

LIGHT THE SITE: **BATTERY-POWERED TOWER LIGHTS ADD JOBSITE SAFETY AND PRODUCTIVITY**

Lighting is the one piece of equipment that universally affects everyone on the jobsite. Since humans receive 80 percent of their information through the sense of sight¹, a well-lit jobsite is a necessity, not a luxury, to support safety and productivity.

Workers need proper lighting 24 hours a day, in all locations. Safety risks can increase or decrease with jobsite visibility, whether working in a dark mechanical room, during an electrical shutdown, on a night concrete pour, or repairing downed power poles during a storm.

Inadequate lighting on a worksite is not only a hazard to safety, but also a danger to health. The risk of accidents, injuries, and fatalities increases when a worker cannot correctly see the location, shape, or speed of an object. For workers, poor lighting can cause symptoms including eye strain, discomfort, and headaches, and result in reduced worker hours. This can lower productivity and quality, especially for precision work.²

Improved jobsite lighting can help avoid injuries and deaths. In 2019, the construction industry topped all others with 1,003 preventable fatal work injuries, a 2% increase (see chart).³ Practical safety measures to reduce the risk of injury can be as simple as using effective jobsite lighting in both harsh outdoor sites and specialized indoor conditions.











Visibility Hazards

The Occupational Safety and Health Administration (OSHA) regulates jobsites in standard 1926.56(a), among other standards:

"Construction areas, ramps, runways, corridors, offices, shops, and storage areas shall be lighted to not less than the minimum illumination intensities listed in Table D-3 while any work is in progress."

Noncompliance risks an unhappy workforce, jeopardizes the safety and health of employees, and can trigger legal costs, workers' compensation claims, and fines.

Poor lighting can contribute to falls, which are the leading cause of fatal workplace injuries. All "Fatal Four" accident categories (see graph)⁴ can potentially be impacted by inadequate lighting.

In addition to fatalities, poor lighting can contribute to slip, trip, and non-fatal fall injuries (see pie chart).⁵ Severe consequences like back injuries and torn ligaments can result.





Distribution of leading causes of nonfatal injuries resulting in days away from work in construction, 2015 (Private wage-and-salary workers))



Even a normally safe area in the daylight, such as an ordinary curb, can become a fall hazard after dark if lighting is absent. Workers on foot can be injured due to hidden hazardous conditions masked by poor lighting. These can include a change in elevation in a darkened area, a slick spot on a walkway, an unseen cord, or an obstacle in a dimly lit path, stairway, or parking lot.

Also, when heavy equipment is located on shadowy sites, workers may not be able to see where a moving object is located relative to them, how fast it's moving, or how it's shaped, with possible protruding attachments. Workers operating heavy machinery like bulldozers or backhoes could strike a crew member.

Portable battery-powered tower lights can help jobsites immediately meet the need for visibility.

The construction industry spends **OVER 71%** more on workers' compensation than all goods-producing industries combined.



A Better Way to Work

Lighting technology has leapfrogged from Thomas Edison's first commercially practical incandescent bulb in 1879 to today's era of LED tower lights.⁶ Each time, new technology disrupted the way people lived and worked. And each time, these innovations delivered on the belief: "There is a better way."

Innovations include:

- 1940s: Fluorescent lights tripled the efficiency of incandescent bulbs and lasted longer.
- 1990s: Compact fluorescent lights (CFLs) cut the energy use of incandescent bulbs by about 75 percent and lasted about 10 times longer.
- 1995: The age of LEDs (light-emitting diodes) began, with high-quality LED lamps using at least 75 percent less energy than incandescent lamps and lasting 25 times longer.⁷

Continuing the belief that "there is a better way," more recent innovations fundamentally changed temporary lighting:

- 2009: MILWAUKEE[®] became the first manufacturer to integrate LED lamps into battery-operated, cordless lighting solutions that are built to withstand jobsite conditions.
- 2020: The MX FUEL[™] ROCKET[™] Tower Light/Charger joined the new MX FUEL[™] line of battery-operated solutions that redefines light equipment.

Along with the evolution in technology, the mindset on today's jobsites is changing. Workers realize that safety risks they used to accept as "part of the job," such as the risks surrounding poor lighting, are addressable on the jobsite.

