little?” and you’re liable to get an answer such as, “Well, Tom, I was a little concerned that lately you talk to people with a glaring stare and your teeth are clenched as though you have lockjaw, but other than that you seem okay.”

Or, maybe you can analyze yourself. Apart from the ordinary behaviors, such as not sleeping, periodic tense fight or flight episodes, dwelling continuously on one problem, hitting yourself with a horse whip, total lack of energy — these can all be indicators that you are suffering from high stress. This part is difficult to get right because some behaviors may on the surface seem stress-related, when in actuality you may just be a little unusual, and there is nothing to worry about after all!

Now, some nifty things to try that might help the next time you find the job getting to you are:

1. Quit your job. And don’t say it’s not an option, but usually it just substitutes one high stress problem for another.

2. Back off. Get some distance from the things that are triggering your stress. Take a day away and spend some uninterrupted time planning. Solving problems is what you do, and you’re good at it. Apply those skills to your own situation. Once you’ve identified the stressors, deal with them the same way you would if the boss came up to you and said, “My benchmarking numbers say you have 40 too many people (when you only have 45 on staff), and I want you to build a new Ambulatory Care Center by next Tuesday.”

3. Just say no. Is it possible that you have a ridiculous workload because of you and nobody else?

4. Review a day’s activities: Are you doing things that only you can do, or that you can do best for your organization? Good! Are you performing duties that are primary functions of your staff? Not so good.

5. Seek professional help. If it’s so bad that you’re not sleeping well, would you not strongly recommend the employee assistance program to an employee with the same symptoms?

Our job is to take care of countless things. We deal with millions in assets and decisions that affect the safety and quality of life for so many. Add yourself to the list.

(Editor’s Note: Greg is a member of NEHES, ASHE, and Connecticut HealthCare Engineers’ Society.)

Congratulation to the New Region 1 Director!

By Jack Gosselin
ASHE Region 1 Director
Vice President of Facilities Management
Day Kimball Hospital
Putnam, CT

It is with a high level of confidence that I pass the Region 1 Directorship to Don Garrison from Togus, Maine come the first of the year. Don has been an active ASHE member in the Region 1 for many years and has served on a number of committees. I can say in all honesty that Don will take on this role with energy and enthusiasm and will become a valuable asset to the board.

(The story about Don Garrison is on page 1.)

Chapter Updates

Find out about activities of the Western New York Society for Healthcare Engineering from Mr. Al Gustafson in Buffalo. The Central New York Society of Healthcare Engineers held its annual meeting in Alexandria Bay, NY September 15.

St. Joseph’s Hospital in Syracuse hosted an October 19 meeting and education session.


The program focused on recent code and standards changes and was held at the JFK Airport Ramada Hotel.

Fall Conference 2001 Heads North to Maine

The Maine Healthcare Engineers’ Society will host Fall Conference 2001 at the Portland Marriott September 25-28.

Conference Chairpersons, their affiliations, and telephone numbers or email are:
Program Chairpersons: Don Garrison, Chief Engineer, Department of Veterans Affairs (Togus), and Jeff Thomas, Manager, Support Services, Mercy Hospital (Portland);
Scholarship Chair: Mike Bradstreet, Director of Facilities, The Acadia Hospital (Bangor);
Golf Tournament Chair: Roger Boyington, Director of Plant Engineering, Maine Medical Center (Portland);
Vendor Program Chair: Bob Lord, Plant Operations Director, Parkview Hospital (Brunswick);
Brochures Chair: Mike Pinkham, Director of Engineering, Mid-Coast Hospital (Brunswick);
Education Chairpersons: Ron Vachon, Director of Facilities Management, St. Andrews Hospital (Boothbay Harbor), and Don Garrison;
Theme Dinner Chairperson: Jeff Thomas;
Registration Chairpersons: Ron Vachon and Don Garrison.
Watch for full coverage of the very successful NEHES Fall Conference in the December issue of the NEHES Newsletter!

Two Leave New England, One Returns Promotions Move Several Healthcare Engineers into New Positions

Dawn LeBaron, formerly Director of Facilities Services at Newton Wellesley Hospital (Newton, MA), has returned to her home state of Vermont as Director of Facilities Management at Fletcher Allen Health Care (Burlington). She replaces another NEHES member, Leif (Dave) Keelty, in that position. Dave had been promoted to Administrative Director for Real Estate, Construction and Facilities Development and is managing the “Renaissance” ACF Project.

