Energy focus™

INNOVATING THE FUTURE

Energy Focus **RedCap**™

Setting the New Standard for Emergency Lighting

Emergency TLED for Standard and Emergency Lighting

Understanding Emergency Lighting Regulations

A facility's evacuation procedure relies on emergency lighting illuminating the path to safety. With so many applications that utilize a safety fallback – seatbelts and airbags in cars, fire alarms in homes, and fire extinguishers in commercial or industrial applications – it is a mandatory for the equipment designed to save lives function properly, automatically, and efficiently. Currently, emergency lighting systems are cumbersome to install and often detract from the aesthetic value of a space. More importantly, the guidelines for functionality are often overlooked and in an emergency, the lighting fails. A modern approach to emergency lighting is a growing discipline that requires innovative design, compliance to regulations, and easy installation methods.

Understanding these challenges can save time and money, and can ultimately be the difference between the lights coming on in an emergency or leaving a facility in the dark. Energy Focus has incorporated a solution that solves many of the difficulties with an overview of the challenges involved.

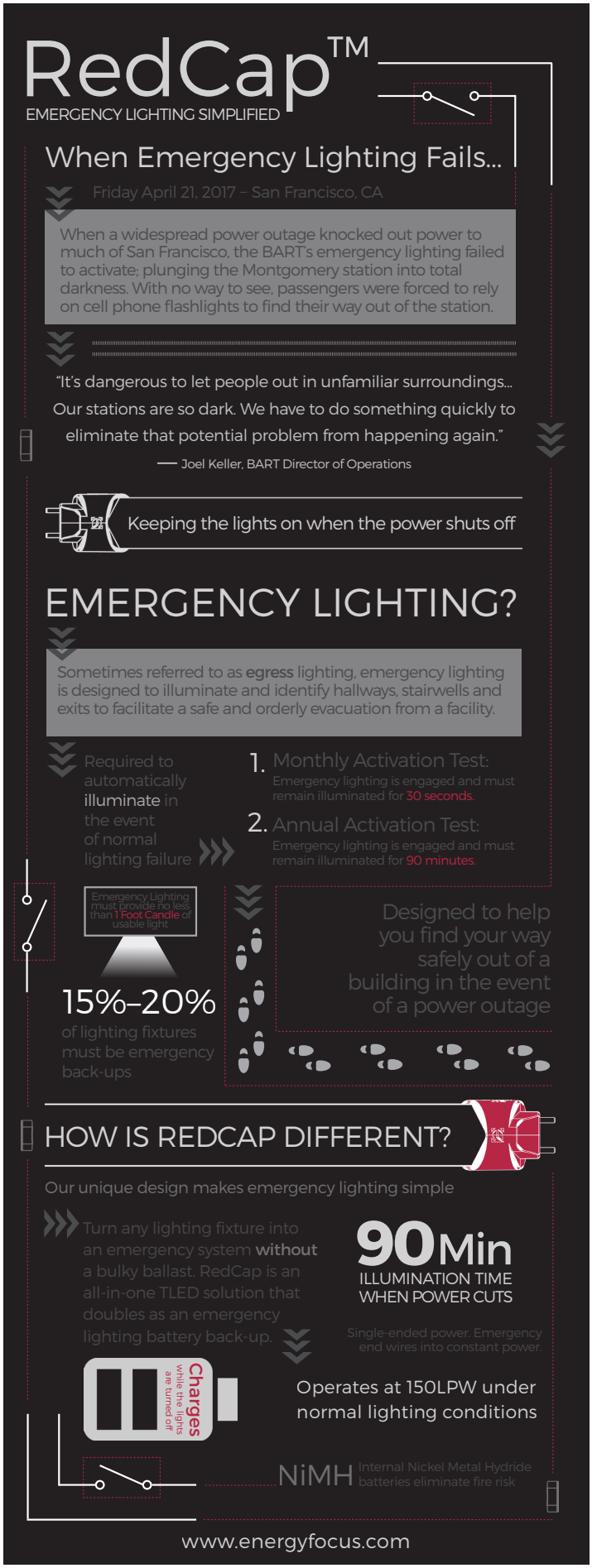
Overview

Emergency lighting must represent 2-3% of the total lighting in a commercial or industrial construction project.[1] Therefore, emergency lighting manufacturers must face the challenge of balancing functionality while maintaining minimal impact on the design of a space. In addition, more stringent guidelines for emergency lighting have been enacted due to several regulatory and environmental factors. The growing uncertainties in sudden natural disasters (hurricanes, earthquakes, tsunamis, etc.) have increased government focus towards better safety standards.[2]

The government has developed the following technical requirements emergency lighting manufacturers must comply with:

- Occupational Safety and Health Administration (OSHA) Code of Federal Regulations
- UL 924 safety and performance standards
- NEC 700 & 701
