



# McLAREN HEALTH CARE

## Michigan

Offering \$1.6M in annual savings, a Cree® LED lighting upgrade for McLaren Health Care's 11 primary hospitals was a clear win for the balance sheet. But in light of their mission-critical pursuit of a better patient experience, cost-effectiveness and sustainability, this strategic upgrade promises to deliver much more.





BEFORE: Fluorescent Lighting



AFTER: Cree LED Lighting

The Evidence-Based Approach:

## McLAREN HEALTH CARE INVESTS IN BETTER LIGHT

### Timing Is Everything

When Keith Miller first heard about LED lighting nearly a decade ago, he was Facilities Director at McLaren Macomb Hospital in Mt. Clemens, Michigan. Miller figured it was a development worth watching—but simply too costly and not yet proven.

Fast forward to the present: Now Corporate Facilities Manager for the entire 3,096-bed McLaren Health Care system, Miller recently completed a sweeping LED lighting initiative that replaced nearly every exterior and interior light across 11 primary hospitals with 25,000 Cree® LED fixtures, including over 12,000 Cree SmartCast® intelligent lighting fixtures. The transformation is estimated to save McLaren Health Care \$1.6 million annually, with a payback of 3.7 years\*—with \$1.25 million of that coming in the form of energy cost savings alone.

It's only half the story, too. Almost as compelling as the cost savings is the potential for Cree's innovative lighting solutions to help bolster staff productivity, enhance patient experiences and brand appeal, and reduce their carbon footprint, all while helping to increase the safety and security of their facilities. All are mission-critical factors to McLaren Health Care's top priority: providing a sustainable first-rate patient experience.

***“If you'd told me seven or eight years ago that we'd be doing an LED lighting upgrade, I would have said you were crazy,” Miller says today.***

***“For an organization like ours, it didn't make sense at that time.”***



### What changed in seven years? Almost everything.

Hospital systems like McLaren are quickly seeking new ways to meet the extreme challenges of an industry in the midst of disruptive change and under growing financial pressure. Meanwhile, recent years have seen big improvements in LED technology, energy efficiency, light quality, flexibility and costs—many pioneered or commercialized by Cree.

Systematic lighting upgrades like McLaren's are not only smart economics. These initiatives also provide a visionary competitive strategy to effectively capitalize on substantial patient-centric benefits while making a highly visible statement of corporate commitment to sustainability.

\*Payback includes fixtures, installation and recycling.