The ACF Project is a $200 million plan to construct an ambulatory care facility, underground garage, and education center totaling 500,000 square feet.

Dawn and another NEHES member, Bob Cummings, is the Manager of Construction Services and Assistant Project Manager for the new ACF, “Renaissance,” at FAHC, are working hard to re-vitalize the Vermont Healthcare Engineers’ Society.

Mark Cappello, a longtime, hardworking member and officer of both VHES and NEHES, has left his position as Director of Engineering, Southwestern Vermont Medical Center (Bennington), to become Manager of Projects for Campus Life at Cornell University, Ithaca, NY. Mark was named the first NEHES Engineer of the Year in 1997, and was the driving force behind many important NEHES bylaws changes. He was a member of ASHE’s Membership and Chapter Relations Committee, and began the annual NEHES Board of Directors retreat tradition. As Newsletter Editor, he made many important enhancements to this publication. Contact Mark at (607) 255-9657, or by email, mjc53@cornell.edu.

Tom Whittaker, formerly Mark’s colleague and Project Manager at SVMC, is now Director of Facilities Services at Benedictine Hospital, 105 Marys Avenue, Kingston, NY 12401. Tom will supervise several departments and many construction projects. He was a member of NEHES and VHES, helping to organize Fall Conference 1994 and 1999, and assisted on numerous other projects. Contact Tom at (845) 334-3045, or by email, twhittaker@benedictine.org.

Dan Ayres, a former VHES and NEHES member, officer, and Newsletter Editor, has returned to Vermont after a two-year absence, and has moved into hospital administration with his appointment as Vice President of Professional and Support Services at Copley Hospital (Morrisville). Dan plans to become involved in the American College of Health Care Executives, and may be contacted by email, dayres@chsi.org.
Performance-Based Fire Safety Analysis Successfully Used to Justify Equivalency in a VA Medical Center, Thereby Saving $180,000

By Eugene Cable, PE
NEHES Liaison to NFPA
Regional Safety & Fire Protection Engineer
Dept. of Veterans Affairs
Albany, NY

At the Sturbridge Fall Conference, many of you heard about new language in the 2000 Life Safety Code concerning the use of a performance-based option for Code compliance. We can report a success — we avoided the cost of constructing a new exterior exit stair by adding several fire safety features to an existing situation and then proving equivalent level of safety. The JCAHO has approved this equivalency, as outlined below. This article has two purposes — to provide a quick review of the performance-based process, and to share two important lessons learned.

This Equivalency Analysis was performed at the Department of Veterans Affairs Medical Center, Bath, NY, in Building #76.

The Deficiency was that the assembly space on the third floor, the Canteen Cafeteria, has only one exit.

By measurement of floor area and number of seats, the maximum likely occupant load is about 60 to 65 persons. This constitutes assembly occupancy requiring two means of egress from the Canteen Cafeteria room. The option to place a sign limiting occupancy to 49 persons is unacceptable as unenforceable for this size room.


The Equivalent Measures put into place were:
1. Not otherwise required, the fire alarm system includes system smoke detectors in the main corridor, a system smoke detector positioned at the entrance corridor to the cafeteria, a smoke detector within the “vending room,” and a manual pull station at double doors leaving the cafeteria. A visual and audible fire alarm notification appliance is located inside the cafeteria.

2. The audible fire alarm is sound ed inside the cafeteria and within the zone containing the cafeteria ONLY when an initiation device activates on the same floor. The audible alarm and visual strobe operate only when an initiation device activates within the zone containing the cafeteria, such as the entrance area smoke detectors. This is a special performance-based design, intended to reduce the false alarm effect and induce persons to immediately begin evacuation when the alarm and strobe activate.

3. Not otherwise required for this zone, the entire building is protected with a supervised, automatic sprinkler system equipped with quick response sprinklers.

4. Not otherwise required, the vending area fire door and kitchen fire door leading to the entrance corridor are equipped with an automatic release self-closer tied to fire alarm system.

