Owensboro, Kentucky is located on the banks of the Ohio river, just across from Indiana. The city’s population is 57,265, making it the fourth-largest city in the state of Kentucky.

Kentucky was considered to be a border state during the U.S. civil war, both by location (it was just south of the Mason-Dixon line) and by politics. Kentucky voted not to secede from the Union and was instrumental in providing resources and manpower for the Union during the conflict. Owensboro played a vital role in maintaining economic support for the Union during the war, and later came to be known as the home of its most famous son, Johnny Depp.

Why the attention on Owensboro? Because its leadership has decided to do something in that community that will improve the overall safety of the physical environment in hospitals, which no other city or community has bothered to do. The Owensboro Community & Technical College (OCTC) is now offering associate of applied science degrees in Healthcare Facilities Leadership (HFL), which is the first of its kind in the world.

Program director Mike Canales says OCTC currently has over 60 students enrolled in the program. “This program is 100% online and does not require any in-person classroom training,” says Canales. “Our students are from over 20 states and, eventually we expect students from around the world taking the online classes.”

The need for a degree program for healthcare facility managers has long been discussed but, until now, no learning institution has started a program. So why Owensboro? What happened there that made leadership decide to start this program?

“The Kentucky Board of regents actually asked the same question,” says Canales. “They were somewhat confounded why this program had not happened earlier at some other college or university.”
But ultimately, it was the right timing with the right people that eventually lead to the start of the program. “The leadership at the Kentucky Society of Healthcare Engineers [KSHE] approached the college president and pitched a plan that eventually led to the Healthcare Facilities Leadership program,” Canales says. “When the American Society for Healthcare Engineering [ASHE] backed the effort, OCTC took the risk. I think they are now pinching themselves on having this first-of-a-kind program.”

The KSHE is a regional chapter of the parent national organization, ASHE, which offered financial backing, advisory capacity, marketing support and name association. Currently, OCTC is offering a two-year associate’s degree but there may be a four-year degree in the making.

“There are several conversations with four-year institutions for a transfer into a bachelor’s program,” says Canales. “There is already one agreement for existing ‘healthcare management’ bachelor program with Western Kentucky University. We are working towards another bachelor program with an additional Healthcare Facilities Leadership concentration.”

The concept of healthcare facilities management is often compared to engineering. When asked why the OCTC program is not identified as an engineering program, Canales offered the following. “Academia has such as established ‘engineering’ expectation that breaking in would have delayed, if not derailed, the accreditation,” says Canales. “I originally titled the program Healthcare Engineering Leadership, but we are biding our time on that one.”

Canales expects to graduate his first students in the fall of 2015, with great anticipation.

“Several of my students in my class have already received promotions for demonstrating commitment to growth and learning demonstrated by the Healthcare Facilities Leadership program,” says Canales.

The demographics of the students range in age 20 to over 60, with the age group 40–49 having the most students. The level of previous education by the students range from having a high school diploma, or a GED, to some level of college.

The field of facilities management includes engineering, maintenance, and other support service positions that are critical to the smooth operation
of hospitals and other healthcare facilities. The HFL associate’s degree provides healthcare-specific courses on management, infection control, project planning, and more.

Specific subject matter that students will be learning includes general studies and specific classes in the program.

General studies include:
- Writing
- Basic public speaking
- Medical ethics
- College algebra
- General college chemistry
- General college chemistry lab
- Introduction to biology
- Introduction to biology lab

Program courses include:
- Introduction to Healthcare Facilities Leadership
- Introduction to Healthcare Industry
- Infection Control and Prevention
- Compliance, Codes, and Standards I
- Maintenance and Operations I
- Planning, Design, and Construction I
- Compliance, Codes, and Standards II
- Maintenance and Operations II
- Planning, Design, and Construction II
- Healthcare Facilities Leadership Capstone I
- Healthcare Facilities Leadership Capstone II
- Introduction to Energy Systems
- Supervisory Management
- Operations Management
- Personal and Organizational Leadership
- Principles of Microeconomics
- Introduction to Financial Management

OCTC’s HFL program is convenient and affordable, and can be accessed from anywhere, since all courses are online.

“The response has been incredible,” says OCTC President Jim Klauber. “We’ve had calls and emails from all over the country. There is clearly a tremendous need for this unique program, and we are excited about being the institution to offer it.”

