

# Exit Signs and Emergency Lighting

Exit signs and emergency lights are a critical part of egress during an emergency or power outage. Exit signs and emergency lights help guide people to exits when they are unfamiliar with the area or panicked, or have impaired vision.

Measuring the intensity of light in a space is accomplished by evaluating how much light falls within a single square foot (or square meter) of floor space. The light level measured in a single square foot of floor space is referred to as a footcandle, while a Lumen/Lux measures the light intensity within a single square meter of floor space. Common light metering equipment is used to determine the lighting level in an area of floor space.

## Exit Signs

The Minnesota State Fire Code (MSFC) allows two common types of listed and labeled UL 924 exit signs. The first and most common is an internally illuminated exit sign. This sign has power stemming from the building electrical system. The second type operates independently (no power required) and is referred to as a self-luminous exit sign (see MSFC Section 1104.3).

Internally illuminated and self-luminous exit signs must both be located in areas where two or more exits are required from a room, area, or story. They must be placed at each exit door or exit access door where they are readily visible from any direction of egress travel.

Internally illuminated exit signs must have a light intensity of at least five footcandles and be distinctive in color.

Self-luminous exit signs are required to have a minimum luminance surface value of at least .06-foot-lamberts. Foot-lamberts, unlike footcandles or Luxes, represent the intensity of light emitted at the unit and not at the floor. Measuring foot-lamberts requires specialized equipment and calculations. It is recommended that product information sheets or test data be reviewed before installation if there are any questions about a product's ability to meet lambert requirements.

Exit signs are not required on main exit doors where the doors are obviously and clearly identified as an exit. They are also not required in housing areas of jails or prisons; inside homes, hotel rooms or apartment dwelling units; and in sheds, garages or utility buildings.

## Emergency Lighting

Emergency lights are critical to egress during an emergency or a simple power outage. They are not intended to act as a backup light source to continually inhabit or work in the area that is experiencing a loss of power. The MSFC requires that emergency lighting automatically activates and provides 1 footcandle of illumination or 11 Lumens/Luxes for a minimum of 30 minutes after the failure of normal lighting (see MSFC Section 1104.5.3).



# Minnesota Department of Public Safety State Fire Marshal Division

## Inspection and Testing of Exit and Emergency Lights

To ensure that the emergency and exit lights will work when required, they must be inspected, tested, and maintained. When it comes to emergency lighting equipment, there are a few common components that require inspection, testing and maintenance. Exit and emergency lighting all consist of a few main components: bulbs, main housing, and a backup power source such as batteries. A required 30-second monthly activation test and 30-minute annual power test of all these components will ensure that lights are able to operate for the full 30 minutes as required.

Monthly 30-Second Activation Test	MSFC Section 1031.10.1
<p>The 30-second test can be accomplished by pushing the test button and holding it for 30 seconds.</p> <p>Note: Internally illuminated exit lights typically consist of two sets of bulbs. One set remains on at all times when connected to building power, and the other set comes on when the light is running on batteries. It is not uncommon for exit lights to appear to work, but fail testing when placed on battery power.</p>	<p><b>Visual inspection</b> The housing should not be broken, damaged or otherwise impaired.</p> <p><b>Bulb inspection</b> All bulbs should come on and remain on throughout the entire 30-second test.</p> <p><b>Battery testing</b> The lights shall remain the same level of brightness for the full 30 seconds. Any dimming of the bulbs during the 30-second test indicates a failing battery. When lights are equipped with a self-test or self-diagnostics feature, a visual inspection of the emergency lighting equipment shall be conducted monthly to identify any equipment displaying a trouble indicator or that has become damaged or otherwise impaired.</p>
Annual 30-Minute Power Test	MSFC Section 1031.10.2
<p>The 30-minute test can be accomplished by removing the light from power via a circuit breaker or fuse.</p> <p>Battery-load testing equipment is also an approved means of testing.</p>	<p><b>Visual inspection</b> The housing should not be broken or damaged or otherwise impaired.</p> <p><b>Bulb inspection</b> All bulbs should come on and remain on throughout the entire 30-minute test.</p> <p><b>Battery testing</b> The lights shall remain the same level of brightness for the full 30 minutes, or when using battery load test equipment the battery must test at 80 percent battery life or better.</p>

For questions regarding exit signs and emergency lighting, please contact the Minnesota State Fire Marshal Division at 651-201-7221 or by email at [fire.code@state.mn.us](mailto:fire.code@state.mn.us).

