

Bringing New Light to Healthcare:

How Cree® LED Lighting Is Supporting Quality Healthcare

Lighting matters. Those in charge of healthcare facilities operations know the right lighting can benefit all aspects of the patient experience and ultimately improve patient outcomes. And those benefits play an important role in enhancing an organization's healthcare mission and its bottom line. For over twenty-five years, Cree, Inc. has demonstrated innovative LED and LED lighting leadership, most recently in LED lighting solutions for the healthcare setting.

Bringing light to the benefits of LED

Engineering and Facilities Operations departments in healthcare facilities such as hospitals are charged with much more than simple building maintenance. They are responsible for an environment of care that assists in improving patient outcomes, patient safety and patient experience. Facility Managers understand that any building upgrade, regardless of the business case, needs to support the healthcare mission. And the right lighting is something that does just that.

Numerous studies have consistently shown that light quality is important. Superior quality artificial lighting in the environment of care—especially larger-complex hospitals where daylight and natural light cannot be exploited deep into the buildings—has been shown to have a significantly positive impact on patient outcomes, safety and experience. In fact, lighting in the environment of care is so important the IESNA (Illuminating Engineering Society of North America) developed the Lighting for Hospitals and Health Care Facilities RP-29. This Recommended Practice provides guidelines for good lighting to meet the demands of the medical staff while providing a comfortable healing environment for patients and visitors.



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In hospital treatment rooms, for example, LED lighting offers a superior color rendering index (CRI), or measure of the light's ability to reproduce colors in a manner similar to natural light. LED lighting can provide the right light to help doctors and clinical staff perform more accurate skin and wound care assessment. It can improve visual acuity, thereby assisting clinical staff with tasks such as reading instruments and monitoring medical equipment.

LED lighting can also help healthcare organizations reduce energy consumption. Conforming to emergency codes, all hospitals have emergency generators. Those generators are primarily used for life safety and critical clinical equipment. Given that switching from fluorescent or incandescent light sources to LED can dramatically reduce the amount of electricity used, hospitals can free up capacity on those generators to add other important equipment in case of power outage or another emergency situation. With more capacity available on a hospital generator, there are more opportunities to ensure the patient experience remains a priority.

The power of LED lighting on the patient experience

LED lighting provides a palliative effect—another important benefit to the patient experience. Walk down the hallway of a hospital lit by T8 or T5 fluorescent lamps and you'll see tremendous variation in colors, even when those lights have the same color temperature rating. Look up and you'll see oranges, whites, blues and every color of the rainbow. This lack of uniformity is not only an eyesore, the color inconsistency is a major detractor to the patient experience—it can increase stress levels and agitation in an already vulnerable population. With Cree® LED luminaires, the light quality from every fixture is consistent, regardless of when the lights were manufactured or when they were installed. This consistency is a calming influence to a patient population entering healthcare facilities with a significant amount of worry and anxiety.

Cree's LED lighting with Cree TrueWhite® Technology offers a superior color rendering index (CRI) compared to traditional halogen and fluorescent light sources. Superior color rendering provides doctors and clinical staff with clean, clear light which can support improved outcomes through better diagnoses, skin assessment and wound care. Quality light also promotes safety for patients trying to navigate hospital rooms and corridors without falling as well as promoting a feeling of security for patients, clinical staff and visitors utilizing outdoor parking areas.

Lighting that's healthy for your bottom line

LED lighting can do more than just support improved patient outcomes—it can also play an integral role in keeping costs in check. In most commercial buildings, lighting costs make up about 40 percent of total operating costs. With large hospitals looking at electricity costs in the tens of millions of dollars each year, a reduction of even one or two percent offers considerable savings. High efficacy LED lighting solutions from Cree offer a significant reduction in energy usage over traditional halogen and incandescent lights. With energy usage reductions of up to 85 percent and virtually no maintenance, healthcare facilities can promote quality healing while improving the bottom line.

LED lighting also offers your organization more flexibility with your maintenance program. If your electricians can't get to a critical maintenance issue because they are too busy changing light bulbs, you can't leverage their skill set for higher patient touch activities. This type of under-utilization of in-house maintenance staff results in a missed opportunity for savings at a time when hospitals need to take all costs seriously. And in the case of not-for-profit organizations, every dollar saved on energy costs can go directly back into patient care. That's a benefit not only to your organization's bottom line but also to your healthcare mission.

Illuminating the behavioral aspects

As Cree and its customers have implemented LED lighting in healthcare facilities around the country, the response has been overwhelmingly positive. Even in cases where renovations have only involved lighting upgrades, facility managers have reported hearing responses like, "What



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did you do? Did you refinish the floors? Did you repaint the walls or ceilings?" In many cases, staff and patients often find it hard to believe that the only change was to the lighting—because LED lighting makes the surrounding space so much richer looking and pleasing to the eye.



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One surprising response came from a recent upgrade to a parking garage in a major hospital facility in New York with Cree® LED luminaires. The Energy and Facility Operations department selected the sixth floor of the garage as its test case because, with ample room below, few ever parked on that floor. With no cars around, the operations team had no difficulty doing baseline light level testing. But as the team tried to do their "after" installation testing, they found cars parked throughout the garage's sixth floor. At first, the operations team thought there was an event that people were attending. But when they queried a passing nurse to explain the change, she simply said, "It's safer up here."

Another benefit of this LED upgrade was the interoperability with lighting controls. With occupancy sensors that are activated when they sense movement or other ambient dynamics, security can use the lighting to track who is in the building instead of having to monitor a large bank of security cameras. The building's energy and facility operations team had not considered the behavioral aspects of the right lighting solution, nor had they anticipated such a positive impact on the perceived level of safety.

Bringing light to the healthcare mission

Cree® is an industry leader in today's LED lighting technology and is 100% committed to the continued advancement of solid state lighting. From growing our patented Silicon Carbide (SiC) materials, to developing the components, to designing and manufacturing complete lighting systems, our luminaires benefit from Cree's unrelenting pursuit of developing the most advanced LED lighting available.

Like your organization, Cree is committed to helping healthcare facilities provide the best quality light in order to provide the best quality healthcare. Experience how Cree LED lighting solutions can help your organization promote better patient outcomes, patient safety and patient experience today. Visit www.cree.com/lighting for more information.

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