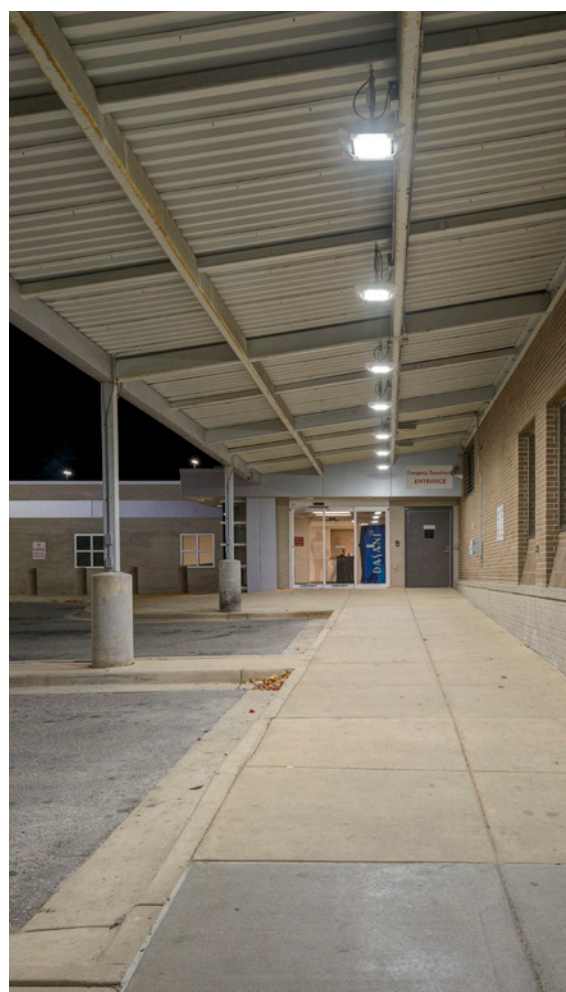
**Challenge:**

# DELIVERING BETTER HEALTHCARE VALUE THAT SATISFIES

McLaren Health Care’s mission is clear and concise: to “be the best value in health care as defined by quality outcomes and cost.” Founded in 1914, McLaren’s subsidiaries span a 53-county service area with 6.5 million residents and stretch from the suburbs of Detroit northward for 200 miles to Petoskey and Cheboygan. The nonprofit system employs 22,500 people, counts 43,993 network providers, and has annual revenues approaching \$4 billion.

Beyond Michigan, the nationwide rise of healthcare consumerism and emerging financial pressures loom large. In a 2016 report published by the American Hospital Association and ASHE, 80% of hospital CEOs said that by 2021, they expect patients will comparison shop the patient experience rating of hospitals before choosing a provider, and 84% said they expect at least 10% of hospital reimbursement will depend on patient satisfaction.<sup>1</sup> That same year, a Yale University study cited that the healthcare sector, which consumes enormous amounts of energy to run 24/7, contributes 8% of the nation’s greenhouse gas emissions, emitting more than the entire United Kingdom.<sup>2</sup>

Cost-efficient, sustainable delivery of an excellent patient experience has become mission-critical to nearly every system, with many now looking for ways to make the most of what they already have and to maximize their return on new investment. It’s no surprise, then, that McLaren Health Care, a leader in its field, is intensely focused on improving anything and everything they can measure—from treatment costs and clinical outcomes to patient satisfaction, community benefit, safety and security, efficiency and sustainability.



## Evidence-Based Persuasion

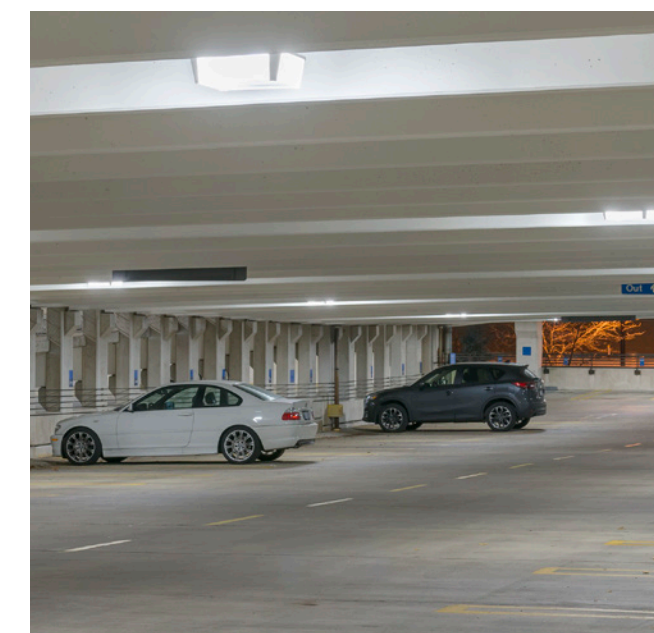
“Keith had a very clear vision,” says Michael Abraham, Jr., Co-Founder and President, Future Energy Group. “He understood the ROI—with a corporate-wide upgrade, he saw the opportunity for economies of scale and standardization, cost savings, and having better lighting throughout all the facilities, putting themselves in a leadership position among healthcare organizations.”

The first step was to analyze the data and select the best solution. Abraham recalls that from the start, both he and Miller were attracted to the company that had commercialized LED lighting in the first place and continued to drive the industry forward: Cree.

***“We selected Cree® LED lighting because they were the best manufacturer for the project with innovative technology and a 10-year warranty,” Abraham shares.***

While price and ROI was a top priority, so was long-term utility and peace of mind. Cree’s cutting-edge technology and 10-year warranty answered both concerns. “There are a lot of companies out there that can supply LED lights, but they don’t do the research and development that Cree does,” Miller says. “Cheaper is not necessarily better and Cree backs the products they put out there.”