- International Building Code (IBC)
- International Fire Code (IFC)

It is up to the facility to maintain functionality of all emergency lighting systems to keep within all compliance specifications.



Ensuring the Lights Stay on Even When the Power Shuts Off

Sometimes referred to as egress lighting, emergency lighting is designed to illuminate and identify hallways, stairwells and exits to facilitate a safe and orderly evacuation from a building. In order to comply with these safety and technical requirements, an emergency lighting system must provide at least 90-minutes of usable light and illuminate automatically in the event of a power failure. This is the code-required time needed to safely evacuate a building. An emergency lighting system must be guaranteed to function in the event of an power failure, so in order to comply with federal regulations, these systems must pass a monthly activation test as well as an annual test that requires the light remain illuminated for the full 90-minutes.[3]

With growing government support and increasing awareness levels about the benefits associated with emergency lighting among consumers, growth opportunity for this market is imminent. In addition, power outages, severe weather and aging infrastructure on the rise, there is a growing need for better safety standards and incorporation of smart lighting in emergency lighting. This is a major opportunity that is expected to drive the future growth of the emergency lighting market.[2]

Integrating the emergency lighting function within the LED tube itself, now possible using state-of-the-art electronics, makes sense from the point of view of safety, simplicity, efficiency, aesthetics and cost. Combining innovative technology, regulatory compliance, and a simple installation, Energy Focus' RedCap™ can provide the difference between the lights coming on in an emergency or leaving a facility and its inhabitants in the dark.

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VAN DORN 120
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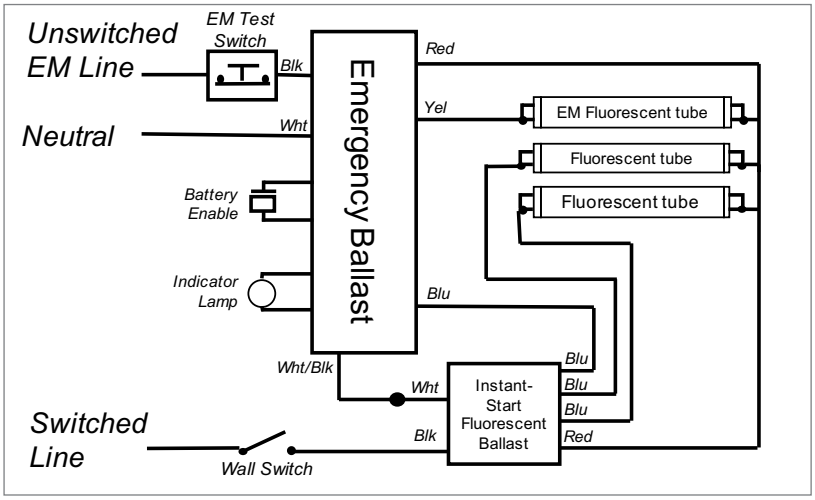
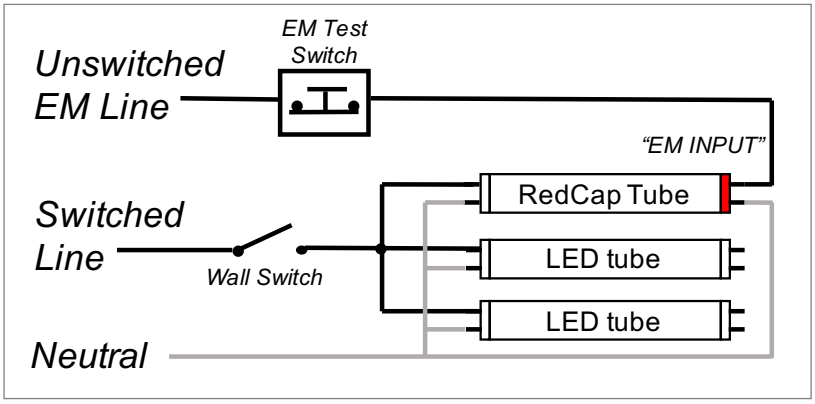
What Makes RedCap Different?