5. Not otherwise required, the walls surrounding the “entrance corridor” are maintained 1/2 hour fire resistive slab to slab.

Estimated costs for constructing a new, four-story enclosed, heated, exterior exit stair on a front side of the hospital building were in the vicinity of $200,000. Regardless of cost, management wanted to avoid adding a stair. A Fire Protection Engineering consultant would charge around $15,000 to conduct the analysis; in this case, as the VA’s FPE for this region, I conducted the study. Most of the Equiva lent features were already in place in building #76. Features added in order to “pass” the equivalency analysis were:

- Three system smoke detectors;
- One manual pull station;
- One audible/visual device;
- Patching numerous holes in an otherwise not-required fire wall;
- Special programming for addressable fire alarm system; and
- Special continuing training for cafeteria staff.

The estimated cost for these added features was about $3,000. From a purely cost avoidance perspective, we saved approximately $180,000 and provided an equally safe situation.

There is no way to quickly describe the performance process here or to summarize details of the report, but an outline of the steps is offered. Five computerized fire-modeling programs were utilized to essentially simulate various fire scenarios within this space. I tell folks I “burned the place” a couple dozen times in order to test various design features. Various fires were simulated in the kitchen, cafeteria seating area, and vending room, including some with automatic sprinkler protection out of service.

I used these steps to reach my conclusions:

Step 1: Define Scope
Step 2: Identify Goals
Step 3: Define Objectives
Step 4: Develop Performance Criteria

1. All occupants must be able to exit the area or be rescued alive;
2. Smoke layer remains at least 1.5 feet off the floor while area occupied;
3. Temperature in smoke layer remains above 361° F while area occupied;
4. Carbon monoxide concentrations in smoke layer remain above 4,000ppm or

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Performance-Based Fire Safety Analysis

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.004000, only considered when smoke layer is 3 feet or less off floor;
5. Visibility in smoke remains better than 6.6 feet, or about 22% obscuration/foot, only when smoke layer is 3 feet or less off floor.

Step 5: Develop Design Fire Scenarios and Design Fires

Step 6: Develop Trial Design A
1. Fire initiation and development;
2. Spread, control, and management of smoke;
3. Fire detection;
4. Fire suppression;
5. Occupant behavior and egress;
6. Passive fire protection.

Step 7: Evaluate Trial Design A
The following is one example of a trial design analysis table. Data is gained from the Fire Model simulations. Computerized Fire Models, developed by universities and federal research agencies, are commonly used today by FPEs for design decision research — such as this case — and for fire investigations.

Table A1 - w/QR

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<th>TIME TO SMOKE DETECTION</th>
<th>TIME TO QR SPRINKLER</th>
<th>TIME TO FEET LAYER 3 FT</th>
<th>TIME TO FEET LAYER 1.5 FT</th>
<th>TIME TO LAYER 361 F</th>
<th>TIME TO LAYER CO 4,000 PPM</th>
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<td>120 s #11</td>
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<td>at no time #11</td>
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<td>b. Fast Fire</td>
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<td>74 s #12</td>
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<td>at no time #13</td>
<td>at no time #13</td>
<td>125 s #13</td>
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#s represent FPETOOL computer run number

Table A2 - w/QR

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<th>TIME OCCUPANTS ALERTED</th>
<th>OCCUPANTS RESPONSE DELAY</th>
<th>TRAVEL TIME FOR OCCUPANTS SAFELY OUT</th>
<th>TOTAL TIME NEEDED TO GET OUT</th>
<th>TIME TO EGRESS ROUTE BLOCKED</th>
<th>SUCCESS? (SAFETY MARGIN)</th>
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</thead>
<tbody>
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<td>71 s</td>
<td>12 s</td>
<td>36 s</td>
<td>119 s</td>
<td>at no time</td>
<td>YES (Infinite)</td>
</tr>
<tr>
<td>b. Fast Fire</td>
<td>50 s</td>
<td>50 s</td>
<td>12 s</td>
<td>36 s</td>
<td>98 s</td>
<td>at no time</td>
<td>YES (Infinite)</td>
</tr>
<tr>
<td>c. Ultra Fast Fire</td>
<td>35 s</td>
<td>35 s</td>
<td>12 s</td>
<td>36 s</td>
<td>83 s</td>
<td>125 s</td>
<td>YES (42 seconds)</td>
</tr>
</tbody>
</table>