Cree’s flexibility also impressed. “They even considered designing something specifically for McLaren if needed,” says Sam DiNello, Co-Founder and Vice President, Future Energy Group. “How many manufacturers would do that?”



## Testing The Waters

By 2014, LED lighting was squarely on Miller’s radar. Every day brought more reports of dramatic energy savings and improved illumination from LED fixtures that were virtually maintenance-free for ten, fifteen, even twenty years. LED lighting technology had improved by leaps and bounds in energy efficiency, lighting quality and fixture cost.

Miller decided it was time for a pilot project. Working with Future Energy Group, a full-service energy solutions provider based in Sterling Heights, Michigan, he facilitated upgrading McLaren Macomb’s surface lots and parking structure to LED lighting. “We saved money and our facilities got safer in the process,” Miller observes.

When he was promoted to Corporate Facilities Manager for the entire McLaren Health Care system, Miller saw the perfect opportunity to scale those cost benefits system-wide while also enhancing the staff and patient experience, safety and security, and sustainability. He went back to Future Energy Group with a bold plan: What would it take to upgrade McLaren’s 11 primary hospitals to 100% LED lighting?

***“Not only had the quality of LED lighting been transformed in that timeframe, but the technology allows you to do a lot more with LED lights at a lower cost,” Miller says.***

<sup>1</sup>SHSMD and ACHE Release Futurescan 2016-2021: Healthcare Trends and Implications, January 2016, SHSMD/ASHE  
<sup>2</sup>Environmental and Health Impacts of U.S. Healthcare System, June 2016, YaleNews





BEFORE: High Pressure Sodium Lighting



AFTER: Cree LED Lighting



Keith Miller and Chris Candela, McLaren Health Care

Solution:

## DIAGNOSIS AND A TREATMENT PLAN

"We had 45 days to collect information on 11 hospitals," recalls DiNello. "So our team literally went through every single hospital, every single area, and counted and documented every fixture, including the number of lamps in each. Then we analyzed the wattage, evaluated the application, and determined which Cree® fixture would replace it."

With that information and the local utility rates paid by each hospital, Future Energy Group estimated that Cree LED lighting would save McLaren more than \$1.6 million annually—at a minimum. Armed with that, Miller approached the McLaren board of directors.

"When we provided them the cost savings at McLaren Macomb and the feedback from that facility, and then the projected numbers for the entire initiative, it was kind of a no-brainer at that point," Miller says. "Many of the hospital presidents had been looking to do this at their individual facilities because of impressive results at Macomb, but had stalled because of cost constraints and logistics. It actually made a lot more sense to do it on a bigger scale."

McLaren Macomb's COO Chris Candela agrees: "There are obviously economies of scale that we gain when we do projects across the corporation rather than one or a few individual hospitals."

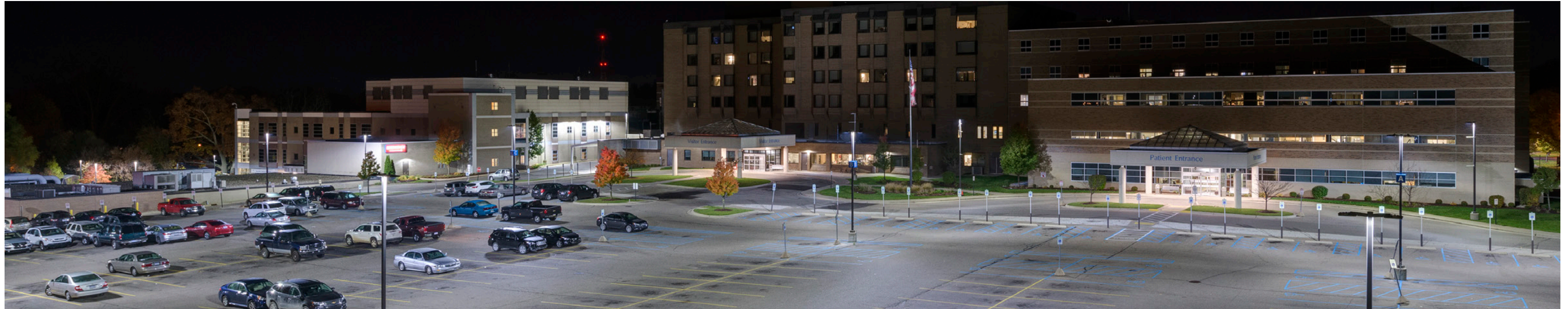
While the projected payback of 3.7 years was longer than the two-year window that McLaren usually required for capital improvements, "there were other benefits to consider," Miller said, "and other ways to offset the project's costs."

