Westlake Reed Leskosky

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healthcare stat

DESIGNING THE SPACES THAT MAKE PEOPLE BETTER

How Technology is Changing the Way We Think about Healthcare Spaces

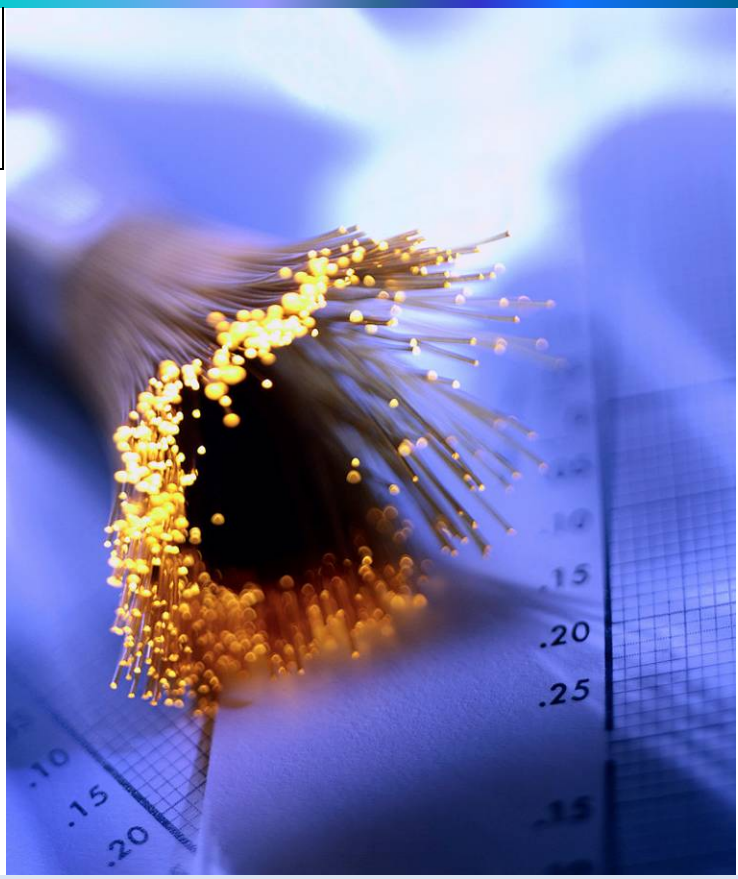
No longer an afterthought, technology systems are becoming a driver of the way we plan and organize space. Access to people and data through a variety of interfaces, as well as the ability to customize information delivery, is critical for healthcare organizations competing to attract and retain the best staff as well as patients who have become more discriminating and informed consumers. Providing convenience, quality information and ease of use are key considerations to keep in mind when implementing new technology. Ray Heintel, PE RCDD offered some low voltage insights related to emerging healthcare trends.

ON THE MOVE

Mobility and portability will continue to evolve. Telemedicine is on the horizon, or already in place at many organizations. Health services are being provided in a number of decentralized facilities, including from patient's homes. For your organization, this means having the ability for multiple devices in multiple locations to securely log into your patient information and monitoring systems.

Things to consider:

1. Security is paramount in order to maintain confidential information. Access will also need to be restricted *cont. pg. 5*



Welcome to the first issue of healthcare **stat**, Westlake Reed Leskosky's e-newsletter for healthcare. We are excited to share with colleagues, clients and friends throughout the healthcare industry news about what our firm is doing to advance the planning, design and construction of this building type.

IN THE NEWS

Roger (Jui-Chen) Chang, PE, LEED AP joins Westlake Reed Leskosky as Principal and Director of Sustainability. He directs sustainable design and engineering and also serves as a Lead Mechanical Designer

Stephen Lieber was named to the 2009 *Consulting-Specifying Engineer* "40 Under 40" list. He was selected by a panel of judges who chose Steve as one of the most up-and-coming engineers for buildings or allied fields under the age of 40. Look for the article in the May Specifiers Guide of *Consulting-Specifying Engineer* magazine.

"A New Model for Healthcare" Westlake Reed Leskosky is profiled in an article that reviews the range of services the firm offers and our approach to project design. ***Healthcare World* Fall/Winter 2008**

Westlake Reed Leskosky has three projects profiled in Architectural Showcase ***Healthcare Design* September 2008**

The ability to adjust the design of this rapid admission unit patient bay (above) in real time allowed design to proceed smoothly.