A traditional fluorescent emergency lighting system can consist of an emergency ballast (battery packs), fluorescent ballast, and fluorescent tubes located in the luminaire (Figure 1). The emergency ballast includes the battery enable switch and indicator lamp. In addition to the multiple pieces to this traditional system, using fluorescent battery packs reduces lumen output and the output may only be optimized for a specific lamp/ballast combination.

Typical Fluorescent Emergency Ballast Wiring Diagram



RedCap™ Emergency Lamp Wiring Diagram



(Figure 1)

The Energy Focus RedCap™ is a high performance, self-ballasted TLED, providing 150 LPW efficacy, rechargeable high-temperature batteries, along with charger, discharger, and indicator light in one tube (figure 2). This allows an 11W lamp to illuminate for the electrical-code-required 90 minutes.

With the RedCap, any socket in any luminaire can be rewired for normal operation and emergency backup without the need for panels, relays, external battery or emergency ballast. Since everything is integrated, the wiring is straightforward: one end of the tube is wired for normal, switched operation. The other end – the end with the red endcap – is wired to always-on AC power ("emergency mains").

The internal battery pack automatically charges as needed when power is available. Upon power outage, the RedCap™ lamp automatically switches to emergency mode to provide 90 minutes of light.

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An Industry Missing Need

RedCap™ is a standard LED lamp that also functions as the emergency backup.

Currently, there are only the following standard LED types for emergency lighting:

Type A
Direct-Fit

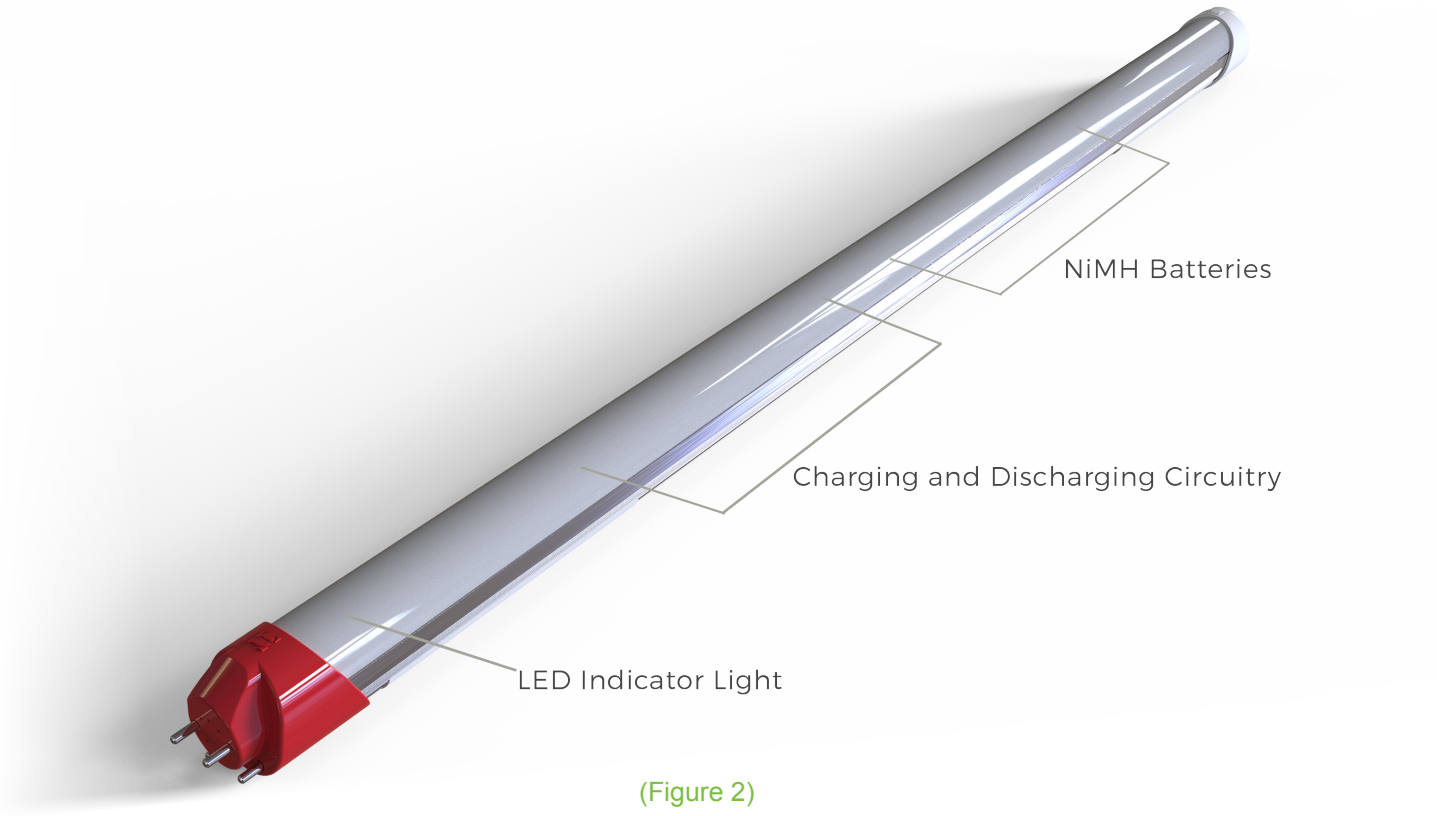
Rely on an external ballast to operate regularly. These lamps don't always work on fluorescent emergency backups.

Type B
Direct-Wire

Lamp is direct-wired into standard electrical mains. For emergency lighting, the TLED requires an external battery unit and transfer switch for emergencies

Type C
External Driver

Requires a standard driver and separate emergency driver that works well but can be expensive for components and labor.



(Figure 2)

Why Choose Energy Focus RedCap™?

Standard lamp and emergency lamp are integrated into ONE lamp

Ballast no longer required

Utilizes LED technology, which dramatically increases efficiency and extends battery life.

Easy to install

Less maintenance

Consumes less space than traditional emergency lighting systems.

Energy Focus integrates the emergency features into the existing Type B TLED thereby reducing costs and improving market acceptance. Traditional fluorescent systems involve a cumbersome installation that can take up to 30+ minutes per fixture on the lamp, ballast and external battery driver installations. The Energy Focus RedCap™ requires fewer wires for operation, which dramatically reduces product and labor cost for mandated emergency backup lighting needs – taking around 15 minutes for direct-wire installation. This makes replacement and renewal as simple as changing a light bulb, ensuring that continued maintenance of the emergency system poses a minimal burden.

With the level of responsibility associated with emergency lighting, reviewing compliance is a way to verify product reliability. Energy Focus RedCap™ is the first UL approved emergency integrated TLED lamp in the market – meeting UL's functionality and reliability standards. The internal battery backup also provides at least 90 minutes emergency operation. In addition to UL, the Energy Focus RedCap™ is DLC listed verifying its impressive level of lumen output and efficacy. The combination of its innovative technology, periodic emergency switch testing and the RedCap™'s 5-year warranty provides the assurance in safety all businesses can rely on.

Sources

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