Canales, who spent more than 20 years as a facility manager before joining OCTC, said the complex nature of healthcare facility management today requires a unique mix of skills: customer service, risk assessment, emergency management, codes and standards, infection control, energy tracking, and more.

The program prepares students to take the American Hospital Association’s Certified Healthcare Facilities Management (CHFM) exam. Klauber said multiple four-year universities have expressed interest in partnering to offer 2+2 programs to make it easy for graduates to go on to earn bachelor’s degrees if they choose.

“We believe the potential for this program is boundless, and we are looking forward to graduating our first class,” Klauber said. “We have students from Kentucky and many other states including Massachusetts, New Hampshire, and Arizona to name a few.”

OCTC requires 62–65 credit hours to graduate with the Associate in Applied Science (AAS) degree in the HFL program, and the cost per credit hour is approximately $144. That equates to just less than $9,000 tuition for the entire program.

“Most employer tuition reimbursement programs cover the cost of the Healthcare Facilities Leadership program,” says Canales. “Eighty percent of the courses are three credit hours.

Canales says a degree in the HFL program will provide a competitive edge in the growing field of healthcare facilities management. It will improve the student’s chances of acquiring the best employment opportunities and increase the chances of advancement.

Positions a person with an associate’s degree in the HFL program include:
- Facilities Management/Operations/Engineering
- Construction and Projects
- Environmental Services/Housekeeping
- Maintenance
- Safety
- Biomedical/Clinical Engineering
- Support Services

“The opportunities for students are endless. I see this program growing and growing in the future,” says Canales.

For information, contact Program Director Mike Canales at mike.canales@kctcs.edu or 270-852-8142.
A new vision for facility management in the DNV-GL accredited hospital

Randy Snelling, chief physical environment officer at DNV-GL Healthcare, Inc., spoke at the American Society for Healthcare Engineering (ASHE) annual conference in Chicago last August, and shared a new vision for facility management at DNV. Det Norske Veritas merged in 2013 with Germanischer Lloyd to form a new entity called DNV-GL.

“There are 2,400 healthcare organizations that DNV-GL certifies worldwide,” said Snelling. “We have 16,000 employees in 100 countries throughout the world. While we may be new to the American healthcare process, even though we are now six years into it, people still think of DNV-GL as that little company. Globally, we are a large outfit and have a lot of support for what we are doing.”

Snelling mentioned that the DNV-GL survey process does not change much at all.

“We don’t change our standards around and write new requirements,” said Snelling. “We keep the same standards year after year, which allows you to have a sustainable system. If we have an issue that we are having difficulty with, our committee on writing standards will look to make a change.”

However, there are obligatory reasons that DNV-GL would have to make changes to its standards.

“The only reason to change the standards is CMS,” said Snelling. “When they change their CoPs, we are obligated to change our standards as soon as possible.”

Snelling explained that DNV-GL will have to change its standards soon to meet the requirements of the new emergency management requirements, once CMS adopts the new rule.

“When CMS adopts their new emergency management CoPs we will also make changes to our standards,” said Snelling. “But DNV-GL accredited hospitals are already required to comply with NFPA 99, 2005 edition on emergency management and the proposed CMS emergency standards really don’t go much farther than that.”

One exception to the NFPA 99 requirement on emergency management that CMS recommended in its recent proposal is an annual four-hour generator load test instead of once every three years.

“I suspect that may go away by the time they publish their final rule,” said Snelling.

On another issue, CMS is proposing to allow one of the annual emergency response drills to be a tabletop drill, but Snelling said DNV-GL is not in favor of that.

“We have received feedback from our hospitals that they do not want to back off from the requirement to have two live emergency management drills,” Snelling said. “Our hospitals are telling us that they want to stay with two live drills a year. We will probably continue to require that, regardless what CMS says.”

Snelling explained that the emergency management program in hospitals is usually only as effective as the enthusiasm with the people managing the program.

“They put their heart and soul into the process and they don’t mind doing two live drills per year,” said Snelling. “If your emergency management committee is not doing two live drills per year, then it won’t be an effective program because it is such an uphill climb.”

One of the biggest differences that sets DNV-GL apart from The Joint Commission or HFAP is that it performs annual surveys at its accredited hospitals, while the other accreditation organizations still perform triennial surveys.

