

HEALTH FACILITIES[®]

THE OFFICIAL MAGAZINE OF THE AMERICAN
SOCIETY FOR HEALTH CARE ENGINEERING

MANAGEMENT



Tools for compliance

Resources help hospitals stay on top of regulatory issues

CONTENTS

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FEATURES

COVER STORY

20 Tools for compliance
Resources help hospitals stay on top of regulatory issues.
BY JEFFREY STEELE

SPECIAL REPORT

26 Improving efficiency and earning accolades
Owensboro Health Regional Hospital receives ASHE Excellence in Health Care Facility Management Award.
BY ERIK J. MARTIN

INFRASTRUCTURE

30 Change in the air
Recently proposed or approved updates to health care ventilation standard.
BY AARON L. JOHNSON AND MICHAEL P. SHEERIN

PLANNING

34 Engineering master planning
Maximizing system effectiveness and minimizing costs.
BY KRISTA MCDONALD BIASON, MARK BULTMAN AND JEFF W. HARRIS

MARKETPLACE

38 Patient education and entertainment systems
New applications and modalities serve patients and staff.
BY NEAL LORENZI

COMPLIANCE+OPERATIONS

42 Asset risk management systems
Developing the tools to survive a compliance survey.
BY RYAN SCHRAMM

ENVIRONMENTAL SERVICES

45 Science-based cleaning
An effective and system-changing capstone project.
BY JOHN SCHERBERGER

ON THE COVER // Image by Getty Images

DEPARTMENTS

- 2 INSIDE HFM //** Getting back to basics.
- 4 ADVOCACY ADVISER //** Proactively changing codes and standards.
- 5 MY ASHE MESSENGER //** Questions and answers on heliport testing and laundry equipment maintenance.
- 6 DESIGN DISCOVERIES //** Can design influence nurse well-being?
- 8 UPFRONT //**
 - California health facilities evaluate power options amid outages.
 - Study: Opinions differ on UV devices.
 - Smart room tech streamlines care.
 - Hospital recruits dual-trained K-9.

PLUS

- **ASHE Tools** Two easy steps to get involved in code development.
- **Checklist Codes+standards**
- **ASHE and AHE Insights** New programs and resources to help members.
- 12 INTERVIEW //** Gary Hamilton of ASHE's new diversity and inclusion task force discusses his passion to give back to his community.
- 14 SOLUTIONS //**
 - PRODUCTS** "On Our Radar," Automated Disinfection Systems and Computerized Maintenance Management Systems.
 - FIELD REPORT** Using PCM to improve patient comfort.
- 47 ADVERTISER INDEX //**
- 48 ARCHITECTURE SHOWCASE //** Blending the old with the new at Buchanan County Health Center in Independence, Iowa.

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Getting back to basics



Jeffrey E. Henne
FASHE, CHSP-
FSM, CHEP, CHC,
ASHE President

Welcome to a new year of *Health Facilities Management!* I'm excited to invite you to explore this issue and to share how proud I am to be leading the American Society for Health Care Engineering (ASHE) in 2020. ASHE covered a lot of ground last year, and I'm looking forward to keeping up the momentum — and I also want to make sure we are building on solid foundations.

Sometimes, we can get so focused on others' safety that we can let our own team's safety slip. My vision focuses on getting back to the basics of safety and emergency management. This is a goal I have for ASHE and for my own staff. It is important that we don't forget the safety of our own team members when we think about the safety of our patients and visitors. During this year, I hope to identify upcoming trends in safety and investigate best practices for approaching them.

I want to develop new simple and effective safety management tools and resources that ASHE members can use to take care of their own. ASHE is focused on meeting member needs even as they change over time, and I encourage you to let us know what your needs are and to get involved.

One great way to get involved is by checking out our volunteer opportunities page on ASHE's website at www.ashe.org. You should also check out the awesome resources that ASHE already has, like our upcoming 2020 education programs, the PDC and Annual conferences, the My ASHE online community, our many publications and the magazine you're reading now.

