

HEALTHFUL ILLUMINATION

Quality of lighting makes positive impact on healthcare environments,
brings facilities to life



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Published in Medical Construction & Design, May/June 2011



The clear white light of metal halide lighting announces the entry to MultiCare's Tacoma General Hospital's recently completed emergency department.

A healthcare facility has complex lighting needs and challenges, yet the time and effort put into planning the lighting is often squeezed between other demands on the architect, interior designer and electrical engineer. Most states have energy codes that have to be met and organizations are voluntarily meeting LEED or the Green Guide for Healthcare standards, which increases the pressure to be energy efficient.

At the same time, critical visual tasks are being performed in surgeries, trauma centers, imaging facilities and cancer treatment centers. Patient anxiety levels are often high and staff work to make split-second decisions and work within constraints of hospital and insurance regulations. Meeting the lighting needs of the facility in a way that supports constituent groups is a challenge and should be addressed by a trained professional.

Creating energy-efficient lighting designs

Going beyond the energy code can have additional benefits. It can lower first and ongoing maintenance costs, make projects available for additional incentive money and (at least temporarily) make them eligible for Federal tax credits. At the soon-to-be-completed Providence Regional Medical Center Everett Patient Tower in Everett, Wash., lighting designers worked collaboratively with ZGF Architects LLP to exceed code and achieve additional energy savings making it eligible for \$146,000 in utility funding.

This was done by carefully selecting fixtures that were efficient and also had low-glare optical systems so the quality of the visual environment is still very high. For example, the emergency department incorporates indirect wall-mounted linear fixtures to reflect light off raised ceiling tiles and metallic panels providing general illumination in the corridors and waiting spaces, while more focused, lighting is used only as needed in the behind-the-counter workspaces.

Use of lighting to identify specific areas of a facility

At MultiCare Tacoma General



Left: Inside MultiCare Tacoma General Hospital's new emergency department, simple clean lines support the idea of a crisp, efficient space and low-glare fixtures make for a less stressful environment. Below: Providence Regional Medical Center Everett's emergency department incorporates indirect wall-mounted linear fixtures to reflect light off raised-ceiling tiles and metallic panels providing general illumination in the corridors and waiting areas. More focused, energy-intensive lighting is used only as needed in the behind-the-counter workspaces.



help facilitate the reduced maintenance cycles with the fluorescent, metal halide and LED lamps. The majority of interior fixtures use four lamp types: 4' T8, T5 and T5HO and 32-watt triple tube lamps. Variety is created in how the lamps are applied with different fixtures and architectural treatments. Using hierarchies of light, repetitive elements support wayfinding. For instance, nurse's stations have lensed-linear fluorescent fixtures in the ceiling clouds. Indirect cove lighting separates the cloud from the ceiling above. In the counter fronts, warm white LED linear strips backlight frosted-acrylic panels. At the nurse station back counter, linear downlights recessed into a continuous pocket illuminate the back walls and counters below. On the patient room side, the wall-mounted indirect fixtures provide general illumination.

Enhancing wayfinding, creating identity and lowering maintenance efforts

Sometimes the architectural spaces are of unusual volumes necessary to connect other spaces, clarify wayfinding cues and create a welcoming identity. The main lobby is often this space. At MultiCare Good Samaritan Hospital in Puyallup, Wash., designed by GBJ Architecture and Clark/Kjos Architects, the lobby is 40-feet high

Hospital in Tacoma, Wash., the new emergency department wing, designed by GBJ Architecture, expanded the capacity of its existing ED. The topography is such that the emergency entrance is not directly visible from the street. The lighting design supports wayfinding by changing from the city-provided high-pressure sodium lighting to metal halide on the hospital site. This clear white light

announces the entry, but in a very energy-efficient manner. The path to the ER is evenly illuminated and the internal illumination of the space creates a lantern-like effect without extra lighting.

Once inside the ED, simple clean lines support the idea of a crisp, efficient space and the low-glare fixture selections make the environment less stressful. Long-life sources also

CREATING A COMMUNITY LANDMARK



Because of the strong desire for the new Sutter Medical Center in Castro Valley, Calif., designed by Devenney Group, Ltd. Architects, to be a recognizable landmark on the skyline, the architects designed a large structure nicknamed "the spire," to adorn the vertical glazing that comprises the stacked waiting rooms on all seven floors. The spire is a hefty 125-inch tall, gently curving helix-shaped element, mounted 15 inches away from the building. It is covered in a thick, white, weather-resistant canvas, and is internally illuminated with exterior-rated LED theatrical fixtures mounted to pipes inside the structure.