* Egress Route Blocked means it fails Survivability Criteria

Step 8: Trial Design A Meets Performance Criteria? NO
Repeat Step 7: Trial Design A Slightly Modified
Repeat Step 8: Modified Trial Design A Meets Performance Criteria? YES
Step 9: Document Selected Final Design - Design A Modified
The alternative solution meets intent. Sprinkler protection alone would meet the intent of section 13-1.2.6 by stopping fire and production of toxic smoke and thereby allowing additional time to evacuate the cafeteria. The additional features of smoke detection — automatic-closing fire doors, special fire alarm system notification, fire resistive walls above ceiling, and special staff training — all add redundant protection. The redundant features added to sprinkler protection are equal in intent to providing redundant; that is, two, escape routes.

We already knew the first lesson learned in performing this performance-based analysis — that Equivalency Analysis can often save us big bucks and please upper management by avoiding a Code-driven change to the building.

Two additional lessons were learned. A performance based design/equivalency analysis takes about three to four times longer than the traditional equivalency process, and there were safety features added (changes in design) that otherwise would not have been conceived through the traditional analysis method. Per step #8, the initial design thought to be acceptable failed the test. In other words, our initial best judgments were proven wrong, not good enough to pass the more rigorous examination of simulated fire scenarios.
NFPA 5000, NFPA Building Code, Needs Engineer Consensus

By Eugene Cable, PE
NEHES Liaison to NFPA
Regional Safety & Fire Protection Engineer
Dept. of Veterans Affairs
Albany, NY


The committees will be meeting again this December to finalize a draft for NFPA membership review and comment. The “Proposed Draft” is available for your review and comments. Some of you at the Fall Conference in Sturbridge received copies. The comment form is within the draft document on the first page.

There are several copies still available. If you would like one, please contact me at my voice mail: (518) 462-3311 ext 2556.

How can anyone be excited about developing a new code? Consider this: Unlike all the other model building codes and including the new International Building Code, the NFPA Building Code will be promulgated by true consensus.

The existing building codes are developed and approved by regulating officials only — you have no say. You can petition and lobby but you can not vote. Therefore, building codes tend to be overly restrictive.

The new NFPA Building Code will be more reasonable and — here’s the good part — it will more closely match the Life Safety Code. The days of having to meet multiple codes enforced by multiple agencies may be numbered.

If you were governor or a member of your state legislature, and had a choice between adopting the International Building Code — promulgated by building inspectors — or the NFPA Building Code — promulgated by true consensus — which would you choose?

My advice to NEHES members is to watch this one closely. The NFPA Building Code, designed to match the Life Safety Code, could easily become the code of the future.

Imagine federal and state governments, JCAHO, VA, and HCFA all using the same “Family” of Codes.

Level 1 Generators and OSHA’s Lockout Standards

(Editors note: Dan Chisholm, publisher of Healthcare Circuit News, recently answered this question for his readers. Dan was a speaker at the NEHES Fall Conference.)

Question: We have parallel gear with three generators hooked up to it at this time. We have a problem with circulating currents on the older one. CAT can fix that; however, in order to fix it, ASCO will need to dig into the parallel gear. This means locking out all three generators. ASCO says if we have a normal power failure, they can be clear in 30 seconds. My thought is that this will violate Life Safety 10-second minimum on line time. If we don’t protect the workers, we violate OSHA and (all common sense). Is this 30 seconds a major code violation? Should we take extraordinary measures to provide major portable temporary generators?

Also, if we have a single generator at an out building, do we need to provide a portable temporary generator when we do an oil change? The accountants will ask what are the chances we will have a power bump during the short period of time ASCO is inside the gear. I would have to answer almost none. I had hoped to get information from you on what is standard for the industry in this type of situation, and an opinion on what we should do.

R.H.

Answer: As you alluded to, there are conflicting standards that could potentially cause you problems. It is true you need to have power to your Emergency System loads in 10 seconds or less. It is also true you should lock out the equipment if you are putting a worker in a position to sustain injury or be killed due to the unexpected starting of the generator set. Catch 22.