“Annual surveys mean constant readiness,” said Snelling. “When I first started doing this I said, ’Hey, we do annual surveys’ and people would fall out of their chairs. ’These are wonderful things, these annual surveys,’ I would say, but what I wasn’t picturing was the type of surveys people had been through for the past forty years. They were used to harsh, punitive surveys, and thought we would do that annually as well.’

But Snelling explained that DNV-GL surveys are not punitive and difficult, but rather more of a cooperative approach to assess compliance.

“We’ve lightened up the product a little bit and come in with people who are cordial and collaborative,” explained Snelling. “And we’ve found that hospitals no longer react like it is a huge mountain to climb. We’ve become more like a speed bump. Year after year we hear, ’Oh, DNV is here ... Okay, let’s get to the survey and be done with it.’ ”
This unique approach to accreditation usually places the same DNV-GL surveyors back in the organization no more than a year later.

“By the time we write you a report and by the time you send us a corrective action plan and those are collected and cleared, it’s about eight months until we’re back again,” said Snelling. “So, when we think about that the severity of the non-conforming deficiencies that we write, they are lessoned because we will be back in eight months. That really helps. Nearly every DNV-GL hospital tells me that the annual surveys help.”

According to Snelling, the demeanor of the survey team is collaborative and cordial and they really want to hear what the hospital staff has to say.

“Your other surveys, whether they are HFAP or The Joint Commission tend to be multiple-choice questions when the surveyors come in,” said Snelling. “We are more concerned about the process rather than the details. The DNV-GL surveyors ask essay questions.”

Unlike The Joint Commission, DNV-GL is not concerned about the number of findings.

“We don’t have Conditional Accreditation decisions,” said Snelling. “You can have as many findings as there is and it won’t cross a tipping point where you lose your accreditation. However, if we find a lot of issues in one area we will write a Condition Level Finding, which means we will come back within 45 days and see if that is fixed. It happens maybe one out of 10 surveys.”

Snelling explained that the Physical Environment/Life Safety surveyors will visit off-campus locations.

“If you have a building with a CCN [CMS Certification Number] then we’re coming,” said Snelling. “We may not come every year but we will be there within that three-year period, and get to every building in your system. We know that most of them are business occupancies and we apply the business occupancy chapters from the Life Safety Code® to them.”

Snelling shared a situation where what may appear to be a life safety deficiency really is a more serious problem involving leadership.

“I read in the ASHE magazine recently an article written by a surveyor who listed the top five findings he saw during a survey,” said Snelling. “The first thing he identified was corridor clutter. I threw the magazine across the room, and thought, ‘Man, where are we? This is 2014 and we’re still talking about corridor clutter? Really? Come on!’ Why is corridor clutter still happening in hospitals? Because the senior leadership is not stepping in. The facility manager does not have the clout with those clinicians up on the floors where the corridor clutter occurs. But who does? Senior leadership. And if you’ve got corridor clutter problems, it’s not a life safety problem, it’s a C-suite problem.”

Snelling said the safety committee will discuss impairments in the physical environment. The process of the committee will come up with solutions and will develop procedures.

“Our standards require you to forward the safety committee decisions up to your quality management oversight committee,” said Snelling. “Your safety committee has a wormhole into the C-suite and this requirement to send the decisions to quality management is it. This is a way for the men and women living in the basement to have a voice to the C-suite. When we write this finding, the C-suite gets it too.”

Snelling then shared the top fire safety findings observed during DNV-GL surveys:

- Items hanging from sprinkler piping.
- Fire extinguishers missing inspections; access obstructed.
- Unsealed penetrations in rated barriers; no penetration permit program. (DNV-GL now requires hospitals to have a penetration program that controls all staff and all vendors.)
- Doors; fire door malfunctions; locked doors.
- Exit signage deficiencies.
- Fire drill documentation, including off-site locations.
- ALSM coordinated with local AHJ (DNV-GL requires ALSMs to be coordinated with the local AHJ.)
- Hot work permits.

Snelling explained that DNV-GL follows NFPA 55, 2009 edition, section 7.1.2.4 on Containers, Cylinders, and Tanks containing residual gas.

“Compressed gas containers, cylinders, and tanks containing residual product shall be treated as full, except when being examined, serviced, or refilled by a gas manufacturer or distributor,” Snelling quoted. “This means partially full cylinders must be considered full when planning for storage.”

