

ISHE ISSUES

Publication by and for the
Healthcare Engineering Industry

Q3 2006

FEATURES IN THIS ISSUE

Hagerman Construction Builds First LEED for New Construction Certified Building in Indiana
A Deployable and Scalable Asset Management System
Meyer Najem Completes the Riverview Hospital Emergency Department Addition
Meyer Najem Begins Construction on Scheck Medical Center and Schneck Cancer Center
Hope is on the Way in New Orleans
Designers Use Hill-Rom to Create Healing Environment
Fire Safety Systems Save Lives Only if Kept In Good Order
Cost Savings Through Better Safety

**FEATURE ARTICLE: NEW \$65 MILLION HEART & VASCULAR CENTER
OPENS IN NEW ALBANY ...see page 14**



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Wanted: Articles

If you would like to contribute an article and photos to the next issue of ISHE Insights, please contact Steve Thurston at sthurston@indy.rr.com. Materials would be due by December 22, 2006.

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About ISHE ISSUES

ISHE ISSUES is a quarterly publication by and for the Healthcare Engineering Industry.

Our goal is to promote communication between members and to facilitate the exchange of information for the betterment of our Society and of our Members.

ISHEweb.org's goal is to promote communication between members and to facilitate the exchange of information to those interested in becoming a member. You also have access to an electronic copy of ISHE ISSUES, our quarterly newsletter, as well as an updated Calendar of Events. For more information, log on to isheweb.org.

Opinions expressed in articles are those of the authors, not necessarily those of the Advisory Board of membership.

Credo

The members of ISHE continually strive to live up to the motto, "Quality Healthcare Through Engineering Excellence."

That quality and excellence is best achieved in an environment of teamwork and cooperation between the professionals entrusted with attaining the overall goals of healthcare organizations and of the individual institutions that we serve.

That a continuing program of skills enhancement is important, and participation of individuals working together will improve the standards and performance of all in the group.

That the application of advancements in our field, coupled with conscientious attention to the costs of operation is necessary to achieve maximum efficiency in the carrying out of our duties.

That we have responsibility to the public to provide safe and dependable institutions dedicated to the highest ideals of patient care, and to foster this image in community relations.

That the collective interchange of knowledge and experience, couple with the individual integrity of the membership, will make ISHE an effective means of advancing its members in their profession.

Mission Statement

The mission of the Indiana Society for Healthcare Engineering is to promote the professional role of the healthcare engineering professional and advance the development of health care engineering through effective communication, educational opportunities and establishment of professional standards.

Meyer Najem Completes the Riverview Hospital Emergency Department Addition



In July of this year, Meyer Najem construction completed work for the Riverview Hospital Emergency Department. Riverview Hospital had reviewed a market analysis of the area. Hamilton County is in the midst of a population boom. With the rapid increase in Hamilton County's population, the hospital found it a necessity for a new Emergency Department. This much-needed addition consists of 74,260 square feet of new construction and stands four stories tall and includes a penthouse to house utilities. The new Emergency Department will offer comprehensive, state-of-the-art care for the Hamilton County and surrounding counties. The new addition also allows for future growth.

Site work on the Riverview Hospital Emergency Department Addition began in December of 2004. The original design had included a basement level. During Pre-construction, the Owner deleted the basement that was originally included in the scope. Meyer Najem provided value engineering by advising the Hospital that it would be more cost efficient to delete the basement and add two additional floors and a penthouse unit. This space would be a better value for their dollars. The penthouse was also added to enclose the air handling unit. Because of the parameters of the existing hospital with utilities and existing building, the cost of

a basement would have been extremely costly. By adding more floors, the price per square foot decreased and they would have more options with the future tenant build-outs.

The first phase included the relocation of all utilities; including electric, sewer, and gas. This was a fast-track phase that needed to be complete before construction of the addition could begin.

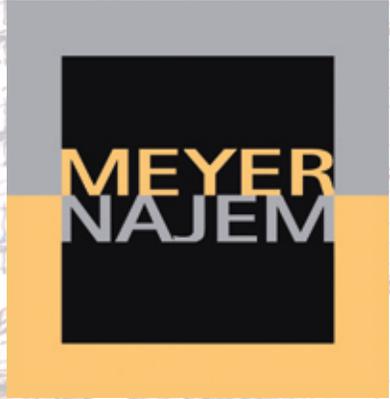
The existing Emergency Department parking lot was demolished and a new parking lot and entrance was made so the Department could stay in operation. This effected traffic flow and patients needed to be re-routed. The daily operations within the existing Emergency Department continued without interruption.



The first floor includes 10 acute care treatment rooms, 6 express care rooms, 2 major resuscitation rooms, triage, support office, and restrooms. The front entry includes an enlarged canopy with radial glass window at the entrance. The waiting room includes segmented walls and custom finishes. The high-end finishes in the waiting area includes ceramic tile, glass walls, decorative tiles, canned lighting, and circular bulkheads. Circular casework was incorporated into the design of the Nurses Station. Patterns were created in the laying of the sheet vinyl.

The nurse's station is very large in comparison to a typical station. It was built as a request of the staff to accommodate future growth.

The second floor includes 21,190 square feet of finished space, and 2,260 square feet of shell space, totaling 23,450 square feet of new construction on the second floor. The third and fourth floors include a total of 38,530 square feet of shell space for future growth.



MEYER
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Meyer Najem Begins Construction on Scheck Medical Center and Schneck Cancer Center



Meyer Najem has broken ground on the Schneck Medical Center Expansion and Renovation and Schneck Cancer Center. The hospital expansion, located in Seymour, IN, will include the construction of a new five story addition with expanded diagnostic and outpatient treatment facilities with a two story lobby and elevator tower. The area of new construction and renovation totals 237,909 square feet of effected construction.

The Schneck Cancer Center will be ground up construction located across the street from the hospital. The two story structure will be approximately 24,000 square feet. Construction consists of structural steel, slab on grade and slab on deck, with the second floor being shell space only. The Cancer Center will feature a linear accelerator vault, one elevator, fountains, high end finishes, porcelain tile floors, library, skylights, and a fireplace. The linear accelerator will include a starry sky made through the use of fiber-optic lights in the ceiling.

The total square footage of construction will be 261,399, and will be completed in 2009. The total cost of the project is estimated to be \$48,000,000.

A Deployable and Scalable Asset Management System

It's understood that hospitals are under immense pressure to cut costs, provide a robust infrastructure and comply with government standards for Medicare and Medicaid patients. Management needs to do more with less and allocate all costs accurately just to stay one step ahead. The competition for hiring and retaining the top medical talent is also driving reliability. The demand for return on investment combined with the ever-growing basket of potential projects means management needs real data to make informed decisions.

So what's the new trend? Actually, I don't see a new acronym on the horizon. We've seen asset management evolve from paper-based, to computer-based, to Enterprise Asset Management (EAM). Within the latter, there are software firms that focus

exclusively on EAM by integrating multiple systems to increase asset availability and drive other operational efficiencies. These solutions are available today, and could very well dovetail with the scalable approach described here. So what's different?

In Figure 1, please find an illustration. The system was conceived from primarily an operator's perspective. A phased implementation is illustrated in Figure 2. As functionality increases in subsequent phases, tools are added to assist management in cost allocation and asset optimization. The reason for this approach is two-fold. First, it can be deployed quickly and low-hanging fruit can be captured. The early success will build momentum toward execution of the latter phases, which will likely require more input from the operations team. Second, the initial cost is quite low, and the cost of later phases is scalable to meet the need.