With these new and ongoing resources, our members will continue building toward recognition as experts in the field and leaders in their own facilities and others. In this issue of *Health Facilities Management*, for instance, you'll read about the winners of the ASHE Excellence in Health Care Facility Management Award. I want the competition for that award to grow every year, and I want to provide the tools to make that happen.

Happy new year, *Health Facilities Management* readers — let's make it one for the books!



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From left: HVAC mechanics Joel Matthews, John Jones and Tyler Embry using the surgery dashboard to review temperature, humidity, pressure and air exchange rates.

Improving efficiency and earning accolades

Owensboro Health Regional Hospital receives ASHE Excellence in Health Care Facility Management Award

BY ERIK J. MARTIN

After Kentucky-based Owensboro Health Regional Hospital (OHRH) opened a brand-new replacement facility in 2013, the organization discovered that it was more expensive to heat, cool, illuminate and power its campus than originally estimated.

Thus began a five-year effort to enhance energy efficiency and reduce utility expenses while improving patient care, safety and comfort. Not only did the hospital achieve its goals, but, along the improvement journey, OHRH

earned respect from its peers in the industry, attention from the press and several accolades.

These include ASHE's 2018 Energy to Care award; a prestigious ENERGY STAR® rating; and the 2019 ASHE Excellence in Health Care Facility Management Award, which recognizes individuals or facility management departments that implement new or innovative programs or processes to optimize the physical environment and improve patient care.

Path to progress

Joseph Taylor, FACHE, SASHE, CHFM, executive director of facilities for OHRH, says the truth reared its ugly

IMAGE COURTESY OF OWENSBORO HEALTH REGIONAL HOSPITAL

head about one year after opening the 788,000-square-foot, nine-story hospital and Level II trauma center that houses 477 patient beds.

“Once we began benchmarking our energy consumption, it became pretty obvious to us that we were wasting money on utility expenses,” Taylor says. “The early data gathered in 2014 showed that we were below the 25th percentile in energy efficiency compared with our peers. That was a shock to us because we thought that, by moving into a new hospital with cutting-edge equipment, we’d be operating extremely efficiently.”

While most of the equipment was up to snuff, “we found that we weren’t being good stewards of our resources, which includes our brainpower. Our facility leadership team knew we could do better,” he says.

Adding extra urgency was the fact that utility rates in the region for electric, gas and water were quickly rising.

“The time had come where we needed to dig deeper and explore some opportunities for improvement,” Taylor says.

OHRH assembled an internal team of facilities management specialists and enlisted the help of Harshaw Trane, a Louisville-headquartered energy engineering and consulting company. Collectively, they employed monitoring and analytics tools to identify areas where energy efficiency was lacking.

“When we began, the facility’s ENERGY STAR score was only 23,” says Eric DeLodder, energy engineer with Harshaw Trane. “We started to investigate each system from top to bottom — including the air handlers, chilled water pumps and variable air volume boxes — looking for key opportunities to save energy.”

Christy Fetsch, Harshaw’s Intelligent Services account manager, says the group worked closely with individual department heads and went floor to floor scouring for inefficiencies.

“This required buy-in from the clinical side, as well. We were looking for improvements we could make without impacting the quality of care,” she says. “In particular, we were trying to identify areas where we could tighten start-and-stop-time schedules for mechanical and electrical systems and equipment.”

This ambitious initiative would have to proceed with minimal financial investment. That meant refining and fine-tuning existing infrastructure because replacing

or upgrading most of this equipment would be cost-prohibitive.

“In health care, everybody is scrambling for capital dollars in a very restricted market. We wanted to be able to demonstrate that we could do the majority of these efforts and make an impact without spending very much money,” Taylor says. “So we went after the low-hanging fruit and the areas where we could generate the biggest savings the fastest.”

