Is lighting suitable for industrial distribution boxes



Overview

A Guide For Lighting Design In Industrial ApplicationsThis guide explores the key principles of industrial lighting design from lux requirements and glare.

Key Takeaways

Industrial distribution boxes and warehouse areas should maintain a minimum of 5 foot-candles at floor level, with uniform illumination, high color rendering, and emergency lighting provisions to ensure safety and operational efficiency.

Minimum Illumination Standards

For industrial distribution areas, OSHA mandates a minimum of 5 foot-candles (fc) at floor level for general work areas, while loading platforms and certain maintenance zones require at least 3 fc. Stairways and passageways should maintain 2 fc at all points. These minimums ensure workers can safely handle boxes, operate equipment, and navigate aisles without risk of accidents.

Uniformity and Layout

Proper lighting layout is critical to avoid dark spots and shadows, especially in high-palletized or narrow-aisle storage areas. Fixtures should be closely spaced overhead with widespread distribution to illuminate both floor and vertical surfaces, allowing clear identification of labels and bins. Triangular patches of light at the top of racks can be minimized by combining overhead and side-mounted luminaires.

Photometric analysis is recommended to ensure even light distribution without glare or excessive contrast.

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Fixture Selection

High bay LED fixtures are ideal for elevated ceilings and large open areas, providing uniform horizontal and vertical illumination.

Linear LE

D strip lights can be used for task-specific areas, such as production benches or equipment bays, to enhance visibility for detailed work. Fixtures should be durable, moisture- and dust-resistant, and suitable for the environmental conditions of the facility, including cold storage or washdown areas.

Color Rendering and Visual Comfort

A Color Rendering Index (CRI) of 80+ is recommended to accurately distinguish colors, which is essential for quality control and inventory management. Minimizing contrast between illuminated and dark areas reduces eye strain and improves worker comfort.

Emergency and Standby Lighting

Industrial distribution boxes must include emergency lighting systems capable of providing illumination during power outages. Systems can be integrated with central battery backups or individual emergency units, ensuring safe evacuation and continued operations. Energy Efficiency and ControlsLED lighting is preferred for industrial distribution areas due to energy savings of 50–90%, reduced maintenance, and improved visibility.

Smart sensors, dimming controls, and occupancy-based lighting can further optimize energy use while maintaining compliance with OSHA and IES standards.

Best Practices

Conduct a detailed lighting plan mapping floor layouts, ceiling heights, shelving dimensions, and task areas. Ensure uniform illumination across aisles and racks to prevent shadows and dark spots. Use anti-glare optics and appropriate mounting heights to improve visual comfort.

Regularly verify lighting performance and maintain fixtures to sustain compliance and operational efficiency. By adhering to these standards and best practices, industrial distribution facilities can ensure worker safety, operational efficiency, and regulatory compliance while optimizing energy use and visual performance.

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Article Content

A Guide For Lighting Design In Industrial Applications

This guide explores the key principles of industrial lighting design from lux requirements and glare control to energy-saving technologies helping you make informed choices that improve

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Main technical conditions of lighting distribution box

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Learn about the different types of light distribution, including direct, indirect, diffused, and symmetrical. Discover how to choose the right option for your space.

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