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Surveyor findings on sprinkler systems

As a result of an article in last month’s issue of HLSC (see “NFPA 25: Roles and Responsibilities” in the September 2014 issue), the editors decided to reach out to various hospital facility managers across the country to report on how the accreditation organization surveyors (especially the Life Safety surveyors) were assessing their facility on compliance with the inspection, testing, and maintenance process of their water-based fire protection sprinkler system.

The responses came from many hospitals in many regions of the country, and involved multiple accreditation organizations. While the comments are directly from the facility managers themselves, they all wished to remain anonymous for fear of reprisal.

One facility manager in the Southeast said his life safety surveyor toured the building on the first day of the survey and reviewed documentation on the second. “During the document review session, the surveyor requested to see evidence that we tested and inspected our sprinkler system,” says the facility manager. “He specifically looked at documentation for waterflow switches, fire pump churn test, fire department connections, pre-action system priming water test, pre-action trip test, main drain test, anti-freeze test, private service fire hydrants, fire pump flow test, standpipe waterflow test, and internal inspection of the sprinkler piping.”

While the surveyor seemed to conduct a thorough review of the hospital’s sprinkler system, he did not ask to see evidence of all the NFPA 25 requirements. “Surprisingly, the surveyor did not request to see documentation for the control valve inspection, or the control valve exercise,” says the facility manager. “Neither did he request to see documentation for the backflow preventer test, check-valve inspection, pressure gauge calibration, private service water mains, and whether we sample-tested or replaced quick-response sprinklers after 20 years or standard-response sprinklers after 50 years.”

The facility manager said he had the documentation ready for review, but when the surveyor did not request to look at it, he did not volunteer it. “Actually, our survey went very well,” says the facility manager. “The life safety surveyor said after completing the document review session that the documentation requested was flawless. We did not receive any citations concerning our documentation. This truly illustrates the importance of being prepared and always in a continuous state of readiness and compliance.”

Another facility manager located in the Southwest did not fare as well. “During the document review session, we felt we were under a cross-examination,” says another facility manager. “Granted, we were not as prepared as we could have been, but the life safety surveyor made us feel ashamed of our shortcomings. He grilled us on how we accomplished the weekly fire pump test, to the point that we ended up confused as to what the accreditor wanted.”

When it came time to review the documentation on the main drain tests, the surveyor left the facility manager more mixed-up than before the survey started. “We conduct the main drain tests at each system riser,” says the facility manager. “But the surveyor said by doing this we can’t conclude favorable versus unfavorable results, which I still don’t understand what he meant. He said we were not recording the amount of time it takes to restore the residual pressure back to the static pressure reading, but he never cited us for this shortcoming. Apparently they do not cite this since the actual test procedure is found in the Annex explanatory section of NFPA 25, rather than in the text of the standard. What good does this do for us?”

But this facility manager did get cited by the surveyor when the total number of tamper switches did not match between the fire alarm testing contractor and the sprinkler system testing contractor. “That was our fault,” say the facility manager. “We should have had the inventory correct for both contractors.”

Another facility manager from the Eastern states told us that the life safety surveyor asked to see how he verified competence in his own workers. “We conduct our weekly fire pump test using our own staff,” says the facility manager. “The surveyor said we need to document how we assessed competence of our staff member who is conducting the churn test. We didn’t have it and it resulted in a finding.”
During the same survey, the surveyor identified additional issues with the hospital’s testing and inspection program.

“The surveyor asked our technician how he started the fire pump for the weekly test,” says the facility manager. “Apparently, we were doing it incorrectly, as our technician was just pressing the ‘start’ button. The surveyor says we need to reduce the water pressure at the pressure switch in order to start the fire pump test.”

But even when the hospital had documentation, the surveyor carefully examined the reports to make sure the procedures were performed correctly.

“The plant manager work order that we use for the fire department connection inspection did not specify how the inspection was to be conducted,” says the facility manager. “Also, the report from the contractor who performed the annual fire pump waterflow test looked suspicious to the surveyor. He said all of the pressure readings were exactly the same from the previous year’s test, and it looked like it was cut-and-pasted.”

But for this survey, the surveyor had some useful suggestions as well.

“The surveyor looked at our standpipe waterflow test report and said the results seemed high to him,” says the facility manager. “The contractor reported they flowed 1,000 GPM at the roof through one hose monster, which is not likely. The surveyor suggested that we watch the contractor conduct the test the next time to be sure it is conducted correctly. He also commented that the contractor who is conducting the inspection of the kitchen hood fire suppression system is using an old form. These test reports were accepted by the surveyor, but we appreciated his comments.”