Taylor and crew also set key objectives that aligned with these intended efforts. The first was to return money to the hospital’s bottom line — savings that could be funneled right back into patient care. The second involved improving the environment of care for OHRH patients, staff and visitors. The third was to improve employee engagement, foster a spirit of collaboration among co-workers, encourage creative ideas and inspire staff to continue to seek out further energy efficiency improvements. The fourth goal came later after the team realized the impact their improvements were having: Apply for and earn ENERGY STAR certification. They set a five-year timeline, between 2014 and 2019, to reach these aims.

Finding and fixing

“We started out with a daunting task,” says Jim Morris, CHFM, OHRH’s manager of facilities maintenance and engineering. “But once our people started seeing some rewards from their efforts, it sparked a fire. They were coming into our offices and saying, ‘what if we did this or tried that?’ We learned that to get staff engaged, you’ve got to show them how they can make a difference.”

To identify energy-consuming culprits and gauge progress on improvements made, the team relied on a number of macro and micro benchmarks it continually measured.

“At the macro level, we used the Energy Usage Index (EUI) to determine if we were improving each month,” DeLodder says, adding that EUI is a calculation of the total amount of energy consumption for the building divided by the square footage of the facility. “This facility has a lot of new equipment and new controls, so there was data to be found everywhere. We were able to harness and leverage that data across all the systems and then sit down on a quarterly basis and map out where we were seeing

Patient and staff benefits accrue

In addition to earning substantial savings on energy consumption and lowering its carbon footprint, Owensboro Health Regional Hospital (OHRH) enhanced patient care and comfort as well as staff safety as a result of its energy efficiency improvements — creating a win-win for everyone involved.

“At the start of our journey, we instituted a ‘Quiet at Night’ program in our hospital with the goal of reducing noise pollution in our patient care units overnight,” says Joseph Taylor, FACHE, SASHE, CHFM, OHRH’s executive director. “In tandem with this clinical initiative, we had our electricians change the lighting systems so that the lights in our patient units dim automatically at 10 p.m. every night until 5 a.m. the next morning. The 10 p.m. diminishing of lighting levels reminds staff that it’s time to be quiet. That helps our patients enjoy a more restful and healing sleep.”

What’s more, OHRH customized the thermostats in patient rooms so that patients can raise or lower their own room temperatures to their desired comfort level, within a set range. “Patient care comes first, and it’s important for their environment to be comfortable. Letting them control their own thermostats also reduces the need for our HVAC staff to run from one room to another upon request to adjust the temperature,” Taylor says.

But the improvements didn’t stop there. By switching to LED lights in the parking lot, OHRH improved safety conditions for maintenance staff. Also, they reduced premature lighting failure incidents. “Now, the wiring no longer carries the massive amperage it did before, which was a safety issue,” Taylor says. “And because LED lights have a longer lifespan, there’s less risk involved because you don’t have to get up there and replace them as often. The lights are now on when they need to be with less maintenance required.” ■



The facilities team at Owensboro Health Regional Hospital joined by Executive Vice President and CFO John Hackbarth (back row, center).

Kentucky hospital earns top honor for health facilities performance

Winning entry

Project: Journey to ENERGY STAR®
Facility: Owensboro Health Regional Hospital
Start date: August 2014
Completion date: April 2019
Cost: \$121,575

Project team

Joseph Taylor, FACHE, SASHE, CHFM, executive director of facilities
Jim Morris, CHFM, facilities maintenance and engineering manager
David Keller, engineering supervisor
John Jones, HVAC mechanic
Tyler Embry, HVAC mechanic
Joel Matthews, HVAC mechanic
Eddie Mattingly, electrician

Tom Bickwermert, electrician
Barry Mullen, electrician
Scott Johnson, plumber
Joe Barlow, plumber
Eric DeLodder, energy engineer, Harshaw Trane
Scott Jarvis, Intelligent Services systems analyst, Harshaw Trane
Christy Fetsch, Intelligent Services account manager at Harshaw Trane

inefficiencies. From there, we created action plans to address those inefficiencies and improve overall functionality, system by system.”

“One area we had an opportunity to improve was using free outdoor air to help condition our spaces. This required addressing the chilled water system and the air handling system to ensure efficiency while maintaining system reliability. This generated huge energy savings,” says John Jones, staff HVAC mechanic. “Now, we have several air handling units that can actually use outside air below 50 degrees to cool a space without having to pay for energy to chill that water.”