Before highlighting what such a system can provide, it may be useful to understand what it doesn't provide. As with some EAM offerings, the system in Figure 1 does not attempt to assist with strategic space planning, lease management, space usage, equipment tracking or regulatory compliance. However, it should be noted that the proposed system could dovetail within this larger and holistic asset management solution. The HMI, DCS or SCADA portion of Figure 1 was purposely omitted to allow for a multitude of options ranging from simple to more complex. The proposed system was built around some fundamental best practices that include:

Add Visibility and Use What's Already There

The intent is to leverage the trend of low-cost distributed I/O within an open-architecture Ethernet-based network and a web-based server to monitor asset condition. It's best to stay simple with analog and discrete I/O to remain flexible (ex. wireless) and avoid software driver issues. Modbus® open protocol should be used if serial communications are necessary. Migrating to condition-based maintenance alone will provide a significant ROI.

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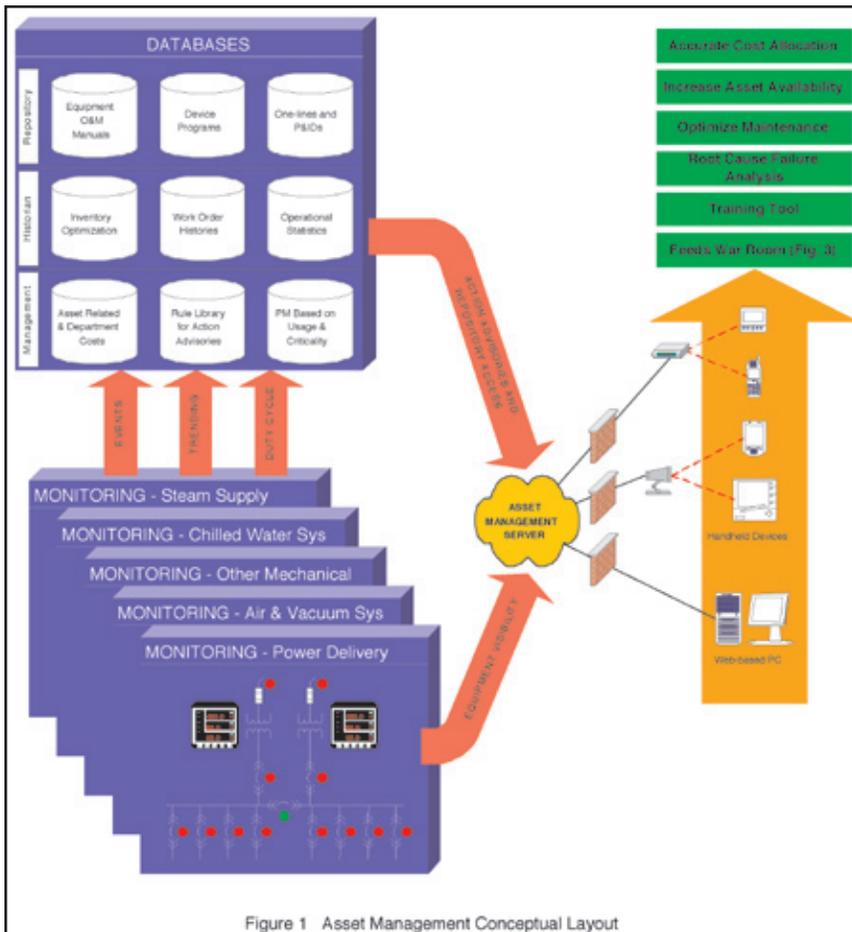


Figure 1 Asset Management Conceptual Layout

able phases with each phase being able to cost justify itself in case subsequent phases are delayed or cancelled.

Stay Vendor Independent

Ideally, the system will include best-in-class components (i.e. Repository, Historian, I/O, HMI software) and allow for competitive bidding. A key criterion is ease of maintaining and expanding the system without ongoing vendor site services. The server would be OPC compliant to maximize software options.

Actionable Information Advisories®

This is a phrase used by Bently Nevada, who specializes in monitoring rotating equipment. In a generic sense, it's pre-configured, model-based logic and equations with usable outputs. Experienced hospital operators in collaboration with equipment OEMs would develop a rule library within an easy-to-use, rule developer/publisher. Whenever the conditions for a rule are met, a specific advisory

Many facilities already have digital meters and relays with serial communications capability. Regarding meters, why not migrate from “sneaker-net” (walk around with clipboard) to Ethernet?

Add A Data Repository

All support documents would be digitized including such things as O&M manuals, one-line diagrams, VFD configurations and relay programs. Among other reasons, this effort is worthwhile when one stops to consider that manufacturers are opting more and more to ship whole replacements in warranty situations. The traditional parts-only warranty does not cover “in and out” costs, so the end user is responsible for configuring the replacement device. Within the proposed system in Figure 1, the archived configuration can often be downloaded directly from the database to the replacement device once connected the network.

Keep Scalable with Natural Breaks

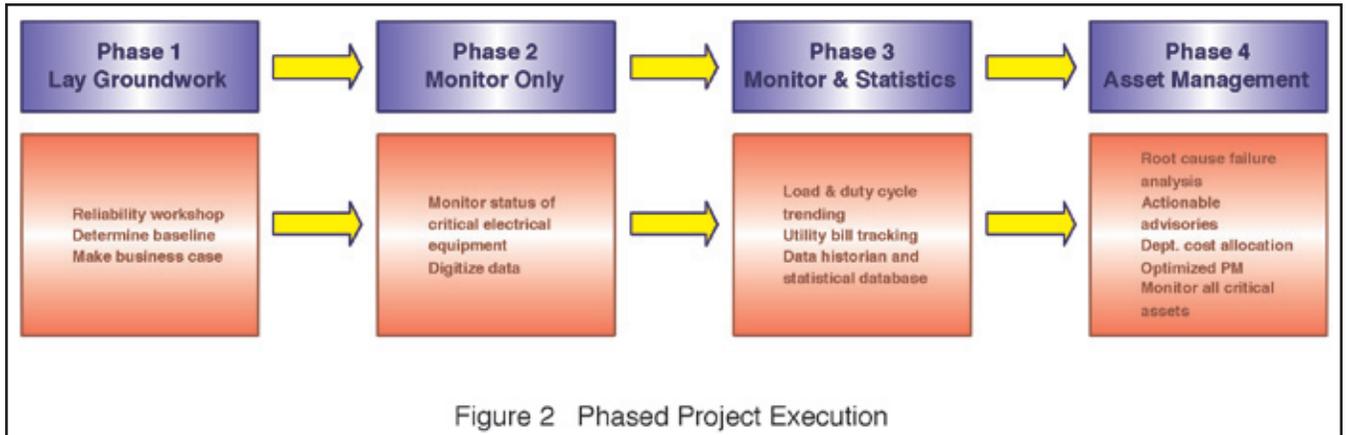
As illustrated in Figure 3, it's best to keep the project in manage-

would be electronically distributed to the most appropriate resources including external experts if needed (remote diagnostics). Such vehicles can provide rapid application of expertise both within and outside the hospital. Prior to activating a rule, the system should enable testing to validate the result by inputting historical, current or simulated data. The goal is to imbed knowledge and drive outputs to improve efficiency, reduce downtime and train personnel.

Best Practice Archiving

Special care should be taken to involve the operators in the system development. With this in mind, a limited number of data fields should be inserted into the work order process to enable best practices to be captured and repeated. Some best practices may become the basis of an automated advisory.

