

REMOTE FIXTURES OVERVIEW

EMERGENCY LIGHTING HEADS: PERFORMANCE & TECHNOLOGY

Emergency Lighting Heads represent a key element of an emergency lighting system performance. During a power failure, these lamp heads must provide adequate lighting levels for safe evacuation. What level of illumination is necessary to ensure safe evacuation? Minimum levels are established by the National Building Code of Canada:

3.2.7.3. EMERGENCY LIGHTING

- 1 - Emergency lighting shall be provided to an average level of illumination not less than 10 lx at floor or tread level
- 2 - Emergency lighting to provide an average level of illumination of not less than 10 lx at floor or catwalk level shall be included in a service space referred to in Sentence 3.2.1.1.7).
- 3 - The minimum value of the illumination required by Sentences (1) and (2) shall not be less than 1 lx."

You have probably already noticed the short lamp life of these light sources. Who would be interested in using a bulb that only lasts 50 hours? The answer is simple: such a lamp produces 25% to 30% more light than a lamp of the same wattage but longer lamp life (i.e. 1,000 hours). By design, the filament in an emergency lighting head is used at higher temperatures, increasing light output. During a power failure, the emergency power supply is provided to the heads from batteries. Equipment manufacturers and customers should use high intensity light sources, with efficient light levels and distributions.

MINIATURE LAMPS: TUNGSTEN AND QUARTZ HALOGEN

Most commonly used emergency lighting heads are fabricated of an injection-molded thermoplastic housing containing a miniature lamp, a metallic reflector and a polycarbonate lens. Lamps use a tungsten filament enclosed in a filling gas mixture of argon and nitrogen and are generally referred to as incandescent lamps. Better performance is obtained with quartz halogen lamps, which are still incandescent lamps, but the filling gas (iodide/chloride) allows the tungsten filament to operate at higher temperatures. This results in higher luminous intensity, 20 to 30% superior to standard incandescent lamps of the same wattage and lamp life. However, using high temperatures also increases vaporization of the filament which shortens its life. As power failures are relatively scarce (let's say 4 to 6 per year) and duration of emergency lighting between 30 minutes to 2 hours, lamp heads are only used between 3 to 12 hours per year. A lamp with an average life of 50 hours should therefore be functional for over four years. Lamp manufacturers offer two types of miniature lamps: long life and high light output.

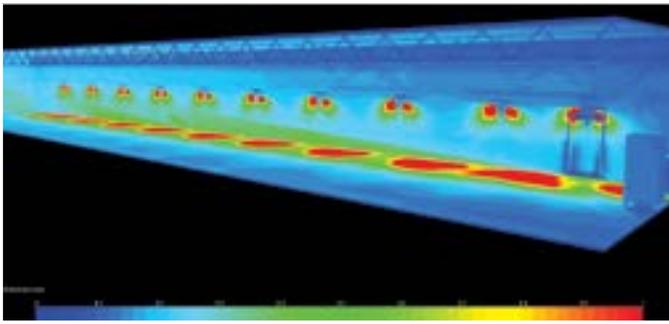
PAR36 SEALED BEAM LAMPS

Emergency head performance also depends on lamp optics: the reflector and the lens. This is especially critical in damp areas where vapors and water condensation can deteriorate the electrical contacts and the reflector performance. Sealed beam lamps are recommended for such applications. Sealed beam lamp construction includes a metal coated glass reflector and a lens, designed to provide a light beam of a certain opening: narrow, medium, large, etc. The most common lamps used are those with a 4.5" diameter (PAR36), available in both incandescent and halogen versions. As to miniature lamps, there are sealed beam lamps dedicated to long life applications (4,000 hours, 7-8 lumens/Watt) and for emergency lighting (50 to 300 hours, 12-20 lumens/Watt). Originally, lamp life wasn't an issue. However, this has become increasingly important in recent years, with the introduction of sophisticated emergency lighting fixtures with periodic self-test and self-diagnostic features. Such a system includes a micro-controller board that automatically simulates a power failure and forces the fixture in emergency lighting mode every 30 days for at least 30 seconds and tests both the batteries and the lamps. Even if the duration of the self-test is minimal compared to the lamp life, the repetitive connection and disconnection cycle of the lamps increases the risk of a premature failure caused by the initial high current applied.

