



Hazardous Location Emergency Lights & Exit Signs - Complete Guide

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Overview

Hazardous location emergency lights and exit signs are vital for keeping workers safe in environments where explosive gases, vapors, or combustible dust may be present. These locations include oil refineries, chemical processing plants, paint spray booths, grain silos, and textile mills—places where a single spark could cause disaster.

Unlike standard emergency lights, these fixtures are specifically designed to prevent ignition. Housings are explosion-proof, lamps are enclosed, and internal circuitry is shielded from the surrounding atmosphere. They also comply with rigorous safety standards like **UL 844** and **NEC Class/Division ratings** to ensure suitability for harsh, dangerous conditions.

In this guide, you'll learn how to identify the correct fixture based on **Class and Division**, ensure **compliance with OSHA and NFPA 101**, and choose between **exit signs, emergency lights, and combo units**. We'll cover critical buying factors like **lettering color, single vs. double face options,**

self-testing diagnostics, battery backup runtime, and materials used in construction.

Highlight: Every hazardous location light or exit sign must be matched to its specific Class and Division rating-using the wrong fixture in a volatile environment is a serious safety violation.

Hazardous Location Classification: Classes & Divisions

The National Electrical Code (NEC) defines hazardous locations based on the presence of flammable substances and how often those substances are present. Understanding these classifications is essential when selecting lighting and signage for dangerous environments.

Classes describe the type of hazardous material present:

- **Class I:** Flammable gases or vapors (e.g., gasoline, hydrogen)
- **Class II:** Combustible dusts (e.g., grain dust, coal dust)
- **Class III:** Ignitable fibers or flyings (e.g., cotton, wood shavings)

Divisions indicate how often the hazard is present in the environment:

- **Division 1:** Hazard is present under normal operating conditions
- **Division 2:** Hazard is present only under abnormal conditions (e.g., leaks, system failures)

For example, a paint spray booth with constant vaporized solvents would be Class I, Division 1, while a storage room adjacent to that booth might be Class I, Division 2. Each light or sign must be rated for the exact Class and Division of its installation location.



Pro Tip: Always verify the hazard classification of your environment before selecting emergency lighting-choosing a lower-rated fixture can result in code violations and serious safety risks.

Compliance and Safety Requirements

Hazardous location emergency fixtures must meet strict national safety regulations and certifications to be legally installed and operated in high-risk environments. These standards ensure that the units provide reliable illumination during emergencies and do not pose additional ignition risks themselves.

- **UL 844 & UL 924 Listings:** UL 844 certifies lighting fixtures for hazardous locations, while UL 924 governs emergency lighting and power systems. Your selected unit must carry both listings to satisfy building and fire codes.
- **NFPA 101 (Life Safety Code):** Requires emergency egress lighting to illuminate escape paths for a minimum of 90 minutes during power failure. This applies equally to hazardous and non-hazardous areas.
- **OSHA Requirements:** OSHA references NFPA and NEC guidelines and enforces compliance. Employers are responsible for ensuring that fixtures are installed and maintained according to these standards.
- **NEC Article 500-506:** These articles define how hazardous locations are classified and how electrical equipment must be rated and installed in those locations.

Exit signs must also meet certain formatting and placement requirements:

- **Letter height:** Minimum 6" tall with a 3/4" stroke width (larger in some jurisdictions like NYC)
- **Illumination:** Internally or externally lit, visible at all times, and legible from at least 100 feet away
- **Battery Backup:** Must maintain illumination for at least 90 minutes after power loss

Reminder: Even if a fixture is explosion-proof, it must also meet emergency lighting and exit sign codes such as UL 924 and NFPA 101 to be compliant.

Single vs. Double-Faced Exit Signs

When selecting an exit sign for a hazardous location, one of the first decisions is whether you need a **single-faced** or **double-faced** unit. This choice depends on the viewing angle and where the sign will be mounted.

- **Single-faced signs** display the "EXIT" legend on one side only and are ideal for wall mounting where visibility is needed from one direction.
- **Double-faced signs** have the legend on both sides and are designed for ceiling or flag-mounting in areas where people approach from multiple directions.

Double-faced signs are commonly used in large open spaces, corridors, or intersection points. Many units allow for field-selectable configurations, offering faceplate inserts or reversible panels so you

can choose the appropriate orientation at the time of installation.

Reminder: If your exit is located in a hallway intersection or open room, a double-faced sign ensures visibility from both directions-avoiding the need to install two separate signs back-to-back.

Exit Sign Letter Color: Red vs. Green

Choosing between red and green lettering for your hazardous location exit sign depends largely on visibility, aesthetics, and local code requirements. Both colors are typically allowed under national codes, but there may be regional preferences or mandates.

Red Lettering: Red is the traditional color for exit signs in the U.S. and is still required in certain jurisdictions. It stands out in low-light conditions and is often perceived as a color that conveys urgency. Many municipalities, including New York City and Chicago, mandate red lettering for consistency and visibility.

Green Lettering: Green is also code-compliant in most areas and has gained popularity due to its association with safety and clarity. It is especially preferred in newer buildings and internationally where green indicates safe egress. Green may offer slightly better visibility through smoke in some scenarios.

Local Requirements: While federal guidelines such as NFPA 101 and OSHA do not mandate a specific color, local authorities having jurisdiction (AHJs) may specify red or green. Be sure to consult local building and fire codes before making a final decision.