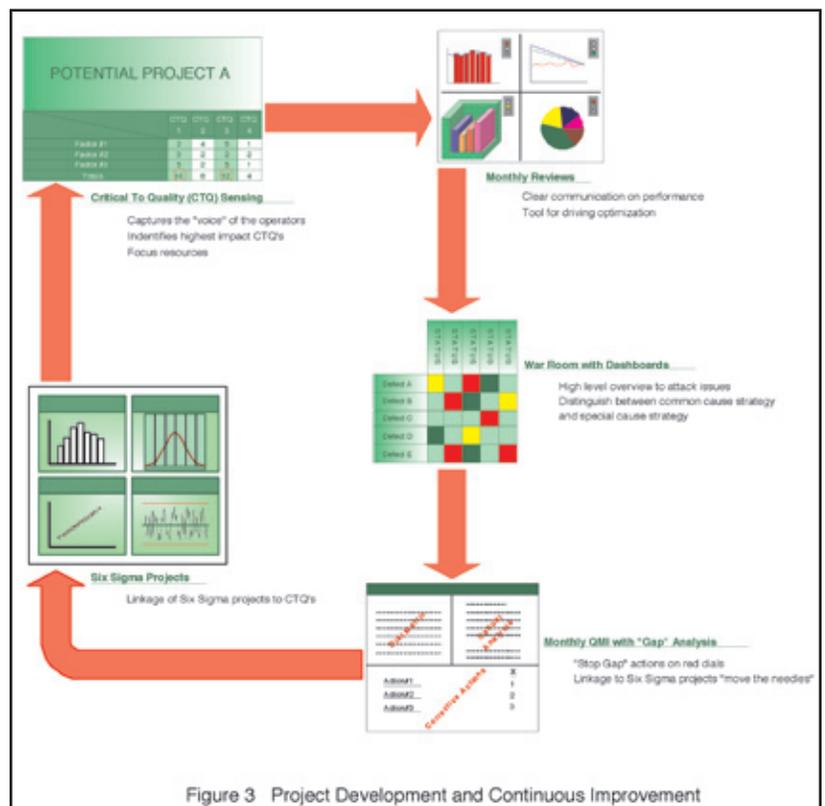
These last two components will likely require an internal champion and/or experienced third party to drive the development, which starts with the internal Reliability Workshop.



Everything to this point has focused on operations and impact on the MRO budget. Can the proposed system be leveraged to help with capital budgeting decisions? In short, yes it can, but it's only a tool within a broader process. As shown in the upper right of Figure 1, one of the benefits is that a "War Room" mentality can be cultivated for continuous improvement. In Figure 3, one such process built upon a Six Sigma methodology is illustrated.

Designing an asset management system that integrates condition-based monitoring, automated advisories and a data repository within an open, agile and scalable architecture is not out of reach.

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Hagerman Construction Builds First LEED for New Construction Certified Building in Indiana



INDIANAPOLIS – Isaac Ray Treatment Center, built by Hagerman Construction Corp., recently became the first building in the state of Indiana to receive LEED for New Construction certification. The Logansport Treatment Center is also the first government sector healthcare facility in the country to receive the honor awarded by the U.S. Green Building Council. LEED certification recognizes Leadership in Energy and Environmental Design.

“We are extremely proud Hagerman was the general contractor for the first LEED for New Construction certified building in our state,” said Jeff Hagerman, Executive Vice President of Hagerman Construction Corp. “This certification is the industry-recognized standard for green building.”

Indiana Governor Mitch Daniels also noted the honor given to the forensic psychiatric hospital, calling it a “great achievement” in a state-issued news release.

Isaac Ray earned LEED Silver certification. LEED offers four levels of certification: Certified, Silver, Gold and Platinum, each level awarded according to specific design and environmental criteria.



“The Isaac Ray Treatment Center is to be congratulated for receiving the LEED certification as the first LEED for New Construction certified project in the state,” said Rick Fedrizzi, President, CEO & Founding Chair, U.S. Green Building Council. “The Isaac Ray Treatment Center will be a showcase for high-performance, energy-efficient, healthy buildings, and an inspiration for others in the state of Indiana.”

Two elements that contributed to the building’s ability to achieve LEED certification were the efforts made to reduce energy consumption and increase recycling. The Treatment Center’s yearly energy consumption is 20.7% less than an average facility of its type, resulting in an annual savings of \$40,000 each year for the life of the facility. Of the 7,496 tons of construction waste generated during the project, nearly 90% was recycled.

Construction began on the 113,000-square-foot structure in the winter of 2003 and was completed in the summer of 2005 at a cost of \$21.3 million. Scholer Corporation of Lafayette was the project architect and played a major role in Isaac Ray’s ability to achieve LEED certification.

Founded in 1908, Hagerman Construction Corp. is part of The Hagerman Group, comprised of Hagerman Construction Corp., Hagerman Inc. and GDH, LLC. For additional information on The Hagerman Group, please contact Molly Burns at 317-713-0636.



Hope is on the Way in New Orleans



Cancer patients and their caregivers now have a “home away from home” while seeking treatment in New Orleans, thanks to the American Cancer Society’s New Orleans Hope Lodge.

A ribbon cutting ceremony was held on May 4 at the Hope Lodge, a facility that provides housing for cancer patients and their caregivers at no charge.

“This is truly an exciting advancement for New Orleans. I have heard about patients who have slept in their cars for days while receiving treatment because staying in a hotel was cost-prohibitive,” said Dr. Charlie Brown, Hope Lodge Project Chair. “To think that this facility is now ready to add to the overall cancer care available in New Orleans as all of us recover from Katrina is really remarkable. Cancer patients can focus on fighting their disease free of the additional worry of the cost of lodging during their stay here.”

The 34-room facility offers free lodging and transportation to any cancer patient receiving treatment at a medical facility in New Orleans. The Hope Lodge also features a common kitchen, dining room, exercise rooms and recreation areas, as well as a nondenominational chapel. It will provide nearly 12,400 nights of free lodging each year for cancer patients coming to New Orleans for treatment.

The facility is located on the corner of River Road and Labarre Road, and it is the American Cancer Society’s 22nd Hope Lodge in the United States.

The Hope Lodge began accepting guests during late July 2006, and it is estimated that it will house an average of 600 patients annually. Each guest suite provides accommodations for a patient and a caregiver. The Hope Lodge is available to patients living at least 30 miles away. Both in-state and out-of-state guests are welcome.

“The American Cancer Society’s New Orleans Hope Lodge will provide a warm, friendly environment for cancer patients and their caregivers to stay free of charge,” said Darlene Santana, Hope Lodge director. “In addition to lodging, they will also have available to them the resources and support they need while going through treatment for their cancer. I am so grateful to be a part of this project and look forward to providing assistance to those families traveling to New Orleans for treatment.”

Currently, there are more than 22 American Cancer Society Hope Lodges operating or under development across the United States. The first Mid-South Hope Lodge opened in Birmingham, Alabama, in January 2000. The Mid-South Division currently operates an additional Hope Lodge in Nashville, Tennessee.

For more information about The Patrick F. Taylor Hope Lodge, call the American Cancer Society at 1-800-ACS-2345 or visit www.cancer.org.



Designers Use Hill-Rom to Create Healing Environment

A hospital trip isn't just stressful on patients. It also brings anxiety to a patient's family and friends, who often wait in crowded and uncomfortable lobbies and waiting rooms while they worry about their loved one.

The Wall Street Journal reported in 2004 that doctors and nurses say family and friends are a key part of a patient's recovery. But they're not going to have a positive impact on an outcome if their visits create stress for the patient.

That's why, in an industry where construction spending is expected to climb to \$20 billion annually by 2010, The Center for Health Design says design teams are increasingly asked to rethink how they approach their craft as they create a physical environment for hospitals of the future.

As architects and designers spending more time than ever on the look and feel of lobbies and waiting rooms, they are searching for outside help. Hill-Rom, which designs and equips everything from the lobby to the patient's room, is increasingly working with architects to create these healing environments.

Hill-Rom recently enhanced its suite of design services with Lobbyview, a two-dimensional design service that allows designers to arrange and view furniture in a lobby setting before the lobby is constructed. The product is a complement to Hill-Rom's Roombuilder® Design Service, with both taking the guesswork out of design.

With an AutoCAD drawing and a little more information, Lobbyview can provide designers with an accurate planning tool – no mistakes from estimating – and maximize the seating capacity of the available space.

The challenge for designers and architects is to create calming, welcoming spaces in lobbies and waiting rooms that improve the psyche of visitors. Many health care organizations are now trumpeting therapeutic environments in lobbies, waiting rooms and other hospital spaces. Therapeutic environments are proven

to be cost effective methods of improving patient outcomes according to the Whole Building Design Guide.