Standard practice involves meeting with the medical staff and safety committee to inform them that you will be locking out, and that: There WILL be a period of time that a loss of normal power would mean a loss of power at the load side of the ATSs (i.e., no emergency power); They need to make whatever provisions are necessary to insure no harm to patients, staff or visitors; The hospital doesn’t need to take any risks by violating lockout/tagout provisions of 1910.147; and you do not want to take personal responsibility of 1-3 above.

Regarding your question of a single generator being your only source of alternate power, NFPA 110, 6-1.2 states that:

“Consideration shall be given to temporarily providing a portable or alternate source whenever the emergency generator is out of service.” The wording of this paragraph gives you some leeway in planning. Some engineers will have staff standing by to switch to another normal feed, if one is available. Others, with only one feed, will follow the steps in 1-4 where there are emergency loads as defined by NFPA 99 and 110.

In either event senior management needs to look at these facts before a decision is made. Portable generators aren’t cheap. Send me your address and I will mail you one of our newsletters on the subject. For additional information see: http://www.osha-slc.gov/OshaDoc/Interp_data/119960515D.html and http://www.mgi-hcn.com/guide/mgili/lockoutsitch.htm.

This article is reprinted with permission of Dan Chisholm and Healthcare Circuit News, PO Box 2474, Winter Park, FL 32790.

Contact Dan by telephone, (407) 539-0251, or by email, dchisholm@mgi-hcn.com
Do You Have These Important Articles about JCAHO in Your Files?

By Robert J. Thompson, PE, CSHM
NEHES Liaison to JCAHO
Fire Protection and Safety Engineer
Dept. of Veterans Affairs
Bedford, MA

The following articles I have prepared for the NEHES Newsletter over the past year have covered issues based on direct contact with JCAHO officials and other reliable sources. Our objective has been to bring you timely, accurate, usable information related to JCAHO standards/policy issues.


If you are missing any of these and would like a copy, please e-mail me at bobattg@mediaone.net, or write to me, Robert J. Thompson, PE, CSHM, NEHES JCAHO Liaison, 110 Middleton Road, Boxford, MA 01921.

If you have issues you would like explored in the NEHES Newsletter or want to discuss a question, drop me a line, or you can simply keep this list as an index for future reference.

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Hospital’s Disaster Plan Works Smoothly
Employee Injured in Miami Veterans Hospital Fire Returns to Work

One electrician injured in a flash fire at the Miami Veterans Affairs Medical Center is back on the job, while the second victim continues to receive rehabilitation care for burns sustained over 40 percent of his body in the March fire. The incident was thoroughly investigated by top officials, including experts from VA Headquarters, and it was ruled an accident. One of the primary causes for the fire was the old and faulty equipment, according to VA officials.

Hospital officials executed the facility’s disaster plan immediately after the fire caused a loss of electrical power, which shut down the air conditioning, most lighting, and elevators in the main hospital building. Physicians and nurses decided it was too risky to carry 16 intensive and critical care patients and their equipment down the stairs, so the VA engineering staff created a path across the roof of the Ambulatory Care building to a working elevator. Ambulances then transported them to other hospitals.

The remaining 177 patients walked out or were wheeled out without injury. Firefighters and employees carried some down darkened stairways to the emergency room, where medical staff members obtained their charts and Pharmacy refilled their prescriptions before they left for other facilities.

There were three patients in surgery during the time of the power outage due to the fire. Staff completed the procedures by handheld lighting. All three patients were safely transferred to the local hospital across the street.

Although officials had predicted that the hospital’s return to full operation would take six months because the facility’s electrical vault was so damaged, the actual time was just five weeks. “The fire took out the heart of the hospital, as far as electrical distribution is concerned, and it was reduced to ashes, melting every-

Editor’s Note:
If you have items you would like to include in this section, please contact Steve Cutter, Newsletter Editor, by phone, (603) 650-7148; by fax, (603) 650-8978; or by e-mail, Steven.D.Cutter@Hitchcock.org.

(EDITOR’S NOTE: Information for this story was contributed by Don Garrison, NEHES member and Chief Engineer, VA Medical Center, Togus, ME, and Ms. Susan Ward, VA Public Affairs Officer in Miami.)