"We don't just measure the financial outcomes," Candela says. "We also take into consideration the patient's satisfaction and the patient experience."

**Cree® LED lighting is estimated by Future Energy Group to save McLaren more than \$1.6 Million annually.**







## PLANNING THE WORK, WORKING THE PLAN



Sam DiNello, Gary Trott, Keith Miller, Michael Abraham Jr.

Like hospitals everywhere, McLaren facilities are complex, “always-on” facilities where schedules are tight, smooth workflows are essential, and space is at a premium. Many of those spaces are occupied 24/7 by patients, families and the people who care for them. Patient care and clinical areas, even waiting areas, are all sensitive to noise and disruption. Here’s how McLaren, Future Energy Group and Cree ensured the smoothest possible execution of the massive upgrade.

### Onboard, Informed and Excited: Getting Buy-In

Future Energy Group and Cree jointly worked with each hospital’s marketing department to get the word out ahead of time via internal newsletters, TV channels, and informative posters. As the project’s start date approached, a “Technology Day” booth manned by both teams was set up in a high-traffic area at each hospital.

“Cree donated thousands of LED bulbs to give out to staff as a token of appreciation,” DiNello says. “We explained to the staff that we’d be installing fixtures in their area in coming weeks, apologized for any inconvenience it might cause, and talked with them about the benefits—cost savings, aesthetics, better color rendering and illumination.” Miller says the booths were well attended: “It got people excited. We talked to them about how it would benefit them personally.”

Prior to installation, Future Energy Group also worked with more than five utility companies across the state and filed all the necessary paperwork to secure utility incentives for the energy-efficient Cree lighting, helping McLaren save even more.

In a phased approach, the installation began by replacing exterior fixtures in parking lots and structures, walkways and other outdoor campus areas. “Doing the exterior first gave people a feel for the improvement and created a buzz about what was to come,” Miller says.

The real challenge came next: moving indoors.



BEFORE: High Pressure Sodium Lighting



AFTER: Cree LED Lighting

### Quiet: Hospital Zone

Installing 25,000 fixtures at 11 hospitals required a detailed approach and close coordination between teams to minimize disturbance to patient care, staff and family visitors. A special mindset that extended down to every last electrician.

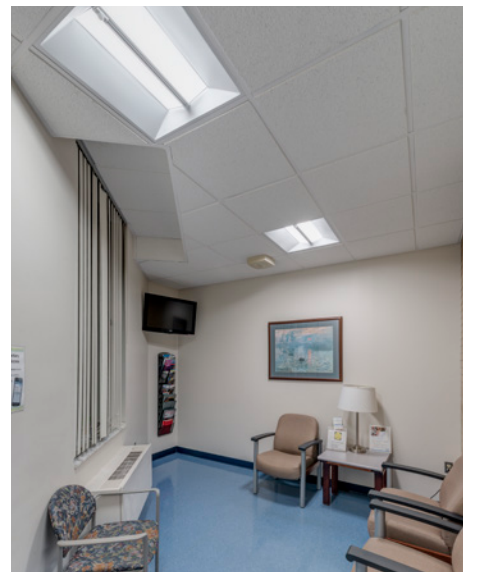
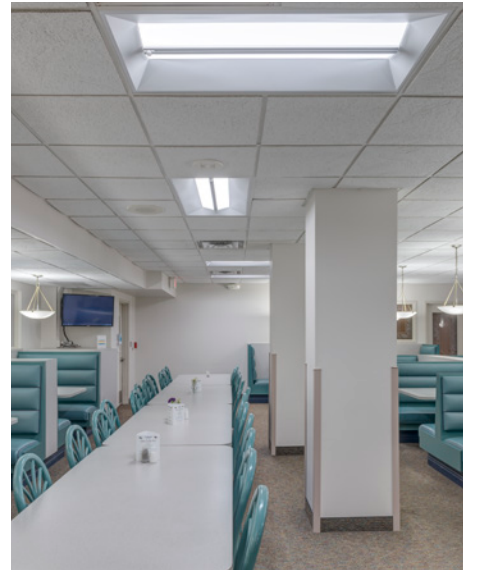
Future Energy Group designed the scope to ensure a smooth installation across all facilities. They trained the contractors directly on how to install the various fixtures and invited Cree to train on the setup and commissioning of the intelligent lighting controls. Because the hospitals are constantly expanding and repurposing spaces, existing blueprints were updated with new maps showing the location of each fixture. With more than 20 Cree fixtures specified in the upgrade, they also developed a color-coded label system so electricians knew which fixtures to install where.