Get Real
Real Time Design Quickens Decision Process

In today's fast paced world, gathering the right information to make an informed decision is an essential process in any business undertaking. For hospitals, making that informed decision means more than just dollars and cents; it impacts the way that healthcare is delivered. Westlake Reed Leskosky is on the cutting edge of creating informed decision processes through the use of real time design. "Most people aren't trained to read blue prints," said Vince Leskosky, AIA, Principal. "But as soon as they see the plans translated into three dimensions, they understand that. They can get a feeling for the textures and the layout." Working in collaborative meetings with hospital staff and user groups with the aid of computer laptops, three dimensional images can be projected for review and discussion. The designers use the interactive process to solve design problems with immediate input and feedback, saving valuable time and gaining client consensus and decision-making.

The method presents clear choices for owners, making it ideal for hospitals, where a number of elements need to be manipulated to solve a design challenge. "Through real-time collaboration, users can grasp program constraints, see the process, and be involved with decisions all along. There is a better and earlier understanding of their building, how it will look, and how it will be used. Because of that, client groups take possession of the project early on, and are part of the design process. Instant feedback eliminates the need for numerous options, saves time, and keeps the project moving," says Leskosky. He underscores the importance of the role of the user representatives. "The key is to have a good group from the user side – a core group of people who are not afraid to make decisions. We bring in different user groups, depending upon the program – people from the financial, nursing, and facilities side as well as the respective departments. We have even brought in people from housekeeping to look at the location of closets, or those concerned with infection control to determine the proper placement of sinks. We are able to verify programs, layouts, and square footages from the start with the participation of the client, resulting in more effective designs in the long-run."

While longer upfront, the process saves time over the length of the project because approvals can come quicker from owner groups. Clients need to engage in a pre-planning phase to identify overall design goals and provide a project leader who will keep the design concepts on track, identify the proper individuals to participate in mandatory user meetings, and work with the design team to provide owner-furnished information to meet critical milestones. With the continued emphasis on fast-track and phased construction, Westlake Reed Leskosky's interactive design approach provides the advantages of user involvement, instant feedback, quick decisions, and an efficient use of planning and design time.

Through real-time collaboration, users are able to grasp program constraints, see the process, and be involved with decisions all along.
-Vince Leskosky

Building massing and imaging (right) can easily be understood by clients with a three dimensional model that can be viewed from multiple directions.

LOOK FOR US

Daily Minieris and **Ron Reed** will be leading a roundtable discussion at Neocon World's Trade Fair 2009 in Chicago June 15-17 2009. Look for their session titled *What Designers Can Learn from Owners: The Inside Scoop on Healthcare Design.*

Phil LiBassi will be presenting *Designing Without Precedent: Environments for Special and Emerging Needs* at the Healthcare Symposium on September 30, 2009.

Mitch Lyles and **Angela Mazzi** will be presenting "Never Too Late - How an integrated, client-focused approach and green principles is helping an existing hospital clear the way for a bright future." At the Clean Med Conference on May 20, 2009

Seeing the Light

Aesthetic Effects and Functional Strategies for Improving Health, Well Being and Wayfinding

Light is not static. It changes from day to night, season to season and varies by geographic location. As humans, we are wired to respond to the changes in light both biologically and emotionally. At Westlake Reed Leskosky, our integrated design team includes a focused group of lighting designers and electrical engineers that specialize in optimizing the effects of lighting on our projects. They are available upon request to help our clients maximize the aesthetic effects of lighting and develop strategies to improve the function of their buildings.

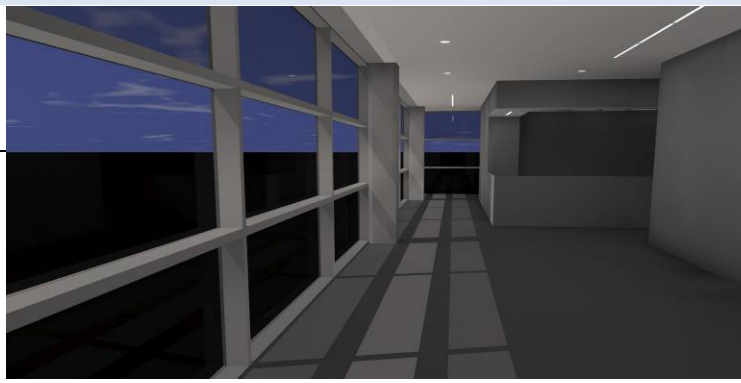
We tend to look at light statically, but in nature, light has an incredible temporal quality that provides physical cues to our bodies.