But not long after the initiative started, the group learned that having reliable new green equipment in place wasn’t enough.

“This newly built facility was designed to be very energy efficient. But once you occupy it, it’s really about how you

operate it. That’s where we found plenty of room for improvement,” Fetsch says.

Case in point: The hospital’s 16 surgical suites were proving to be major energy hogs. “Providing 20 or more air exchanges and cooling or heating 750-square-foot operating rooms around the clock, whether they are in use or not, is really expensive. You typically don’t want to mess with your organization’s operating rooms. But we met with the OR staff, surgeons and senior leadership to demonstrate how we could make energy improvements safely there,” Taylor says.

The agreed-upon solution was to implement set-back programming and occupancy sensors in most of the ORs that could slow down the air handlers and reduce the air exchanges when the suite was not in use but restore these quickly – within three minutes – when the sensors detected motion or activity.

The motion sensor solution didn’t stop there. OHRH implemented occupancy sensors, time clocks, and other lighting and HVAC controls in many rooms across the building. “We even put motion detection lighting in our stairwells. Most organizations light these areas around the clock but we decided to make our stairwell lighting occupancy-based,” Taylor says.

And for even more efficient illumination, fluorescent bulbs and fixtures were swapped out hospitalwide with LED replacements.

Additionally, OHRH instituted real-time monitoring; now, if equipment fails, Harshaw Trane can notify the facilities department virtually immediately so that repairs can be fast-tracked.

“The process to achieve ENERGY STAR required the efforts of the entire team – all of the facilities staff, electricians, plumbers, HVAC technicians and

IMAGE COURTESY OF OWENSBORO HEALTH REGIONAL HOSPITAL

maintenance mechanics,” says David Keller, engineering supervisor. “Their combined efforts, along with their different perspectives on ways to shave energy usage, gave us the pieces to the puzzle. The challenge was to assemble the pieces in the correct order to accomplish the goals quicker.”

Keller singled out the OHRH food and nutrition services department as a particularly valuable partner.

“As the word spread about our goals and our efforts to achieve ENERGY STAR, the food and nutrition services department jumped on board. Dietary leadership and staff were very vigilant to make sure ovens, stoves, deep fryers and vent hoods were shut off at the end of each day.”