Most manufacturers offer hazardous location exit signs in both red and green options. For uniformity and code compliance, it is best to use the same color consistently throughout your facility.

Size Considerations

Size plays a crucial role in ensuring exit signs and emergency lights are effective and code-compliant in hazardous environments. Here are several key considerations when evaluating size:

- **Letter Size and Visibility:** According to NFPA 101, exit sign lettering must be at least 6 inches tall with a 3/4 inch stroke width. This ensures legibility from at least 100 feet away under normal lighting conditions.
- **Larger Requirements for Specific Jurisdictions:** Some areas, such as New York City, require larger characters-typically 8 inches in height and a 1-inch stroke width. Always verify local codes to ensure compliance.
- **Fixture Dimensions:** Explosion-proof and hazardous location-rated fixtures tend to be bulkier than standard models. Allow enough clearance for installation, especially if the unit includes emergency lighting heads.
- **Mounting Height:** For maximum visibility, the sign must be mounted high enough to avoid obstructions but within a reasonable viewing range. If the ceiling is especially high, consider wall-mounted signs or signs with larger letters for improved visibility.



Choosing the right size ensures that signage is visible in emergency conditions and helps occupants evacuate quickly and safely. Additionally, proper spacing between signs in large facilities ensures continuous egress visibility.

Key Features to Consider

When selecting hazardous location exit signs and emergency lighting, it's essential to evaluate critical features that impact safety, longevity, and ease of maintenance.

- **Battery Backup:** All units must operate for a minimum of 90 minutes during a power outage. Choose models with reliable sealed lead-acid, NiCad, or lithium-ion batteries. Consider cold-weather battery options if operating below freezing temperatures.
- **Self-Testing:** Many modern units feature built-in self-testing diagnostics that automatically check lamp function and battery readiness on a monthly or annual basis. This helps simplify compliance with OSHA and NFPA maintenance requirements.
- **Dual Voltage Compatibility:** Most commercial fixtures support both 120V and 277V systems.

Ensure your unit is compatible with the building's electrical infrastructure.

- **Illumination Type:** LED is the preferred light source for both exit signs and emergency lights due to low energy use, long lifespan, and durability. Avoid older halogen or incandescent options in hazardous environments.
- **Lighting Head Adjustability:** Combo units with emergency light heads should allow for aiming to optimize coverage of egress paths, stairwells, or work areas.
- **Temperature Ratings:** Confirm the unit's operational range is suited for your location, especially for outdoor or industrial environments with high heat or freezing temperatures.
- **Ingress Protection (IP/NEMA Rating):** Look for NEMA 3, 4, or 4X rated enclosures for wet or corrosive conditions, and ensure the fixture is sealed against dust or vapor intrusion.

These features not only ensure code compliance but also reduce long-term maintenance and increase reliability in demanding environments.

In hazardous locations, both types must still meet the same UL 924 and UL 844 requirements. Always confirm that each unit is properly rated for the class/division of your environment.

Reminder: In hazardous locations, both exit sign/emergency light combo units and separate fixtures must meet UL 924 and UL 844 standards. Always ensure the unit is rated for the correct Class and Division.

Construction Materials and Durability

Fixtures designed for hazardous locations must be built to withstand extreme conditions while minimizing the risk of ignition. The materials used directly impact a product's safety, longevity, and performance.

- **Housing Material:** Most hazardous location fixtures are constructed from die-cast aluminum or heavy-duty steel. Aluminum is lightweight, corrosion-resistant, and commonly used for explosion-proof housings. Steel offers superior strength and is sometimes required by local codes (e.g., in Chicago).
- **Lens and Faceplates:** High-impact polycarbonate or tempered glass is typically used to protect the EXIT legend and lighting components. These materials resist shattering, vibration, and environmental exposure.
- **Sealing and Gaskets:** Units should include industrial-grade gaskets and sealed seams to prevent dust, gas, or moisture from entering. Conduit hubs and wiring knockouts should also be explosion-proof.
- **Finish and Coatings:** Powder-coated finishes help protect against corrosion and abrasion,

especially in marine, chemical, or outdoor environments.

- **NEMA Ratings:** Most fixtures should be NEMA 3, 4, or 4X rated depending on exposure conditions. NEMA 4X adds corrosion protection and is ideal for harsh industrial or coastal environments.

Choosing the right material ensures your exit signs and emergency lights perform reliably for years- without frequent maintenance or risk of failure in critical situations.

Summary

Choosing the correct emergency lighting and exit signage for hazardous locations involves balancing safety, compliance, and performance. Start by identifying the environment's **Class and Division** rating to ensure explosion-proof compatibility. Confirm each fixture meets all relevant codes, including **UL 844**, **UL 924**, **NFPA 101**, and **OSHA** regulations.

Determine whether you need **single- or double-faced signs** based on visibility requirements, and select the appropriate **letter color** (red or green) per local codes. Evaluate the space and layout to decide between using **combo units** or **separate fixtures** for lighting and signage. Consider additional features such as **self-testing**, **battery runtime**, and **illumination technology** to reduce maintenance and improve reliability.

Finally, make sure materials and construction meet the demands of the space, including exposure to dust, moisture, chemicals, or extreme temperatures. By carefully assessing each of these factors, you'll ensure that your emergency lighting system performs effectively and safely-protecting your facility and personnel when it matters most.