Healthcare architects, interior designers, and researchers have identified four key factors that, if applied in the design of a healthcare environment, can measurably improve patient outcomes:

- Reduce or eliminate environmental stressors
- Provide positive distractions
- Enable social support
- Give a sense of control

These environments are designed to “support the psycho-social and spiritual needs of the patient, family, and staff” and “produce measurable positive effects on patients' clinical outcomes and staff effectiveness.”

The study of patient environments and healing is continuing. The Academy for Neuroscience for Architecture is bringing neuroscientists and architects together to examine:

- Windows and their impact on patient experiences
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New \$65 Million Heart & Vascular Center Opens in New Albany



Southern Indiana residents who need open heart surgery procedures no longer have to cross the Ohio River for care. On December 17, 2005, Floyd Memorial Hospital in New Albany celebrated the grand opening of their new Heart and Vascular Center and Emergency Center.

“With our new Heart and Vascular Center, we have brought together the experts, facilities and latest technology to offer southern Indiana residents comprehensive cardiac surgical care close to home,” said Bryant R. Hanson, President and Chief Executive Officer of Floyd Memorial Hospital and Health Services.



ARTEKNA of Indianapolis designed the \$65 million state-of-the-art facility in partnership with Laughlin, Millea, Hillman of New Albany. CMTA of Louisville provided MEP engineering services. Lynch, Harrison and Brumleve of Indianapolis was the structural engineer and Rowland Design of Louisville was the interior designer. Whittenberg Construction Company of Louisville served as the construction manager.

The new Heart and Vascular Center includes two dedicated cardiac operating rooms, two other operating rooms dedicated to neurology and orthopedics, three cardiac catheterization labs as well as an outpatient cardiac care unit, a cardiac rehab unit, a 16-bed cardiovascular care unit, a 16-bed intensive care unit, and a 32-bed transitional care telemetry unit.

Tripling in space from its previous location, the new 42-bed Emergency Center includes a critical decision unit, a “fast-track” unit, trauma rooms, a high-tech forensics room, and a protected area for ambulances that is screened from public view. The public entrance to the Emergency Center is easy to find from the new main entrance to the hospital campus.

Over 83 percent of patients who use the hospital’s services have lab work performed, making the laboratory a critical resource to every clinical department. During the planning stage, it was determined that to achieve the goals of process improvement, quality improvement and patient safety, the laboratory would relocate to the new addition.

Anchoring circulation and wayfinding for the hospital is a new two-story main entry lobby, conveniently located adjacent to the new Emergency Center. Registration, a new gift shop and coffee shop, public elevators and access to outpatient services are located in the lobby or off “Main Street,” the new primary corridor that leads from the lobby.

“Every aspect of our new facility is designed to provide the most advanced, integrated heart and emergency care,” said Jerri Quillman, Senior Vice President and Chief Operating Officer of Floyd Memorial Hospital, who oversaw the construction process.

Ground was broken for the new centers in the fall of 2003. The new 267,000 square foot addition represents the largest expansion and renovation in the hospital’s history. The original part of the hospital was dedicated in 1953 and several additions and renovations were subsequently constructed.

Healthcare design has evolved radically over the years. Technology, systems, processes, sociological factors, and the marketplace continually create new challenges and opportunities. As Floyd Memorial Hospital addressed its strategic and long-range needs, it worked with ARTEKNA to develop creative solutions to integrate expansion with the existing facilities while positioning the hospital to grow in the future.

“The success of the design is tribute to the dedication by the hospital working with and challenging the design team to develop creative solutions to an extremely complex set of issues,” says Tim Frank, principal with ARTEKNA. “The team worked very hard to solve not only the pragmatic issues of facility design, departmental relationships, circulation, wayfinding, efficiency, and safety, but also to develop an image that conveys the vision of the hospital to embrace the future and provide a healing and inspiring environment.”

ARTEKNA is a healthcare design firm based in Indianapolis. For more information, please visit www.artekna.com.



2006 Midwest Healthcare Engineering Conference

November 1 – November 3, 2006 | Indiana Convention Center | Indianapolis, Indiana

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New Opportunity to Renew Your Healthcare Construction Certificate!



ASHE has recently decided to accept CEUs received from the Midwest Healthcare Engineering Conference & Tradeshow toward the renewal of your Healthcare Construction Certificate (HCC). Attendance at this Conference demonstrates the interest and commitment to stay up with the latest codes and standards affecting the industry and your profession.

Healthcare Construction Certificates expire two years after the date they were issued. If you have participated in the Healthcare Construction Certificate program, and would like to use credits gained from attending this conference to renew, simply complete the renewal application, which can be found at www.ashe.org. Be sure to attach your Certificate of Attendance from attending the Midwest Healthcare Engineering Conference & Tradeshow along with the renewal fee. If you have any questions, please visit us at www.ashe.org or contact us at 312.422.3800.

CEU Credits

Midwest Engineering Conference has been approved for CEU certification by the American Hospital Association. 1.6 CEUs; 16.0 Continuing Education Hours will be awarded to you by the American Hospital Association for participation at the Midwest Healthcare Engineering Conference. In order to obtain your certificate for these credits you will need to attend all three days of the conference.

Educational Sessions

Wednesday, November 1
8:00 a.m.

The Power of Leadership in Transforming Healthcare Facilities

Jim Lussier, Founder, The Lussier Center/TLC

9:30 a.m. – 11:00 a.m.

Facility Assessment and Capitol Renewal

Alan Holley, P.E., CHFM, Consulting Associate, FreemanWhite

Retrofitting Existing Emergency Power Supply System (EPSS) with Automated Monthly Test Reports

Kevin Cunic, Power Monitoring, Specialist Square D

11:15 a.m. – 12:45 p.m.

A Facility Manager's Guide to Patient Safety & Facility Design

Csaba Szekelyhidi, Director of Healthcare Architecture, PSA-Dewberry Inc.

Dashboard Decision making for Orchestrating Efficiency

Damon Greeley, Director of Engineering Consulting, FreemanWhite Inc

2:00 p.m. – 3:30 p.m.

Building Information Modeling (BIM) – Using Innovative Technologies in the Construction of Healthcare Facilities

Andy Stapleton, Senior MEP Engineer, M. A. Mortenson Company

Commissioning Healthcare Facilities

Carl Schultz, PE, Chief Mechanical Engineer, URS Corporation

3:45 p.m. – 5:15 p.m.

Revitalize Your Hospital Campus While Maintaining Existing Operations

Dan Caren AIA, Principal, Harley Ellis Devereaux

The Four Design Opportunities of the Small Scale Health Facility

Ronald S. Menze, AIA, ACHA, Partner, Morrison Kattman Menze, Inc.

Thursday, November 2
8:00 a.m. - 9:15 a.m.

Dynamic Ventilation Control and IEQ Monitoring for Healthcare Facilities

Peter M. Hmelyar, Regional Vice President, Aircuity Inc

Thursday, November 2
8:00 a.m. - 9:15 a.m.

What If? Preparing for and Responding to Emergencies and Disasters

Mark R. Handy, AIA, Vice President of Operations, BSA FM

9:30 a.m. – 11:00 a.m.

Avoiding Construction Conflicts through a Systematic Approach to Mechanical/Electrical and Architectural Coordination of Projects

R. Wayne Estopinal, AIA, ACHA, President, The Estopinal Group LLC

Improve Energy Performance by Adopting Energy Star Best Practices

Clark Reed, National Healthcare Manager, Energy Star, US Environmental Protection Agency & Erin Milfeit, Associate, ICF Consulting

3:15 p.m. – 4:15 p.m.

ASHRAE Session America's Natural Gas Market Challenge 2006

Chris McGill, American gas Association, Washington DC

4:30 p.m. – 5:30 p.m.