The building tours conducted at the many different hospitals by the life safety surveyor revealed deficiencies that many hospitals struggle with, such as communication wiring and cables tied to sprinkler pipes and hangers; missing escutcheon plates on the sprinkler heads; dirty sprinkler heads; a minimum of 18 inches clearance underneath all sprinkler heads; and sprinkler heads that are partially obstructed by ceiling mounted objects. But during one of the building tours, the surveyor noticed an inspector’s test valve that was sized incorrectly.

“The inspector’s test valve internal diameter was measured to be the same size as the pipe,” says the West coast facility manager. “It is required to be sized the same as a sprinkler head orifice. This allows too much water to flow during a zone test of the waterflow switch. The surveyor decided we needed to conduct a waterflow test on this zone, and unfortunately, it took more than 90 seconds to activate the alarm.”

Other surprising deficiencies found with the sprinkler system during the building tour, included:

- Ice hanging from a sprinkler head in a walk-in freezer
- Quick response sprinklers mixed with standard response sprinklers in the same area
- Sprinklers did not provide complete coverage based on the shape of the room
- Sprinkler heads mounted more than 12 inches below the ceiling
- Bent deflectors on ceiling mounted exposed sprinklers
- Pendant sprinkler heads installed in an upright configuration
- A sprinkler pipe was propped up with a wood support in a mechanical room

When it came to the annual waterflow test of the fire pumps, not all surveyors were on the same page.

“During our survey last year, the surveyor took issue with the way the contractor conducted the test,” says one Midwest facility manager. “The contractor did not document that the churn portion of the annual test was conducted for 30 minutes. Also, the contractor did not document that a normal power outage was simulated with the pump operating at peak capacity. At that point, the generator needed to kick in and the flow readings needed to be reconfirmed to be at peak capacity while the pump ran on emergency power. During our previous survey four years ago, the surveyor did not scrutinize the annual waterflow test report that level. I would have appreciated a notice that the accreditation organization changed what they are looking for.”

Some of the surveyors had checklists to follow during the document review session, and some did not. One surveyor who did have a checklist allowed the facility manager to make a photocopy of it for his own use.

“I really appreciated the surveyor allowing me to copy his checklist,” says one facility manager. “He was very gracious and easy to work with. By sharing the check list with me, I will be 100% compliant the next time they survey.”
Editorially Speaking...

This month, Senior Editor Brad Keyes, CHSP, offers his thoughts, concerns, and comments on issues pertaining to healthcare life safety.

Marie is informed by her doctor that she must have a hip replacement operation and it must be done soon. Fortunately for Marie, she lives in a community that has three accredited hospitals, each with a hip-replacement program. Her doctor informs her she can choose whatever hospital she wants, as he has privileges at each one. She quickly narrows the choice down to two hospitals, and ultimately decides on a hospital because U.S. News & World Report named it the best regional hospital for the fourth straight year. Marie thought it must be an excellent hospital for a prestigious magazine to name it the best in the region for four straight years.

Marie approached the date of her surgery with a great deal of apprehension. She was primarily concerned that the surgery would proceed as planned without any problems, and she was also concerned about healthcare-associated infections. When the surgeon visited with her on the morning of the surgery and asked if she had any questions, being the typical patient that hospitals treat, Marie would only be able to ask questions such as how long the procedure will take, and what the recovery period will be. Other than that, she just wouldn’t know enough about the healthcare environment to ask more in-depth questions.

If Marie had read further in the article in the U.S. News & World Report on the best hospitals in America, she would have learned that they evaluate hospitals according to 16 individual specialty lists. Twelve of the 16 individual lists showcase the 50 top-scoring hospitals, based mostly on death rates for patients who represent especially challenging cases; on patient safety; and on other measures of performance that can be assessed using hard data. An annual reputational survey of physicians, who are asked to name hospitals they consider the best in their specialty for difficult cases, is also factored in. Hospitals that are not nationally ranked in a specialty but have scores in the top 25% of the analyzed centers are recognized as high performing. A hospital that is ranked or high performing in at least one specialty is further recognized as among the Best Regional Hospitals within its state and metro area or similar region.

