# Requirements for electrical distribution boxes in auto repair work areas



## Overview

86.2.1 Access to electrical work. It shall be the duty of the permit holder to cause the work to remain a cessible for inspection purposes.

## Key Takeaways

Electrical distribution boxes in auto repair areas must comply with NEC and OSHA standards, ensuring proper enclosure, grounding, working space, load capacity, and safety labeling.

### Compliance and Standards

Distribution boxes must adhere to National Electrical Code (NEC) and Occupational Safety and Health Administration (OSHA) regulations.

### OSH

A requires that electrical equipment be free from recognized hazards, suitable for its intended purpose, and installed according to manufacturer instructions and code provisions (29 CFR 1910. 303).

NE

C standards specify proper box sizing, grounding, and material selection to prevent electrical hazards.

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## Enclosure and Material

Material: Use metal (stainless steel or aluminum) or durable plastic. Metal boxes must be properly grounded, and plastic boxes should resist water, sunlight, and mechanical damage. IP/NEMA Ratings: Choose enclosures with appropriate ratings for indoor or industrial environments.

Higher ratings provide better protection against dust, moisture, and accidental contact. Covers: All boxes must have covers to prevent exposure to live parts.

## Placement and Accessibility

Install boxes in dry, accessible areas with good ventilation, typically at a height around 1. 5 meters for easy access. Maintain sufficient working space: at least 30 inches wide in front of the equipment, clear from obstructions, and allowing doors to open 90 degrees.

Ensure at least one entrance of adequate size for safe access, especially for large panels with overcurrent or control devices.

## Electrical Safety

Grounding: All metal boxes must be properly grounded using approved methods to prevent shock hazards. Load Capacity: Verify voltage and current ratings to prevent overheating; most auto repair facilities use low-voltage systems up to 600 volts. Protection Devices: Include circuit breakers, fuses, or surge protectors for each circuit to prevent short circuits and equipment damage.

Wiring: Use correct wire gauge, secure cable management, and proper insulation to maintain integrity and prevent arcing.

## Labeling and Maintenance

Clearly label all circuits, hazards, and operating instructions to prevent mistakes and ensure safe operation. Schedule regular inspections and maintenance to detect wear, corrosion, or loose connections early. Use modular designs where possible to facilitate future upgrades or repairs.

## Special Considerations for Auto Repair Shops

Avoid placing distribution boxes near flammable liquids, spray areas, or high-traffic zones. Ensure compliance with OSHA standards for electrical safety in environments with chemical vapors, moving vehicles, and heavy machinery. Provide personal protective equipment (PPE) and arc flash hazard analysis for technicians working on energized equipment.

By following these requirements, auto repair facilities can maintain safe, reliable, and code-compliant electrical distribution systems, protecting both personnel and equipment.

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## Article Content

THE NEW YORK CITY ELECTRICAL CODE

86.2.1 Access to electrical work. It shall be the duty of the permit holder to cause the work to remain a cessible for inspection purposes. Neither the commissioner nor the city shall be liable for expense

Wiring Commercial Garages and Repair and Storage Facilities

The Code requires GFCI protection for all 125V, single-phase 15A and 20A receptacles for service and repair operations like electrical automotive diagnostic equipment, electrical hand-tools, and portable

Commercial Garages, Repair and Storage | UpCodes

It defines major and minor repair garages, detailing their functions and the associated area classifications for safety. Specific guidelines are provided for electrical wiring and equipment in Class

2023 NEC Study Guide For “Commercial Garages”

Auto repair shops, servicing areas of car dealerships, muffler & brake shops, quick lube shops, vehicle accessory installation shops (cell phones, stereos, etc.) and similar locations (including most

511.7 Fixed Wiring Above Class I Locations.

The area above hazardous locations in a commercial repair garage requires wiring methods in accordance with NEC Section 511.7 (A) (1).

Understanding Requirements for Commercial Garages and Fuel

Electrical equipment and wiring within a Class I location, as defined in Table 514.3 (B) (1), must comply with Article 501. This means you must use threaded rigid metal conduit and/or threaded intermediate

NEC Guidelines on Commercial Garages | EC&M

Article 511 provides the requirements for commercial garages — areas used for the storage or repair of self-propelled vehicles that use combustibles (liquid or gas) for power. Such vehicles include, but are

A Complete Guide to NEC Article 314 on Electrical Boxes and Conduit

NEC Article 314 establishes requirements for the installation and use of electrical boxes, conduit bodies, fittings, and handhole enclosures.

NEC Junction Box Code: What Installers Must Know 2026

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The box must be properly sized, supported, accessible, grounded where required, and suitable for the actual environment. Most inspection failures come from a few basic mistakes:

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Wiring Commercial Garages and Repair and Storage Facilities

Art. 511 applies to areas used for service and repair operations of self-propelled vehicles — including passenger automobiles, buses, trucks, and tractors — that use volatile flammable liquids or gases for

Panelboards and Distribution Panels: What They Are

Confused by electrical distribution terms? Our guide clarifies the differences between panelboards, distribution panels, and switchboards, and

The installation requirements for the distribution box

Learn how to install a distribution box safely and correctly. Covers wiring, placement, standards, and expert tips for a compliant setup.

Safety requirements of distribution box

The distribution box has the characteristics of small size, simple installation, special technical performance, fixed location, unique configuration function, not limited by the site, relatively common

Printed circuit board

The spatially non-homogeneous structure also introduces local variations in electrical parameters, due to different resin/glass ratio at different areas of the weave pattern. Non-woven reinforcements, or

Electrical Safety in the Dealership: OSHA Requirements, Common

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Electrical safety remains one of OSHA''s most consistently cited workplace hazards because failures are often immediate and severe. In dealership environments, where employees

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