From the Bottom Up: Replacing Engineering Systems for the Next 50 Years

Stephen Milz & Kirk Pesta, Associates, Harley Ellis Devereaux

Unannounced Surveys: Ready or Not

Dean Samet, Director, Regulatory Compliance Services, Smith Seckman Reid

Friday, November 3
8:00 a.m. – 9:15 a.m.

General Session – A Comprehensive Approach to Facilities Asset Management

James Oldach, Reliability Consultant, CMRP (Certified Maintenance and Reliability Professional) GE Energy Reliability Services Wally Veazie, Account Manager, GE Energy Services

Friday, November 3
9:30 a.m. – 11:00 a.m.

General Session – Design, Construction, Plant Operation Forum

Moderator: Gary Vance, Principal, Director of Facility Planning, BSA LifeStructures

Panelists: Bill Ahal, Vice President of Pre-Construction, Alberici, Inc

James Edward, Healthcare Market Segment Leader, KJWW Engineering Consultants

Mike Kuechenmeister, Director of Plant Operations, St. Luke Hospitals

Tom Stewart, Director of Facilities, Memorial Hospital of Carbondale

Steve Thurston, Facility Management Consultant, Energy Consultants Inc.

11:15 a.m. - 12:45 p.m.

Enhancing Performance Within a Tight Budget

Robert D. Levine, Sr. Vice President-Healthcare, Turner Construction Company

Facility Electrical Maintenance

David L. Stymiest, PE CHFM SASHE, Sr. Consultant – Compliance & Facilities Management, Smith Seckman Reid, Inc.

Networking & Business Opportunities

Wednesday, November 1
12:45 p.m. – 2:00 p.m.

Lunch Break

Take time to visit one of the area's fine or casual dining restaurants that are within walking distance of the Indiana Convention Center. Visit www.indy.org for details.

Thursday, November 2
11:00 a.m. – 3:00 p.m.

Trade Show and Luncheon

Plan to spend time with exhibitors and enjoy lunch stations placed throughout the trade show. This is a smart and efficient way to conduct business. Compare product and service information before making purchasing decisions.

5:30 p.m. - 6:30 p.m.

Reception

Enjoy live music and light hors d'oeuvres while networking and visiting with other attendees.

For more information on these sessions and to register, visit
www.midwest-healthcare-engineering.org
Call 317-713-1551

Fire Safety Systems Save Lives Only if Kept In Good Order

By Craig Rutledge

As members of the NFPA we are all aware of the devastation a fire can cause. The human loss, the financial loss and despair it wrecks on those involved is immeasurable. Our overriding responsibility as fire code inspectors, fire and smoke damper inspectors, building owners, and facility managers is prevention and protection.

One of the best ways to protect a large building or facility from the deadly spread of fire is the installation, inspection and maintenance of smoke and fire dampers, sprinkler systems and smoke alarms. Unfortunately, for the exception of hospitals that have the inspection of fire and smoke dampers enforced by groups such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), many facilities do not inspect their dampers every four years as required by NFPA 90A.

Are our nursing homes, long-term care facilities, office buildings, hotels, schools, and college campus buildings any less important? These facilities are in just as much danger of experiencing devastating fires as are hospitals, yet fire and smoke dampers are inspected less frequently – if at all.

Who can forget such horrific tragedies as the deadly fires at the MGM Grand hotel and casino in Las Vegas in 1980, and the Las Vegas Hilton Hotel and casino in 1981, where nearly 800 people were injured, and 85 were killed. The NFPA itself stated in its report on the fire at the MGM Hotel that fire dampers “...did not completely close” and that as a result, “...products of combustion were distributed throughout the HVAC equipment ... providing a method for the spread of smoke that may also have contributed to several fatalities.”

Another more recent tragedy is that of the World Trade Center in New York City where nearly 3,000 civilians and firefighters lost their lives when both towers became engulfed in smoke and flames. The United States Department of Commerce’s National Institute of Standards and Technology investigated the World Trade Center disaster and found that had there been operable fire and smoke dampers in the two towers, they “would have acted to slow the development of hazardous conditions on the uppermost floors of the building” in tower one and two, and as a result provided occupants more time to flee the building.

According to the Center for Campus Fire Safety, a non-profit organization which serves as an advocate for the promotion of campus fire safety, since January 2000, 88 people have died in campus-related fires across the country. Center director, Ed Comeau says that two of the most common factors in fatal student housing fires were disabled smoke alarms and a lack of automatic sprinkler systems. In almost every case, these fires were preventable, and lives could have been saved according to Comeau.

The reasons for not conducting regular inspections vary, but most often it is the lack of manpower in the building’s facilities management department that prevents proper inspections from being conducted. In a perfect world, we would be able to prevent fires from ever starting, however we realize that this is an impossibility. Our best defense is to contain a fire long enough for a building’s occupants to have time to escape and secondarily, prevent as much structural loss as possible. Regular maintenance of fire safety devices such as fire and smoke dampers does this.

Of the more than 150 hospitals and other facilities that Life Safety Services inspects each year, there is an approximate failure rate of 10% in dampers – and these are dampers that are inspected and maintained on a regular basis. Imagine what’s happening to the dampers in buildings that are never inspected.

Even the top damper manufacturers, Ruskin, Greenheck and Nailor recommend testing and inspection of dampers every six months. According to these manufacturers, increased testing should extend the life of the damper and lessen the need to replace the dampers thus saving money and making buildings safer at the same time.

There are a number of reasons why we should be working to maintain and even strengthen the current codes and standards used to inspect the fire and smoke dampers at facilities.

- The failure rates of fire and smoke dampers are still high.
- Dampers have been tied to preventing the spread of toxic fumes in the event of a terrorist attack.
- Fire and smoke dampers can save lives by stopping or delaying the spread of deadly gas, smoke and flames.

continued on page 20...

Lighting and Epilepsy

LIGHTING TRIGGERS FOR EPILEPTIC SEIZURES?

It is a known fact that some frequencies of flashing or flickering lights can trigger epileptic seizures. Video games, strobe lights, television screens and even some patterns of checks and stripes have been known to trigger seizures. A question that comes up sometimes is whether certain kinds of discharge lamps can play a role in this.

Roughly 0.5% or 1 in 200 people suffer from epilepsy; among these, less than 5% are identified as having “photosensitive epilepsy.” This condition is more common among young kids and rarer among older patients. Medical tests with flashing lights can identify people prone to this condition, and treatment with certain drugs has been shown to be effective.