There are many other organizations that survey patient outcomes and attempts to rank hospitals, and they all seem to have their own niche in the industry. It is interesting to note that the very first to take notice and record patient outcomes was a prominent Boston surgeon named Ernest Codman, MD. In 1911, he created the “End Results Outcome” system which tracked the data on every patient treated, along with the diagnosis, the treatment he rendered, and the outcome of each case. This lead to astonishing results in the elimination of errors by physicians in the treatment of their patients. He was a founding member of the American College of Surgeons and its Hospital Standardization Program, which eventually became The Joint Commission forty years later.

All of these organizations seek to find relevant statistical data in which to appropriately evaluate the healthcare organizations. But for the most part, they do not examine and evaluate the actual physical environment, other than to determine the cleanliness and quietness of the hospital. Perhaps if Marie was better informed, she would have asked her surgeon when was the last time he participated in a fire drill inside the operating room. Or, she may have asked if the surgeon ever had a surgical-site fire during one of his procedures. Those questions are not asked by patients as much, if at all, because the patients are not informed by any of the evaluating organizations as to the safety of the physical environment.

It is not often that the results of a CMS survey are published in a major journal, but in the interesting case of the flagship hospital of the Cleveland Clinic Health System, Modern Healthcare magazine reports key issues from repeated CMS surveys in the June 9, 2014, issue. According to the article, in April 2010, CMS surveyors discovered that the hospital had six unreported operating room fires in an 11-month span, which resulted in an Immediate Jeopardy citation. An Immediate Jeopardy citation requires the hospital to immediately resolve the problem or face loss of Medicare reimbursements. On a subsequent inspection in July 2012, CMS surveyors found numerous fire code
violations that triggered multiple follow-up inspections.

Patients like Marie would likely not have a chance to utilize this critical information from a CMS survey in making her decision on which hospital to use. The multiple operating room fires and the fire code violations are not well-known to the public, and were not made so until Modern Healthcare decided to report it. Unbeknownst to most people, CMS does release the results of its surveys to the public through an obscure website. And while CMS does share survey results with the accreditation organizations, and vice versa; the accreditation organizations do not release the results of their surveys to the public. Ironically, during the four-year period between 2010 and 2013 that the Cleveland Clinic hospital was having multiple fire safety problems with CMS surveys, U.S. News & World Report still ranked Cleveland Clinic hospital in the top 10 of all the hospitals in the nation in 13 of 14 categories, one of which was patient safety. Had U.S. News & World Report taken the time to read the reports from the obscure CMS website, perhaps its evaluation of the hospital may not have been as high.

The sad truth is, Cleveland Clinic hospital is not that much unlike many other hospitals. While the six operating room fires in an 11-month period seems high and unusual, especially since the Emergency Care Research Institute estimates there are approximately only 200–240 operating room fires each year in the United States, most hospitals have had a fire in their operating room if they would admit to it. And nearly every hospital has some sort of fire code deficiency identified in its triennial accreditation survey. According to the Modern Healthcare article, there really is no penalty that the accreditation organizations can impart to the hospitals other than to withhold accreditation; which is rarely done. It is in its best interest to ensure its clients achieve accreditation through the rules and standards that it sets.

So, how does a potential patient make an informed decision about the safety of the environment if he or she does not have access to the accreditation decision reports? The quick answer is he or she doesn’t, and the truth is if he or she started asking questions about the hospital’s rate of surgical-site fires, and whether the fire alarm system had been tested recently, he or she may get some strange looks and nonanswers. If water-based fire protection sprinklers are the most effective feature of fire safety, then shouldn’t a patient have the right to know if the hospital he or she is having surgery in is fully protected with sprinklers?

It has been stated that the requirements of the fire safety codes are minimum standards, and for a hospital to be considered above average it will have fire safety features that are above the minimum requirements. If a hospital chooses to have fire safety features above and beyond what the codes require, shouldn’t a potential patient want to know that in order to help make a decision where he or she will have surgery?

The end result is that patients are very trusting of their hospitals. They expect that all healthcare providers will perform their jobs properly, efficiently, and according to codes, standards, policy, and protocol. Most patients don’t even think of the physical environment, other than if the air temperature is comfortable or their room is clean. But with many hospitals in America operating on a shoestring budget that has reduced the resources available for the facility manager to perform duties, what the patients don’t know would surprise them.