An example: In 2020, Koetter Construction began a field tryout of MX FUEL[™] battery-powered equipment. Koetter is one of the largest full-service, design-build general contractors and commercial developers in Southern Indiana and Greater Louisville, Kentucky. As a result of the months-long tryout, Koetter crews realized the benefits of eliminating gas-powered equipment and its maintenance. "You don't know what you don't know," Hardscape Manager Nick Moses said. "We accepted the problems but now we realize we don't have to."



4.64 Work-related medically consulted injuries in 2019.



The number of preventable fatal work injuries in the construction industry in 2019



Benefits of Battery Power

Workers are the most important resource in the skilled trades, and they need to return home each day just as safe as when they arrived at work. While on a jobsite, they need to make each moment as productive as possible.

Battery-powered tower lights provide safety and productivity gains as they:

Eliminate persistent cord hazards.

Cordless jobsites align with the well-known Hierarchy of Controls

where the first step is to "eliminate the hazard." This removes the chance that workers will trip and fall over often-tangled cords. With battery-powered equipment, there's no stringing extension cords hundreds of feet across a remote location or property, saving time. There's no risk of possible electrocution on a wet jobsite. There's no chance that someone will make a poor choice of where to hang a cord.

Eliminate gas engines used to power generators.

Sites become a zero-emission jobsite with no chance of carbon monoxide in confined or enclosed spaces. Crews can skip the time to make sure a site is properly ventilated before work starts. Also, there's no need to pay for gas, haul 5-gallon fuel tanks, or maintain filters, carburetors, and other parts of a gas engine. And, without a gas engine, there's less vibration and noise. Plus, users are freed from bulky, tow-behind lighting equipment that's hard to navigate on all terrain — and any hefty monthly rental fees.

Eliminate the infrastructure for temporary AC lighting.

With battery-powered light equipment, there's no need to change bulbs, and there's no maintenance to keep areas around light switches clear and accessible and to repair fixtures, switches, and cords immediately if they malfunction. The dedicated labor cost is gone, too. The time saved on managing this now-unnecessary equipment can be spent on actual work.

Eliminate location limits both indoors and outdoors.

While metal halide. halogen towers, and wobble lights are limited to indoors, and gas tower lights and balloon lights are limited to outdoors. battery-powered solutions can travel with the user anywhere.



Eliminate the need to search for a power source.

Plumbers, for instance, know what it's like to work in dark basements, running long stretches of pipe or chipping out concrete from old piping systems. With battery-powered tower lights, there's no need to hang lights to get power in the right spot. With battery-powered lights, there's no maneuvering for limited power on a jobsite, plugging into spider boxes, then blowing a circuit and delaying everyone else.





New Solution: ROCKET[™] Tower Light/Charger

The MX FUEL[™] ROCKET[™] Tower Light/Charger is the brightest battery-powered light in the industry and has no similar competitor in the battery-powered market.

The MX FUEL[™] ROCKET[™] Tower Light/Charger provides up to 27,000 lumens of task or area lighting while plugged in using an extension cord, or 20,000 lumens for 3 hours on high with a MX FUEL[™] REDLITHIUM[™] XC 406 Battery Pack. It can run up to 10 hours at a lower lumen setting. While plugged in, the light also has an integrated MX FUEL[™] battery charger.

The MX FUEL[™] ROCKET[™] Tower Light TRUEVIEW[™] LEDs come with a lifetime warranty and reinforced, impact-resistant bodies. The tower light is IP56 rated for outdoor water, UV ray, and dust protection. Outriggers allow for use in uneven terrain and the motorized mast reduces set-up time. The tower light can withstand 35 mile per hour winds, the same wind rating as many gas-powered units.

User-driven features add comfort and productivity. The 10-foot tower light has a low center of gravity and can be maneuvered nimbly like a dolly, avoiding overexertion and MSD injuries while transporting to different areas. The vertical mast construction means more units fit conveniently on a truck, resulting in fewer trips. Mid-range LED color temperatures paired with diffusers enhance eye comfort and minimize harmful glare. Plus, ONE-KEY[™] technology allows workers to monitor battery charge, set automatic timers, and program brightness and light direction without manually readjusting the light – all through the ONE-KEY[™] mobile app. Remote features are particularly important when the light is in hard-to-reach or remote areas – saving valuable worktime.