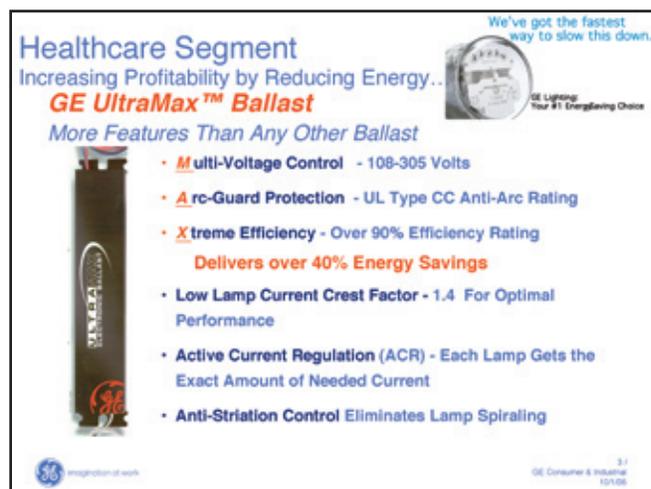
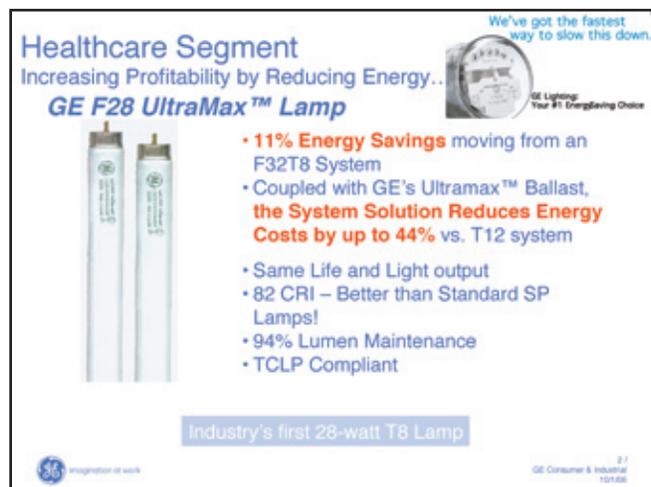
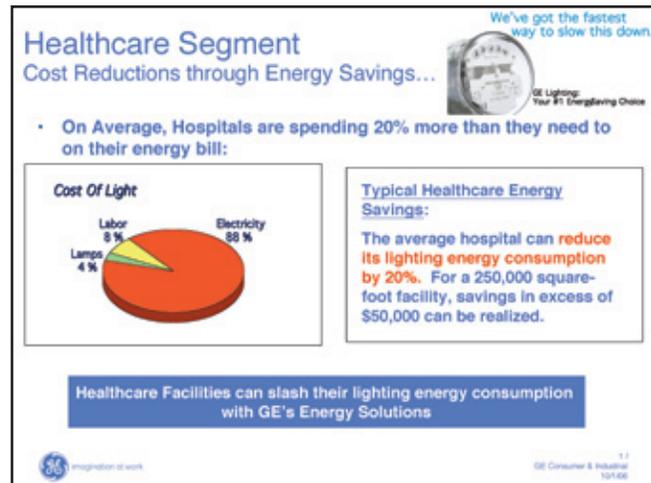
Current knowledge indicates that sensitivity is generally in the range of 5 Hz. to 30 Hz. but it is possible that some individuals are sensitive to higher frequencies, as high as 50 Hz. However, 75 Hz. or above is generally considered safe. It is interesting that triggering of seizures can be stopped by blocking one eye. Apparently flickering illumination visible to both eyes is necessary for the brain to be activated this way.

FLICKER IN LIGHTING PRODUCTS

Flicker refers to a periodic modulation in light intensity emitted by a light source. Incandescent lamps, even if they are operated on A-C have very little flicker. The filament stays hot and continues to emit light even during current reversals which occur 120 times a second (on 60 hertz circuits.)

Discharge lamps operating on magnetic (or electromagnetic ballasts) at 60 Hz. can show some slight modulation in light output at 60 Hz. and at 120 Hz. People sometimes complain that they are “bothered” by fluorescent lamp flicker. Such flicker can be picked up more readily in peripheral vision - from the corner of your eye - rather than foveal (“straight-on”) vision. Research on photosensitive epilepsy indicates that the greater the field of view of the flickering source, the more likely it is for a seizure to be triggered.

Can such flicker trigger epileptic seizures? It is impossible to categorically say “Yes” or “No” to such a question. Often, seizures seem to occur spontaneously and one must be careful about blaming things that were present in the environment prior to the seizure. Discharge lighting (fluorescent and HID)



is very common. The new fluorescent electromagnetic ballasts operate at 20,000 Hz and over (very high frequency) but there can be lower frequency modulation present in the waveform causing some slight low frequency flicker to be present.

When lamps are misbehaving, (e.g. towards end of life) they can certainly exhibit flickering. Fluorescent lamps can also exhibit striation (raccoon tailing) which can be seen by a person looking directly at the bare lamp. Metal halide lamps show phenomena like arc-swirling, acoustic resonance etc. that could generate some flicker. Given that the medical community does not clearly understand what epileptic seizures are and given individual differences among patients it would be impossible to rule out lighting related triggers for epileptic seizures. However, we can state that such instances are very rare if they existed at all.

There is an interaction which needs to be mentioned between light sources and computer monitors that can create a flicker on the screen. This happens when lamps are being operated at 60Hz.(magnetic ballasts) and the refresh rate of the monitor screen is also set at 60 Hz. A simple solution is to change the refresh rate. In Windows, this control is available through the display settings on the Control Panel; setting the refresh rate to (say) 75 Hz. eliminates the flicker.

An individual concerned about such lighting-related effects should consult with a doctor and discuss the situation. This document merely provides background information which might be useful.

Fire Safety Systems Save Lives Only if Kept In Good Order ...continued from page 18

- Buildings experience less overall damage when fire dampers help contain the spread of a fire. This means lower replacement and reconstruction costs for building owners and managers.

The statistics don't lie, and they are telling us that properly installed, inspected and maintained fire and smoke dampers, sprinkler systems and smoke alarms will save lives and money. But these systems are only effective if they are kept in good working order. As fire prevention personnel, we should look at strengthening current codes to ensure that inspections and maintenance of these systems is a regular part of overall build-

ing upkeep. If not, then we will surely see the effects in a rise in fatalities and costs associated with building fires.

Craig Rutledge is a partner of Life Safety Services, LLC, which specializes in the inspection of Fire and Smoke Dampers at facilities throughout the United States. Life Safety Services is a member of the NFPA, ASHE, IAQA, and NADCA. Rutledge is a Certified Indoor Environmentalist, NADCA Certified "Air Systems Cleaning Specialist", and Certified Mold Remediator." He can be reached at 1-888-675-4519, or by e-mail, craig@lifesafetyservices.com For more information on Life Safety Services visit: www.lifesafetyservices.com

Keep an eye out for ISHE E-Issues the second Wednesday of each month!

ISHE E-ISSUES
It's About Time, and For the Healthiest Engineering Industry

Time Change for the Golf Outing
The date for the golf outing has changed. The new date is Wednesday, May 12 at the Bannockburn Golf Course at Bannockburn, IL. The new date is 10:00 AM with a 9:00 AM registration.

The cost for the golf outing is \$120 and \$175 for a wife. There are 100 spots available for the golf outing. Please call the office if you are planning to go. We will send you a confirmation slip if you need it to sign up for the golf outing.

Mark your Calendar for other Upcoming Events

Month	Event	Date
May	Annual Meeting	May 14-15
June	Annual Meeting	June 14-15
July	Annual Meeting	July 14-15
August	Annual Meeting	August 14-15
September	Annual Meeting	September 14-15
October	Annual Meeting	October 14-15
November	Annual Meeting	November 14-15
December	Annual Meeting	December 14-15

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**POWERLOGIC Power Management System
Guards Against Blackout at Hamot Medical Center**



On the afternoon of the biggest power failure in the nation's history, Tim Markijohn was driving on Interstate 90 when Hamot Medical Center's power management system sent an alpha-numeric page to his beeper. That day, Aug. 14, 2003, a cascading failure of the power grid serving the northeastern United States and southeastern Canada left many towns and cities in the dark, and caused voltage in many facilities to swing wildly. In addition to paging Markijohn and more than 40 Hamot Medical Center maintenance technicians, the system took first steps to maintain power, in keeping with requirements of the National Fire Protection Association (NFPA) and the federal Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Having sensed multiple voltage sags, transfer switches in the power management system switched loads to backup power generators. The three dieselpowered generators began cycling on and off as the sags continued intermittently, putting substantial strain on the 1,000-horsepower units.

While the power management system was doing its job, so were Markijohn and Hamot's Hospital Emergency Incident Command Structure (HEICS). According to a well-practiced plan, after the second power "bump," the HEICS team assembled in its predetermined command center and began assessing damages. Team members went from floor to floor and room to room to check electrical equipment and reset ventilators and the flows on calibrated equipment critical to patient care.

While patient care was never compromised at the 1 million-square-foot facility, each voltage sag briefly interrupted power to computers and radiology equipment such as Magnetic Resonance Imaging (MRI) and CATSCAN units. Though such equipment was not performing optimally during the voltage sags, the medical center suffered no longterm equipment failures.