Informal, off-the-record conversations with facility managers across the country reveal many issues of noncompliance with basic fire safety codes. While most facility managers are working to resolve these deficiencies, many are not. They are aware of their deficiencies but have no resources to resolve them. Secretly, they are hoping the surveyors will find these deficiencies during their next triennial survey because if it is identified on the accreditation survey deficiency report, then the hospital administration will find the resources to allow the facility manager to resolve the problem. But rarely does a facility manager volunteer information to a surveyor that leads to a citation.

How did Marie make out with her surgery? Well, she is not the typical patient that hospitals see every day. When the surgeon interviewed her just before the surgery, she asked him if he uses any alcohol-prep products; and whether he holsters the cauterizing pen when not in use; and did he have any surgical site-fires in his past? This line of questioning surprised the surgeon; enough so that he cancelled the surgery and dismissed Marie as a patient and said he never wanted to see her again. So, Marie found another surgeon and decided to go to the other hospital in town where everything turned out just fine. I know this is true because Marie is my wife.
Questions & Answers

Each month, Senior Editor Brad Keyes, CHSP, owner of Keyes Life Safety Compliance, answers your questions about life safety compliance. Our editorial advisory board also reviews the Q&A column. Follow Keyes’ blog on life safety at www.keyeslifesafety.com for up-to-date information.

Upgrading from business to healthcare occupancy

We have an attached building which houses an ambulatory surgical center and the building is classified as a business occupancy. We want to convert it from business occupancy to healthcare occupancy so we can have overnight patient care sleeping accommodations. What should we be concerned about?

It is classified as business occupancy and you have an ambulatory surgical center in the building? That doesn’t seem right, but I’m glad you’re going to fix that problem. Construction type is one of the many issues that must be dealt with in converting a building from business occupancy to healthcare occupancy, but there are other issues to consider as well. The first thing that needs to be understood is, changing from business to healthcare means the building has to meet new construction requirements found in chapter 18 of the 2000 Life Safety Code®, not in chapter 19, which is for existing construction. Therefore, here is a quick summary of the things to investigate to ensure you are in compliance with chapter 18, mainly because these items may not be required in business occupancy. (Note: This is not an all-inclusive list):

• Construction Type requirements (as already noted).
• Occupant load factors are different for healthcare.
• Means of egress components are more restrictive for healthcare, such as fire escape stairs are not permitted.
• Means of egress doors have different locking arrangements that actually favor healthcare.
• Stair width for existing is 44 inches while the business occupancy building may have been constructed to lessor standards.
• Horizontal exits, while not required, if used in the renovated business occupancy cannot have any penetrations (duct, conduit, etc.).
• Corridor width MUST be 8 feet wherever inpatients are housed or treated, but may be 44 inches wide where inpatients would never be (such as a basement support services or administration).
• The minimum clear width of the doors in a means of egress is 41.5 inches, which is far wider than what you would find in a business occupancy.
• Healthcare allows the use of suites, both for sleeping arrangements and non-sleeping arrangements, which is a great benefit to the hospital.
• Dead-end corridors are only permitted to be 30 feet in healthcare while they are permitted to be 50 feet in business.
• Travel distances to an exit is less in a healthcare occupancy as compared to a business occupancy.
• Emergency lighting is required in healthcare.
• Protection from hazards is more restrictive with healthcare.
• Medical gases must be in compliance with NFPA 99 (1999 edition), which means a Level 1 piped system would have to be installed for a surgery.
• Interior finish requirements are more restrictive, but this is not usually a problem.
• A fire alarm system is required, with more devices and appliances than what a business occupancy would require.
• The entire building would have to be sprinklered with quick response sprinklers.
• Corridors in healthcare are required to be separated from all other spaces, while there is no requirement for corridors in business.
• There are multiple examples where spaces may be open to the corridor in healthcare that the hospital may take advantage of.
• Corridor walls have construction requirements.
• Corridor doors have certain requirements.
• Healthcare requires each floor to be subdivided into at least two smoke compartments and there are specific construction requirements for the compartment barriers and doors.
• Utilities must comply with section 9.1, which includes gas, electrical, and emergency power.
• Healthcare facilities must have Level 1 emergency power as described and prescribed in NFPA 99. This requires significant changes to life safety branch and critical equipment branch, which business occupancies would not have to comply with.
• The healthcare facility must have evacuation plans and relocation plans and fire drills once per quarter per shift.
• Combustible decorations are not permitted in healthcare.
• Portable heating devices are not permitted in patient care areas.