-Nate Timmerman

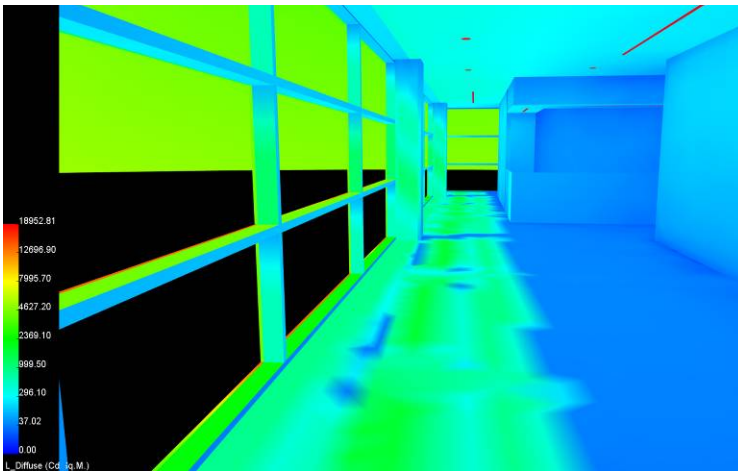
"Lighting can be one of the last things people think about and end up tacked on at the end of a project, " says Nate Timmerman, Lighting Designer. "We like to study lighting in the early design phases thinking about things like lighting control strategies, how the building appears at night, how lighting can be used as a wayfinding device or to draw people to an area, and how different lighting levels can be used to create different environments within a space."

Hospitals are twenty-four hour facilities, making the effects of lighting all the more critical, especially in spaces where there is no access to natural light. "Lighting changes from day to night," notes Timmerman. "For example, using red or amber lighting in patient rooms at night provides visibility to use the bathroom or view the patient without disrupting circadian rhythms. Our engineers have also used green lights in operating rooms to increase visibility while performing laproscopic procedures."

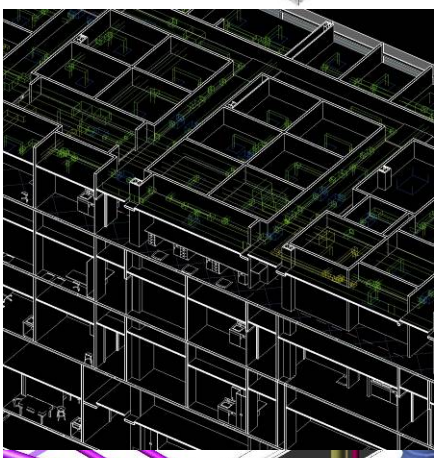
Our team is also available to study the effects of daylight on an individual project and factor this enhanced level of information into the lighting level calculation. Balancing natural and artificial light not only improves energy consumption but reduces glare from windows, while reducing the need for artificial lighting. Lighting studies can identify glare, dark spots and other problems as well as indicating where budgets or design should be adjusted.

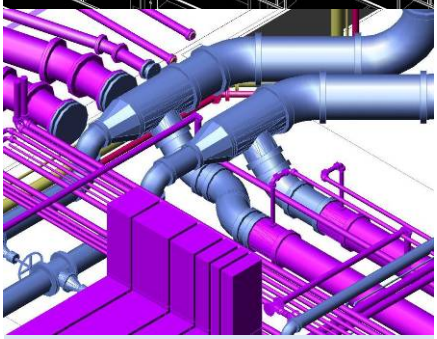


Light modeling allows our team to study how a building will look at any time of day throughout the year (above). This information can then be studied in terms of light intensity levels to avoid glare or "hot spots."



Lighting however, does not stand alone. It is part of the overall system of the building and must interface with integrated control systems, and audio visual systems to allow automatic adjustment of light according to time of day and set function for the space, such dimming lights for a video presentation or presetting various lighting scenarios in a patient room or procedure room. By considering lighting design early in the project and discussing lighting options and goals with our clients, lights enhance the appearance and function of our healthcare designs.





From macro to micro scale, BIM models allow information from various disciplines to be viewed simultaneously. Each file is actually housed in several separate models and only items that must be coordinated for conflicts are drawn as three dimensional.

Are You There Yet?
Making BIM Work for You

In the ideal world of Building Information Modeling -- BIM, consulting architects and engineers produce error-free documents that plug seamlessly into forecasting models and staff tracking software, contractors create real-time as-built documents and generate few if any change orders, while facilities departments track maintenance down to the light bulb and medical gas outlet. In reality, BIM represents a paradigm shift in the world of design, construction and building operations. It holds out the promise of changing how projects are structured and analyzed, from return on investments to delivery of care models, representing a trend towards smart technology with multiple interfaces that allows diverse uses for the same database. But, if knowledge is power, what information to include, at what level of detail, and for what use, remains the question.

BIM needs to be understood in terms of four distinct user groups; the design team (architects, engineers), the construction team, the facilities team and the planning team (administration, department stakeholders, planners) BIM impacts the way that the project is structured from the earliest phases through facilities operations, what it takes to achieve full functionality and utility from the model, how to judge the experience with BIM of a prospective design and construction team, and emerging areas of applications and value in the pre-design phase. Use of a single, shared model also changes traditionally held ideas of ownership and liability- important issues that healthcare executives need to know.