The benefits of this upfront planning and coordination were clear, as the new fixtures were delivered and the plan went into motion smoothly.

“Remember also, for every new fixture we were removing at least one old one,” DiNello says. “The old fixtures had to be packed up and disposed of properly, and for each fixture there were two to four bulbs that had to be recycled properly.” DiNello’s team handled this process along with the required paperwork.

Among the new fixtures installed were over 12,000 Cree SmartCast® Technology enabled fixtures which feature advanced controls and capabilities. Traditionally, products in this category are often seen as costly, complex and time-consuming due to additional wiring needs, manual commissioning and laborious programming. However, because SmartCast® fixtures have intelligent lighting controls and wireless networking capabilities built-in, the setup and reconfiguration of hundreds of fixtures can be completed at once with the use of a simple handheld remote.

Miller is impressed by the advanced capabilities and future-readiness of the intelligent platform. “The daylight harvesting feature begins saving energy right out of the box,” he says. “And as lighting needs change or spaces are repurposed in the future, we can adjust the lighting with relative ease using the controller.”





Prognosis:

# EXCELLENT — AND STILL IMPROVING

*“If there is no margin, there is no mission,” Candela succinctly states. “We’ve always been cognizant of being cost-effective. But now with the push in reimbursement through quality, we need to have the dollars to reinvest in new technologies and new programs.”*



## Staff and Visitor Response

McLaren’s 11 upgraded hospitals began reaping energy savings from day one, and the response from staff and visitors came quickly.

“We’ve seen a tremendous amount of compliments and assurance from staff and family members that they feel a lot safer on property at night,” Miller said. “When you tell them that energy consumption is actually reduced and you are still providing better light, they get excited.”

Staff have also commented that lights like parking structures and stairwells brighten as they approach and that hallways seem much better illuminated without the “cave effect” created by the previous parabolic lighting.

“The housekeeping staff at McLaren Port Huron even told me that it’s a lot easier now for them to see what they’re cleaning,” DiNello says.

## Quiet Lights

Noise levels figure prominently in patient satisfaction ratings, and Miller says the ability to dim the Cree® fixtures was part of McLaren’s noise reduction strategy: “We can dim the lights down at 8 p.m. to let everyone know this is a time to be quiet so people can rest appropriately.”

The advanced dimming capabilities of the Cree fixtures is also pleasing staff while producing unanticipated savings. Future Energy Group strategically utilized these features to add energy savings by customizing and dialing in each area to fit the specific needs of the staff and patient care in the space.

“Nursing stations, libraries, IT departments—they really like that,” DiNello said. “When we explain that the SmartCast® lighting will dim to the comfort level they like, that’s helped us win over staff members who were initially concerned with brightness.”

## Fall Prevention

Miller expects the new lighting to have a positive impact on the risk of slips and falls as well. Falls are invariably a negative experience for patients and staff alike, and McLaren works aggressively to deter them.

“You have people with various injuries or conditions who may have walkers or wheelchairs, so having proper lighting is an important preventative measure,” Miller says.