Simultaneously, the HEICS team contacted Markijohn and reported power fluctuation updates to him during his 15-minute drive back to the campus. Based on those reports, Markijohn determined that utility power was too unstable, and decided to shift power from the utility feed to the generators. On his return to the medical center, Markijohn dispatched maintenance technicians to the facility's 32 transfer switches. They manually activated the switches, locking in the emergency power supply.

"The HEICS team contacted a short list of predetermined electrical contractors, who were held in reserve to provide emergency maintenance," notes Tim McQuone, director of emergency and trauma services for Hamot Medical Center, and the hospital's designated incident commander. "At that point, we were not aware of the situation outside, so we responded based on a response plan that we practice every month."

By 6:00 p.m., Hamot Medical Center had transferred completely to generator power, which provided an emergency load

equivalent to three-quarters of the normal facility power supply. That load covered all life-sustaining, critical equipment and emergency lighting.

Throughout the evening, the city of Erie maintained power. At approximately 9:00 p.m. the utility company, First Energy, notified McQuone that it believed that power was stable enough to transfer back to the utility feed. But based on his experience and data from the power management system, Markijohn opted to continue running the generators for another several hours to assure utility service reliability. That decision proved especially prudent at about 10:00 p.m., when another local hospital encountered unstable power, and considered evacuating. The evacuation was never activated but if it had, those patients would have been moved to Hamot, which is the only regional trauma center serving a 13-county area in northwest Pennsylvania. By approximately 8:00 a.m. on Aug. 15, Hamot Medical Center transferred back to its utility feed with no damage to patient care and no long-term damage to equipment.



Practical, yet Powerful

The key to power system improvement hinges on facility managers' ability to record the electromagnetic phenomena that can cause disruptions in facilities. To do that, they need a power monitoring system with an easy-to-use software platform for instant retrieval and analysis of data. And by connecting monitors to an entire energy system, the user can identify the patterns of consumption that will help them control costs.

Markijohn said he based his recommendation to invest in a power management system on its ability to provide practical capabilities, such as:

- Monitoring and evaluating the quality of power from the utility.
- Identifying voltage sags, which can cause critical damage to patient care and equipment.
- Measuring electrical load.
- Using transfer switches to avoid overloads.
- Comparing power bills to actual power usage to detect discrepancies.
- Ensuring patient safety and satisfaction.

Selected for Hamot Medical Center was the Square D® PowerLogic system from Palatine, IL-based Schneider Electric. The PowerLogic system includes 50 power management devices in the hospital and the campus uses 20 power monitors installed at service entrances, emergency power sources, branch feeders, and critical loads, as well as 37 circuit monitors.

Wanted: Articles

If you would like to contribute an article and photos to the next issue of ISHE Insights, please contact Steve Thurston at sthurston@indy.rr.com. Materials would be due by December 22, 2006.



Cost Savings Through Better Safety



Past historical data gives proof that investing in safety and health will help control a company's bottom-line during all phases of the company life cycle. The one problem with this statement is that society today is all about the "here and now" and is often not concerned with the future. In many situations, employers worry about safety and health only as it relates to being regulatory compliant at a minimum with governing agencies. But if these companies fully embrace the concepts of implementation and make safety and health a core value, the potential return on investment relating to injury prevention, along with the creation of a safe work environment can be huge, monetarily and culturally.

Return on Investment from Making Safety and Health a Core Value

- Better safety efficiency (pre-planning) without creating higher costs and schedule interruptions
- Employee injuries accounting for only 2.5 percent of project costs because of a well-implemented safety program compared with 6 to 9 percent of project costs without such a program
- Lower injury rates, which in turn means higher profit

"Safety is a function of management" (Heinrich, 1959; Murphy, 1992; Brauer, 1994).

Throughout history, data shows this statement to be true. Improved safety practices have reduced injuries and fatalities by

more than 50 percent in the past three decades. This 50 percent drop in worker injuries contradicts the fatalistic view by management in the mid-1960s that levels of injuries were relative to levels of hazards in the work environment, and that the injuries were unavoidable.

Safety should always be viewed in a positive view—not in a fatalistic manner. A company's main objective should be to have no worker injuries. With this objective must be an unbreakable belief that the goal of zero injuries is attainable. While companies should plan to have no injuries, they must still have a well thought-out safety plan in the event of a work-related injury. This is where the problem lies. How can safety professionals justify spending money on a theory or a hunch that an accident or incident might happen to the company and its employees? Most companies look at expenses versus revenue and just focus on tangible elements of business and not on possibilities.

Employees do not have total control of their safety, because a safe work environment consists of more than just employee involvement. Some factors to consider changing include the use of funds to make physical conditions safer and improved coordination of work activities (Hinze, 1997). These two factors rely heavily on managerial personnel to identify unsafe conditions and less on unsafe employee work habits.

In general, accident prevention is accepted as the responsibility of management (Hinze, 1997). However, companies differ in the amount of resources they dedicate to accident prevention programs. This difference could stem from varying perceptions of the degree of influence that management can have on reducing worker injuries.

“If the true costs of injuries were well defined, management would be in a better position to make informed decisions concerning safety. Rather than addressing safety solely from an altruistic point of view, owners should also consider safety from a more purely economic perspective.” (Hinze, 1997)

Obviously, safety should be a priority and responsibility of management simply because managers are concerned about the welfare of those who work for them, but in addition, there are the out-of-pocket costs incurred when injuries occur. Research data collected by the Department of Labor has shown that between 1980 and 1987, workers’ compensation insurance cost doubled in the United States. This upward trend has continued. The Workplace Safety and Insurance Board (WSIB) forecasted that insurance premiums will increase from 5 to 30 percent in the next year, depending on the state, due to the amounts being claimed. Companies could be paying 10 to 20 percent of their direct labor cost for workers’ compensation premiums due to higher Experience Modification Rates (EMR), which in turn exceeds their profit margins. The Department of Labor further indicates that it is not uncommon for companies with poor safety performance to pay twice the premium costs compared to those who have good safety records. Increasing medical costs, litigation and ballooning insurance premiums that are identifiable costs associated with an accident are considered direct costs. One problem when identifying the direct costs associated with safety accidents is that indirect costs or hidden costs are also going to be conjoined with direct costs. The magnitude of the accident, not necessarily the severity of the injury, makes the ratios of direct and indirect costs vary greatly. Some estimates of ratios between indirect and direct costs vary from about 1:1 to 20:1 (Department of Labor).

To better understand direct and indirect cost, direct costs are those costs directly attributed to or associated with an injury (Hinze, 1997). Most of the direct costs are usually covered by the workers’ compensation insurance policies. Some examples of direct costs include:

- Any type of transportation/ambulance service required for the injured party
- Medical and ancillary treatment prescription by a healthcare provider
- Prescribed medication costs

- Hospitalization
- Disability benefits, which can include lost wages of the injured person

Thus, the direct cost of injuries tend to be those associated with the treatment of the injury and any unique compensation offered to workers as a consequence of being injured (Hinze, 1997).



In 2001, the Workplace Safety and Insurance Board (WSIB) identified the cost of one lost-time injury to cost an employer an average of \$35,000 in direct costs alone.

Indirect costs are more elusive than costs associated with an employee accident, and are often referred to as hidden costs. Indirect costs are costs with no retrieval mechanism to accurately associate the cost to the injury—the idea being that it is not a matter of whether a specific cost has been identified, but whether the cost is a result of the injury.

In the construction industry, indirect costs of injuries are much easier to detect due to the different work environment construction workers are involved in on a daily basis. When a construction worker is injured, treatment is immediately given, either first aid or medical attention, depending on the severity. During this time, the injured worker is being paid for his or her time, travel time and work crew stoppage. And when he returns to work, he will not be working at 100 percent. Also, if the injury is particularly severe or dramatic, supervisors and company officials may need to be involved because of media attention over the accident. With the growing costs of the industry, safety professionals have acknowledged the presence of indirect, or hidden, costs of injuries.