The decision to utilize a BIM model on an upcoming project is made at the executive level. However, many executives have not had the opportunity to fully understand the implications of this decision and determine how to structure their project in a way that allows the technology to provide their organization the most benefit. The following is a list compiled through our experience at Westlake Reed Leskosky regarding the best way to structure a project using this technology:

Use different platforms to work effectively

Any BIM software is as good as the library and functionality that it contains. Different programs have emerged that focus on particular disciplines or uses, and the best BIM projects are hybrids of the various software that are stitched together into a single model by a viewing program. BIM is intended to provide Owners with a living model that their facilities staff can use to track building elements and maintenance tasks. Therefore, healthcare facilities may want to look at how they might wish to employ the model post-construction and make sure that their staff is trained in using the necessary programs; Programming and planning using Trelligence/SketchUP, Architectural/Structural drawings in REVIT, Mechanical/Electrical drawings in AutoCAD MEP, and Navisworks to merge the files and for conflict management.

The model is used to expedite contractor's coordination drawings

The BIM model turned over to the contractor by the design team becomes the basis for the work of the contractor and subcontractors. They will use this model to generate working drawings and create as-builts in real time. Therefore, Owners should make sure that Contractors and their subcontractors have the ability to use these programs as part of the selection process. In fact, we have found that questions that arise in the field can often be resolved by viewing the BIM model instead of having to contact the design team.

Agree to level of detail to show on drawings

There is a common misconception that BIM will allow you to view your project from any angle in meticulous detail. While there are times when a portion of the model may need to be developed to this degree of detail, this is not standard or even good BIM practice. Models that are over-detailed throughout are unstable - just because you *can* show something doesn't mean you *should.* The value of BIM lies in its ability to coordinate multiple sets of information, not in its ability to be a rendering program.

Look for this newsletter each quarter to learn about what we are doing to design the spaces that make people better

DID YOU KNOW...

As part of the stimulus package, the Obama administration has allocated $19 billion for the digitization of health records. Right now, according to the New England Journal of Medicine, less than 2 percent of American hospitals have a fully functioning electronic medical records system. A little more than 7 percent of hospitals had a basic system, one that was available in at least one clinical unit.

The study also found that most hospitals with the functioning system were located in large, urban areas at teaching hospitals. Depending on the size of the hospital, a system can cost anywhere between $20 million and $100 million.

Westlake Reed Leskosky's Innovative Technology Design Group (ITDG) is uniquely positioned to help hospital decision makers make educated choices in the digitization of medical records. Our IT and AV experts can help organizations explore their options for making this transition.

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Please contact Angela Mazzi with any comments or questions regarding this publication. To join, change an address or be removed from our mailing list, send requests to amazz@wrldesign.com

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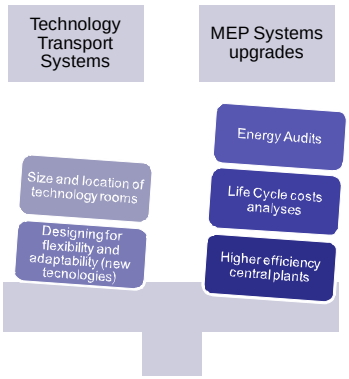
by user type such as physician, nurse, clinician, facilities management. For net meetings, what desktop information should be visible (shared)? Face recognition software that automatically logs staff into computers is an option for high-volume departments.

2. Do you have a centralized server system or multiple connected servers in a network? Can patients or physicians have access from their home computers?
3. Do you have the proper audio visual equipment to facilitate teleconferencing, video conferencing and simulcasting? These are moving to High Definition (HD) signal for these media. Do you want to incorporate enhanced touch-screen data management into patient room televisions to allow log –in to patient records, or for virtual physician visits?
4. Remote monitoring of patients and virtual consults may reduce case volumes and affect number of exam rooms required.



Technology transport needs must be balanced with other infrastructure requirements

Infrastructure issues

Within a healthcare facility, there are a number of amenities and coordination devices that can be provided. However, they all take up space whether in dedicated low voltage or IT closets, plenum space or space within rooms. These space requirements need to be considered as part of the programming process and organized as part of space planning to ensure adequate ceiling heights and vertical stacking of components.

Things to consider:

1. Look at Distributed Antenna Systems (DAS) to consolidate wireless systems such as networks, telemetry, cell phones and mobile data (3G).
2. Consider adding Radio Entertainment Distribution (RED) for vision impaired patients or for areas where sound, but not video is desired
3. The decision to integrate systems has major infrastructure impacts, in terms of the space required to implement it. Think about where and by whom information is processed. Integration of patient monitoring equipment into the network will increase versatility for monitoring.

Please contact us to learn more about our technology transport design capabilities and how they can benefit your organization.