Support For Health and Safety Professionals

All workers, whether trainees or veterans, will continue to need safety protections to keep as many healthy and on the job as possible. The construction industry is expected to add nearly 800,000 wage-and-salary jobs between 2014 and 2024, double the rate projected for the overall economy (12.9% versus 6.5%).⁸ Yet, in December 2020, most contractors (83%) reported moderate to high levels of difficulty finding skilled workers.⁹

Hiring more new workers, especially those new to the trades, in the ongoing labor shortage means that employers and crews will need every resource available to support their safety.











SOLUTIONS ARE HERE – NOW – TO ADVANCE SAFETY GOALS

TAKE STEPS TO PREVENT DEATHS AND INJURIES PROACTIVELY

The number of preventable work deaths rose in 2019, totaling 4,572. In addition, work-related medically consulted injuries totaled 4.64 million in 2019.¹⁰ To combat these trends and make safety progress in a positive manner, choose batterypowered lighting equipment that can help prevent accidents from happening.



A gap can exist in personal safety. Workers routinely wear personal protective equipment (PPE), including hardhats, safety glasses, high-visibility vests, and reinforced-toe footwear. Yet, unfortunately, some "suit up" and then walk into poorly lit areas where darkness masks hazards. Protecting body parts with PPE while risking overall safety doesn't make sense. Provide whole-body protection with battery-powered tower lights.



Flickering lights that force eyes to constantly adjust, or too-bright lights that create glare and squinting, are as much of a problem as dim lighting. Constant visual adjustment causes fatigue and stress to workers. Proper lighting can become a response point for an organization, letting workers know that everyday work conditions are recognized and that they work for an organization that cares. Building a companywide safety culture is a choice that is reinforced in daily decisions, such as equipment selection. Purchasing batterypowered tower lights to avoid the dangers of poor lighting is a responsible investment in future worker health.



Wise spending today on extended-use equipment can save money tomorrow. Although a new LED light costs more than an incandescent, LEDs' energy efficiency and longevity means that users save money in the long run.¹¹ The construction industry spends over 71% more on workers' compensation than all goodsproducing industries combined.¹² Limit worker's compensation claims for injuries and illnesses and reduce expensive time, or days away from work, by preventing worker injuries (see chart).¹³ Support your organization with battery-powered light equipment to build future savings.

Bottom Line

Without adequate visibility, both new and veteran workers are more vulnerable to every jobsite hazard. Human eyes will focus on about 50 items per second,¹⁴ however, workers can't process what they can't see. To be safe and productive, crews need durable lighting they can rely on every single day.

Self-contained MX FUEL[™] ROCKET[™] Tower Lights are a game-changing solution. Custom settings adjust with precision to every jobsite they join, adding safety, productivity, and ease of use.

"



References

- ¹ https://www.encyclopedia.com/medicine/news-wires-white-papers-and-books/special-senses
- ² https://safetystage.com/osha-compliance/osha-lighting-requirements/
- ³ https://injuryfacts.nsc.org/work/costs/work-injury-costs/
- ⁴ The Construction Chart Book: The U.S. Construction Industry and Its Workers, Sixth Edition, eChartBook. The Center for Construction Research and Training, CPWR. February 2018. Page 43.

⁵ Ibid.

- ⁶ https://www.energy.gov/articles/history-light-bulb#LEDs
- ⁷ https://www.softschools.com/timelines/history_of_the_light_bulb_timeline/284/
- ⁸ The Construction Chart Book: The U.S. Construction Industry and Its Workers, Sixth Edition. The Center for Construction Research and Training, CPWR. February 2018. Page xvii.
- ⁹ U.S. Chamber of Commerce Commercial Construction Index, December 10, 2020. https://www.uschamber.com/report/us-chamber-of-commerce-commercial-construction-index-2020-q4-0
- ¹⁰ https://injuryfacts.nsc.org/work/work-overview/work-safety-introduction/
- ¹¹ https://www.statista.com/topics/1144/led-lighting-in-the-us/
- ¹² The Construction Chart Book: The U.S. Construction Industry and Its Workers, Sixth Edition, eChartBook. The Center for Construction Research and Training, CPWR. February 2018. Page 54.
- ¹³ https://injuryfacts.nsc.org/work/costs/work-injury-costs/
- ¹⁴ https://discoveryeye.org/way-eyes-work/