MR16 GENERATION

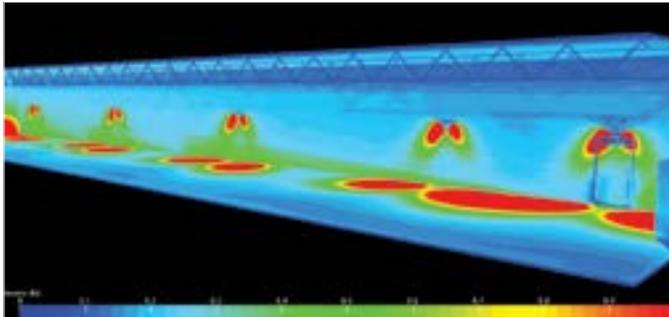
Fortunately, the lamp life issue was resolved with a new generation of lamps that use MR16 technology (MR16 stands for Multi-faceted Reflector, 16/8" diameter). Increasingly popular, the MR16 contains everything in one: miniature halogen lamp, metal coated glass reflector and, for the most part, a glass lens cemented to the reflector. Easy to install, MR16 lamps are popular in both residential and commercial applications, and increasingly specified for emergency lighting. In addition to their bright directional beam, these lamps offer good efficacy (11 to 18 lumens/Watt), as well as long life (2,000 to 6,000 hrs). First, the use of a glass lens which is clear and thin, allows the MR16 to absorb much less light than a standard diffuser lens; and second, efficient light distribution is accomplished by the multi-faceted reflector.

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STANDARD WEDGE-BASE 9W INCANDESCENT LAMP

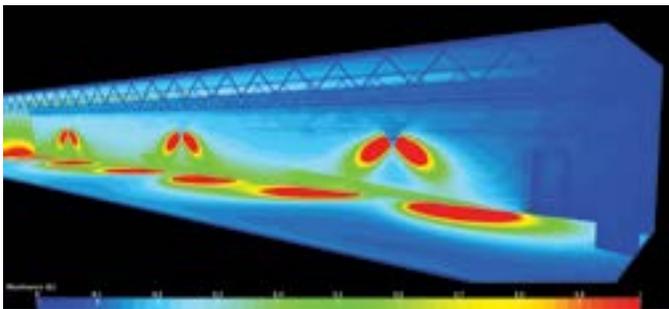
Standard Emergency Lighting Units with 9W wedge-base incandescent lamps



4W MR16 LED LAMPS

Same Standard Emergency Lighting Units with 4W MR16 LED Lamps

LAMP SUFFIX	VOLTAGE	WATTAGE	LUMENS	REPLACEMENT #
LD1	6	4	200	580.0097-RL
LD7	12	4	220	580.0093-RL
LD13	24	4	220	580.0098-RL



5W MR16 LED LAMP

Same Standard Emergency Lighting Units with 5W MR16 LED Lamps

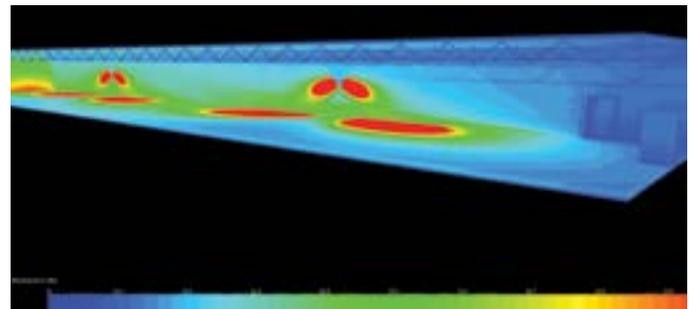
LAMP SUFFIX	VOLTAGE	WATTAGE	LUMENS	REPLACEMENT #
LD9	12	5	340	580.0104-RL

340-LUMEN 5W MR16 LED

Keeping pace with technology, in 2012 we introduced a 12V-5W MR16 LED lamp. With a typical luminous flux of 340 lumens, this lamp has the same lighting performance as a 20W high-output halogen MR16. A twin emergency head installed at a height of 7.5ft illuminates more than a 70ft path of egress.

200 TO 220 LUMEN 4W MR16 LED

Leading the technology trend, **Ready-Lite®** offers a complete series of 4W MR16 LED lamps available for all the standard battery voltages: 6V, 12V, 24V and 120V. With up to 30,000 hours of operational life and a luminous flux of typically 220 lumens, they are available with most emergency heads designed to hold an MR16 lamp and meet the majority of illumination specifications. For example: one pair of LED emergency heads installed at a height of 7.5ft, illuminates a 6ft by 40ft path of egress. Compared to halogen lamps (16-20W), these 4W MR16 LED lamps illuminate the same area of egress during an emergency situation by using 75% less power. This has a direct impact on the battery size, reducing the back-up capacity needs by 75%. Consequently, it also reduces the total cost of the application, with the use of smaller battery capacity units, the possibility of using fewer fixtures due to superior illumination, thus also reducing electrical wiring, and it reduces the environmental footprint.



NEW! 6W MR16 LED LAMPS

Same Standard Emergency Lighting Units with 6W MR16 LED Lamps

LAMP SUFFIX	VOLTAGE	WATTAGE	LUMENS	REPLACEMENT #
LD10	12	6	540	580.0106-RL

540-LUMEN 6W MR16 LED

New in Fall 2013, we introduced a 12V - 6W MR16 LED lamp, which offer typical luminous flux of 510 lumens. Like the lower wattage MR16 LED lamps, this new lamp is specially designed for emergency lighting. It offers the same lighting performance as the 35W MR16. A twin emergency head installed at a height of 7.5' illuminates approximately 100' path of egress.