That’s just a quick list of things but I’m sure there are more items in greater detail that you would need to comply with as well. As you can see, this is a large undertaking to convert a building that was never intended to be a healthcare occupancy into a hospital. Most organizations choose to build a brand-new building when they realize the cost in converting an existing building.

Smoke detection

Q Are we supposed to have smoke detectors in the corridors of our hospital? I see the Statement of Conditions™ ask if we have smoke detectors in our corridors, which leads me to believe it is a requirement that we need to meet.

A That depends on other factors. The Life Safety Code does not require smoke detectors in hospital corridors, although it does require them in limited care facilities corridors with some exceptions. However, your local or state authorities may have regulations that require the smoke detectors in corridors. Also, if you have an equivalency approved by an AHJ, it’s possible that one of the compensating measures was to install smoke detectors in the corridors. So, while the Life Safety Code does not require smoke detectors in the corridors of a hospital, other factors may. That’s why the Statement of Conditions is interested in knowing if you have them.

Quick response sprinklers

Q We completed our hospital sprinkler installation in 1994, and most of the sprinklers that were installed were quick response sprinklers. Now I hear at an ASHE conference that we need to replace all of these sprinklers. I thought we had 50 years before we replace them. Why do we need to do that so soon?

A NFPA 25 (1998 edition), section 2-3.1.1 requires quick response (QR) sprinklers to either be replaced or have a sample size tested, 20 years after installation. The sample size is a minimum of four sprinklers, or 1% of the individual sprinkler sample installed, whichever is greater. If just one sprinkler in the sample size fails, then all of the remaining sprinklers have to be replaced. If the samples pass, then the QR sprinkler must be re-tested every 10 years thereafter. Most hospitals find it more cost-effective to just remove all the QR sprinklers and replace them with new ones every 20 years. Comparatively, standard response sprinklers do not have to have a sample size tested until 50 years after installation. But the Life Safety Code requires QR sprinklers (or residential-style sprinklers) in smoke compartments containing patient sleeping rooms. QR sprinklers and standard response sprinklers are not allowed to be installed within the same four walls (room, area, hallway). You cannot ‘mix’ QR with standard response sprinklers, because they will not respond the same in the event of a fire. The QR sprinklers may discharge quicker than the standard response sprinklers, which may actually prevent the standard response sprinklers from activating at all. Surprisingly, I find this problem frequently.
Quick Tip:

**NFPA 25 documentation required for inspection and testing of sprinkler systems**

<table>
<thead>
<tr>
<th>Devices/function</th>
<th>Frequency</th>
<th>NFPA Standard</th>
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Quiz questions

1. (T) (F) Owensboro, Kentucky is the home of the world’s first college course regarding the Healthcare Facilities Leadership program.

2. (T) (F) The Healthcare Facilities Leadership program is taught by the ASHE regional chapter, the Kentucky Society of Healthcare Engineers.

3. (T) (F) The Healthcare Facilities Leadership program prepares students for the American Hospital Association’s Certified Healthcare Facilities Management (CHFM) exam.

4. (T) (F) Randy Snelling of DNV-GL says the accrediting organization changes standards and writes new requirements every year.

5. (T) (F) Snelling says if CMS allows one of the two emergency drills each year to be a tabletop drill, then DNV-GL will not adopt that.

6. (T) (F) Snelling says partially full oxygen cylinders must be considered as empty when planning for storage.

7. (T) (F) When upgrading an existing building from business occupancy to healthcare occupancy, it is permissible to use the existing healthcare occupancy chapter 19 in the Life Safety Code®.

8. (T) (F) Quick response sprinklers must be either replaced or sample tested 20 years after installation.

9. (T) (F) Snelling is the chief physical environment officer at DNV-GL Healthcare, Inc.

10. (T) (F) Jim Klauber is the Owensboro Community & Technical College program director for the Healthcare Facilities Leadership program.

A supplement to Healthcare Life Safety Compliance
1. True.

2. False. The Healthcare Facilities Leadership program is taught by the Owensboro Community & Technical College.

3. True.

4. False. Randy says DNV-GL does NOT change its standards or write new requirements.

5. True.

6. False. Randy says DNV-GL follows NFPA 55, which says a partially full cylinder must be considered full when planning for storage.

7. False. When upgrading an existing building from business occupancy to healthcare occupancy, you must meet the requirements of new healthcare occupancy, chapter 18.

8. True.


10. False. Mike Canales is. Jim Klauber is the president of the college.