Many researchers, when studying the concepts of direct and indirect cost, try to express their relationship in a ratio of indirect costs to direct costs. H.W. Heinrich in 1979 was the first to try this, and he estimated the ratio of the indirect costs of injuries to the direct costs to be approximately 4:1. The data used to reach this conclusion was information gathered from various industrial facilities in the United States. The one problem with Heinrich’s 4:1 ratio was that it did not have a chance to factor in

the steep escalation of the health care costs (direct costs), which might reasonably be expected to be lower today.

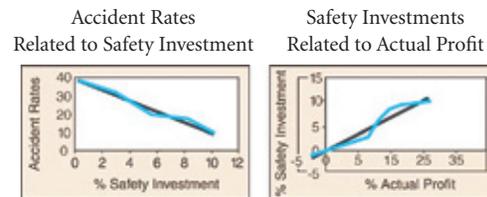
Heinrich's factor of 4 was stated for many years as the ratio of the indirect costs of injuries to the direct costs. Computations in the 1980s became less conservative. In a study conducted by R. Sheriff (1980), he showed that the ratio of indirect and direct costs may be as high as 10 compared to Heinrich's 4. F. Bird and R. Loftus (1976), tracked the ratio to be as high as 50. With all these studies representing different ratios, the common bond accepted was that indirect costs were very significant when examining the cost of an injury.

Results of historical studies indicate that greater attention should be given to indirect costs of worker injuries. The data from indirect costs of medical-case injuries are nearly similar to the direct costs. Even with the data from indirect and direct costs being very similar in amounts, indirect costs balloon exponentially when liability cases are sought for a worker's injury. Very large monetary amounts can still accumulate into large sums when there are multiple injuries. With this understanding, here is a brief example of how much an injury can affect a company's output or bottom-line if trying to make a 3 percent profit goal:

If a company acquired a \$50,000 loss due to injury, illness or damage and still tries to make a 3 percent profit, the company theoretically must increase sales of services by an additional \$1,667,000. [Example taken from Electronic Library of Construction Occupational Safety and Health (eLCOSH)]

Even with this data there is still unwillingness to embrace safety and health programs fully within some organizations. This reluctance is mainly due to fear and the ability to maintain adequate safety personnel. Studies show, as the charts following this article indicate, that there is direct correlation between lower accident rate reduction and increased safety investment

(see chart 1), and increases safety investment in relation to increased profits. As noted earlier, the implementation of a safety and health program will not have a huge financial impact at the beginning stages of implementation, but given time, it will certainly pay for itself and make the company profit in years to come.



Graphs reproduced from A.J. Joseph, "Safety costs money and can save money" in Singh, Hinze and Coble (editors), *Implementation of Health and Safety on Construction Sites*, 1999

The Author

Mark J. Steinhofner, PhD, CHST, is lead safety advisor with Safety Management Group of Indiana (pubs.smgindy.com), Carmel, IN. He holds a Master's degree in Safety Management along with a Doctorate degree in Safety Engineering. Steinhofner is a designated Construction Health and Safety Tech with a CHST certificate. His experience includes positions as a field safety engineer for Danis Environmental Industries (St. Petersburg, FL) and quality/safety engineer for General Electric GE (Louisville, KY).

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Indiana Society for Healthcare Engineering

What is ISHE?

The Indiana Society for Healthcare Engineering is a resource for hospitals and suppliers. We formed in order to develop solutions to common problems. We have been recognized as a Gold Chapter by the American Society of Healthcare Engineering (ASHE) for the past six years.

ISHE's members are those professionals who are interested in personal and professional development, and engage in one or more of the following healthcare team responsibilities:

- Plant Operations
- Safety Management
- Related Hospital Fields
- Plant Engineering
- Clinical Engineering
- Suppliers to Hospitals



Benefits you can't find anywhere else.

What are the Benefits of ISHE Membership?

Membership in ISHE gives you a combination of benefits you can't find anywhere else:

Professional Development - ISHE provides educational opportunities geared toward your special needs as a healthcare engineering professional. Planning to enhance your career with CHFM certification? ISHE education is designed with CHFM in mind.

Healthcare Facility Tours - See facilities behind the scenes. Hear the insider stories, tips and challenges that only an ISHE facility tour can offer.

Connection - ISHE membership gives you the opportunity to meet and develop friendships with fellow professionals. These are people who really understand what you do for a living because it is their profession, too.

Networking - The answer to a difficult problem may just be a phone call or conversation away. You'll be surprised at how much easier your job becomes when you have a resource network of the best minds in the industry. Your fellow ISHE members are always at your fingertips with the online and print directories of members and resources.

Industry News and Trends - No one gives you as much local industry news as ISHE. The ISHE quarterly magazine, monthly email newsletter, and web site contain stories and information about Indiana healthcare facilities you can't find anywhere else.

Scholarships - To promote the field of engineering, ISHE offers two \$1,000 healthcare engineering scholarships to children of ISHE members every year. Winning one of these scholarships could immediately pay out up to 20 years of ISHE membership!



Advocacy - ISHE makes sure your voice is heard on important issues about codes, standards and other regulations that affect your career and facility. As individuals, our voices are small; but together, we can make a difference.

Recognition - ISHE provides opportunities for professional recognition. Volunteer, serve on the board, or contribute an article on your facility for the magazine or newsletter – these are all great ways to improve your profile in the industry and in your organization.

Who is Eligible for ISHE Membership?

Full Membership to the society is available for those individuals who are active in the field of health care engineering or a related health care field. Healthcare engineering embraces multiple engineering disciplines that include managing, operating and maintaining physical plan facilities, communication and biomedical equipment, and systems in health care facilities. A full membership is available at \$50.00 to those who qualify as being directly responsible for a health care facility.

Associate Membership to the society is available for those individuals whose firms provide products or services. This may include manufacturers representatives, vendors, contractors, distributors, registered architects, professional engineers and consultants. An Associate Membership is available at \$100.00.

Membership to the society becomes effective upon approval of membership application and receipt of the specified dues by the ISHE Board of Directors.

Join today using the application.

Questions? Contact Stevens & Stevens at 800-685-1248.

ISHE Membership Application

RETURN APPLICATION AND PAYMENT TO:

Indiana Society for Healthcare Engineering
P.O. Box 40727
Indianapolis, IN 46240-0727



I hereby apply for membership in the Indiana Society for Healthcare Engineering.

- My \$50.00 dues for FULL MEMBERSHIP status are enclosed.
- My \$100.00 dues for ASSOCIATE MEMBERSHIP status are enclosed.

Please make checks payable to “Indiana Society for Healthcare Engineering.”

NAME: _____

TITLE: _____

ORGANIZATION: _____

ADDRESS: _____

CITY, STATE, ZIP: _____

COUNTY: _____

TELEPHONE: _____

FAX: _____

E-MAIL: _____

SIGNATURE: _____

Requirements for Membership as quoted from bylaw as:

SECTION 1 – FULL MEMBERSHIP

A. Individuals eligible for full membership in the Society shall be those active in the field of hospital or healthcare engineering in the State of Indiana. Candidates for membership must be eligible for personal membership in the American Hospital Association and the Indiana Hospital Association.

B. A member in good standing is one who meets the requirements for eligibility and whose membership has not been terminated as specified in Article III, Section 12. Only active members in good standing may vote, be recognized, or hold office to the Society.

SECTION 2 – ASSOCIATE MEMBERSHIP

A. Associate membership may be granted to individuals not otherwise eligible for full membership, who are actively involved with hospital and healthcare engineering in the State of Indiana. Associate membership shall be granted only to those professionals who will make a significant contribution to the betterment of the Society.



Indiana Society for
Healthcare Engineering
P.O. Box 40727
Indianapolis, IN 46240-0727

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