## Facilities Maintenance

With the old lighting, burned-out lamps were a frequent occurrence. McLaren facilities staff either had to quickly react to complaints or push lighting carts through the hospitals searching for them. Now facilities staff can concentrate on more important tasks: Cree’s LED fixtures have a useful rated life of over ten years.

That saves money as well as labor, Miller points out, since replacing exterior lights in parking areas meant hiring outside contractors with lift equipment to reach them.

The long fixture life also reclaims storage space and reduces inventory headaches.

“We don’t have a lot of storage space, and the upgrade dramatically reduced the inventory we need on site and the number of different lights,” Miller says. “Some of the hospitals still used the old T12s and those are getting hard to come by.”

## Sustainability and Community Benefit

McLaren Health Care’s commitment to sustainability dates back to well before the LED lighting initiative. In 2013, Becker’s Hospital Review listed McLaren Northern Michigan among “50 of the Greenest Hospitals in America.”

The LED lighting project gives a highly visible boost to that commitment across the entire McLaren system. In many locales, a McLaren Health Care hospital is both the largest consumer of power and the primary employer, and setting an example for the community pays double dividends.”

Not only does the reduction of power help the hospital but it also helps out the community as a whole,” Miller says.

## Brand Appeal

While the public often thinks of branding in terms of advertising and logos, Keith Miller sees McLaren Health Care’s LED lighting initiative as a perfect example of branding in action, because brands are ultimately judged on whether they can consistently deliver on their promise to customers.

“First impressions are very important for a patient and for their families,” Miller says. “We want them to have a consistent experience from one McLaren hospital to another and lighting is an opportunity to show that.”

DiNello adds that many staff and visitors have been struck by how much newer the facilities look after the lighting upgrade: “They say, ‘Wow, it looks so modern.’”

“Cree’s technology is modernizing and future-proofing,” Abraham says. “If an architect wants to change the look in 10 years, the color tuning capabilities will help make the appearance easily adapt to that.”

At the end of the day, brand, like everything else across the hospital system, must answer to the McLaren mission.

## HOW THE STAFF SEES IT

Better light from Cree's innovative solutions is helping McLaren bolster staff productivity, enhance patient experiences and brand appeal, all while helping to increase the safety and security of patients, staff and visitors alike.

All are mission-critical factors to McLaren Health Care's top priority: **providing a first-rate patient experience.**



**Tracy Dunsmore, RN**

*Nurse Manager,  
Cardiac Stepdown Unit  
McLaren Port Huron*

"It's important to see in my job for safety. We need good lighting for doing any types of procedures—starting IVs, assessing the skin, identifying any rashes. With the new lighting, I can see a lot better now. It's nice and clean and feels more updated."



**Dr. Ali Saad, D.O.**

*Emergency Medicine Physician,  
Emergency Department  
McLaren Macomb*

"Observation plays a vital role in every physician's diagnosis and the ability to see clearly is vitally important. Because we work long hours, appropriate lighting is essential to help us stay alert and focused and helps us make the right diagnosis and intervention for the patient."



**Charles Peck**

*Supervisor,  
Safety and Security Department  
McLaren Macomb*

"As part of the safety department I know how important lighting is. Good lighting gives patients a sense that they are safe. What we have now is ten times better—we are providing a safe and secure environment for them."



LIGHT A BETTER WAY



# Patient Entrance



## Cree® LED Lighting Used

- Cree SmartCast® Technology
- CR Series Troffers
- Essentia® by Cree Flat Panel Troffers
- LR Series & KR Series Downlights
- A19, PAR30 & MR16 Series Lamps
- LS Series & WS Series Surface Mount
- CXB Series High-Bay / Low-Bay
- UR Series Retrofit Kits
- IG Series Parking Structure
- OSQ Series & Cree Edge™ Series Area / Flood
- Cree Edge™ Series Pathway
- CPY Series Canopy
- XSP Series Wallpacks
- DPT Series Post-Top Kits

## Participants

**End User:** McLaren Health Care  
**Implementation Partner:** Future Energy Group  
**Agent:** Michigan Lighting Systems East

Visit [betterlight.cree.com/mclaren](http://betterlight.cree.com/mclaren) or contact a Cree lighting representative to learn more.

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