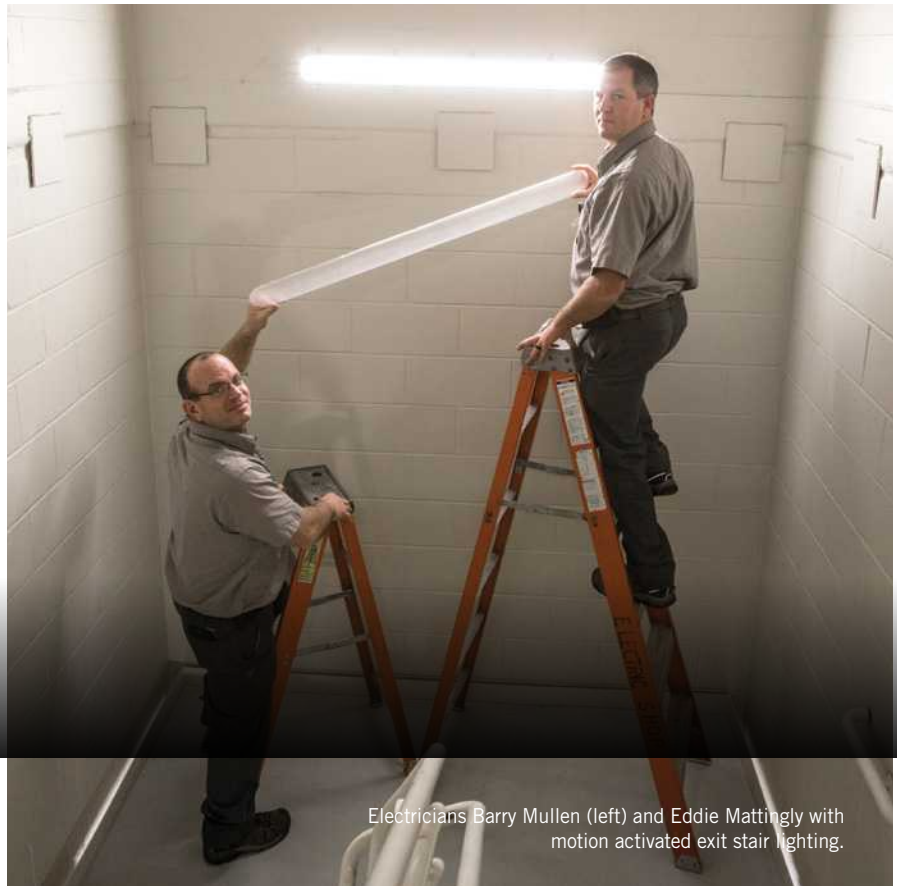
Strength in numbers

OHRH’s efforts paid off. Five years after the campaign started, the hospital has decreased the cost of energy to the organization by over \$2 million (24%), prevented the emission of more than 13,788 metric tons of carbon dioxide, saved 18 million kWh of energy, conserved nearly 100,000 MCF of natural gas, reduced its EUI from 289 to 218, and raised its ENERGY STAR score from 23 to 78.

“And we’re not stopping there. There are further energy enhancements coming, and our goal is to retain ENERGY STAR certification annually and continue returning money to the hospital,” Taylor says.

One previously unexplored avenue the OHRH team is eager to incorporate is combined heat and power, also known as cogeneration, which uses various fuels to generate electricity or power at the point of use. This allows heat that would normally be lost in the power generation process to be recovered to provide needed heating and/or cooling.

“There’s nothing a committed organization can’t do when it applies brainpower and willpower. If you can harness those qualities in your team, there are always opportunities for energy savings,” Taylor says. “A lot of hospitals out there have zero money to invest in infrastructure. But if you assemble a quality team and are committed to benchmarking yourself against the marketplace by using ENERGY STAR Portfolio



Electricians Barry Mullen (left) and Eddie Mattingly with motion activated exit stair lighting.

Manager and other metrics — which often require no cost and very little effort to get that data — you can begin to identify energy-saving opportunities.”

Shay Rankhorn Jr., SASHE, CHFM, CHC, vice chair of the task force that selected OHRH for the 2019 Excellence in Health Care Facility Management Award, says this effort to continually improve underscores the hospital’s effectiveness and commitment.

“What they’ve done is remarkable and sustainable,” Rankhorn says. “And they continue to measure their efficiencies and make improvements, which will only increase the savings they earn.

Plus, the fact that they included facility managers and caregivers to make this happen shows how team minded they are and what can be accomplished when your entire facility works together to achieve a goal.”

Terry Scott, CHFM, CHC, notes that OHRH faced strong competition in the

field of applicants, “but they ran away with the award. It was a unanimous decision by our committee. Consider that there are only about 70 ENERGY STAR-rated hospitals in the entire country; it’s not an easy feat to achieve.”

Taylor, who says he’s personally humbled by the ASHE honor bestowed on the hospital, credits Owensboro Health President and CEO Greg Strahan and Executive Vice President and CFO John Hackbarth for supporting and encouraging his team during their efforts.

“Greg and John gave us the freedom to go for it,” Taylor says. “We also need to thank the many HVAC mechanics, electricians, plumbers, clinical staff and housekeeping staff involved, some of whom started with us back in 2014 but have since retired or gone on to other jobs.

“We couldn’t have accomplished this without everyone’s collective assistance,” Taylor concludes. **HFM**

ASHE RESOURCE

i American Society for Health Care Engineering members can download the monograph “Reducing Operational Costs Through Energy Efficiency” by logging on to www.ashe.org/cost.



Erik J. Martin is a freelance writer based in Oak Lawn, Ill.