Access for maintenance is achieved via removable panels at locations near the lighting fixtures. This icon stands proud of the waiting rooms, which are glazed with a gradating frit that conceals linear fluorescent strip lights bearing colored gel sleeves. The fritted glass glows with the colored light that moves from a deep magenta at the basement level, up through red and amber, to yellow at the sixth floor, creating a colorful backdrop for the glowing white spire. Other architectural façade elements are accentuated with white linear LED neon-replacement fixtures, to complete the landmark image.



Dramatic lighting illuminates architectural elements to make Sutter Medical Center in Castro Valley, Calif. a recognizable element on the skyline. An internally illuminated structure nicknamed "the spire" towers 125 feet high to complete the landmark image of the facility.

and accessing light fixtures in the high ceiling was not practical. The lighting design was developed to create a glowing and welcoming space, while still allowing reasonable access for maintenance. In support of architectural concepts for wayfinding, lighting was designed to discretely highlight the architectural features without drawing attention to the actual fixtures.

The expansive entry-window wall creates a view into the glowing space beyond. The effect is achieved by uplighting the wood-plank ceiling and the wood-accented walls. Uplights are ceramic metal halide sources with asymmetric distribution to throw light up and out onto the wood ceiling. Fixtures are concealed within cavities in the beams that frame the opening. Walls and floors are illuminated with ceiling-recessed multiple-lamp fixtures and accessible from the adjacent floor.

Throughout the facility, wayfinding elements are supported by highlighting specific areas and architectural features. Large layered-glass pendants pool light into the clustered seating areas and create focal glow within the waiting area of the lobby. Service portals align with seating groups and help to direct patients to various treatment areas. Architectural features, materials and finishes are emphasized with cost-effective and maintenance-friendly solutions. Glowing pastel-colored acrylic panels are back-lighted with simple fluorescent strips. Lamps are detailed to be concealed within wall niches so effects of the



Throughout MultiCare's Good Samaritan Hospital's new patient tower in Puyallup, Wash., wayfinding elements are supported by highlighting specific areas and architectural features with unique lighting solutions.

glowing panels aren't diminished by also seeing the sources. Above, an architectural cove conceals fluorescent strips mounted end to end to create a continuous glow of light on the wood ceiling and pastel-painted back wall. Graphics for each designated area stand out in silhouette to the lighted wall. Walls connecting portals are evenly illuminated with a concealed, continuous linear wallwash to further highlight each individual portal.



The lighting design for the expansive 40-foot high lobby at MultiCare's Good Samaritan Hospital's new patient tower in Puyallup, Wash. creates a glowing and welcoming space, supports architectural concepts for wayfinding and allows reasonable access for maintenance.

Lighting art

Large pieces of art are often part of the public spaces and are sometimes determined late in the design process or even after construction has begun. In these cases, it is difficult to illuminate them in a way that is supportive of the visual effect of the piece that is easy to maintain. If the artist is selected early and if the piece is integral to the architecture, a symbiotic lighting design can be developed.

At Swedish Medical Center's new facility in Issaquah, Wash., a grass-blade art piece that is a part of the fabric of the lobby walls was developed early in the process.

Made of aluminum and mounted to the concrete sheer wall, the grass blades vary in height and are oriented left and right, as though one were looking at a field of grass up close. The interior designers wanted to illuminate this central piece without overpowering the minimalistic features of the lobby. Through collaboration between the lighting designer and interior designer, a concept of integrating flexible LED strips behind each blade was developed. Following the arc of the blades, the light will silhouette the blades of grass at night. Two mock-ups, one done during design with cardboard and gaffers tape, and one onsite during construction were used to develop and confirm details.

Importance of site lighting

Site lighting is another area where having a professional lighting designer as part of the design team can make an enormous impact on the final realization of the project. It is

critical to guide people safely from their cars to the building, since these facilities operate around the clock. Many of the people coming to a medical center are doing so while in some state of emotional distress, so lighting needs to be well-placed and uniform, and the fixtures themselves need glare control to facilitate an easy-on-the-eye installation. Additionally, lighting must identify the facility and support the brand in an increasingly challenging economy, where a hospital, just like any other business, must attract patients in order to remain viable.

Overall, the quality of the lighting can have a positive impact on the environment in a hospital's public, clinical and administrative spaces. Professionals such as lighting designers on the project can help bring healthcare facilities to life.

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