

Industry Standards

Enclosure Ratings

Third party certifiers, such as UL & CSA, have adopted most of the enclosure ratings from the ANSI /NEMA 250 standard for electrical enclosures. Such ratings identify the environmental capabilities of enclosures based on specified performance criteria. Thus, the type of enclosure can be selected as deemed appropriate for the application.

These enclosures are intended to house electrical equipment rated at no more than 1000 volts for use in nonhazardous locations. Such enclosures do not protect devices against conditions such as condensation, icing, corrosion or contamination which may occur within the enclosure or may enter via the conduit or unsealed openings, and are not intended to prevent entry or operation by unauthorized personnel.

Sources of Standards



NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

1300 North 17th Street

Suite 1847

Rosslyn, VA 22209

- NEMA Standards Publication No. 250, Enclosures for Electrical Equipment (1000 Volts Maximum)
- NEMA Standards Publication No. ICS6, Enclosures for Industrial Controls and Systems



ELECTRICAL/ELECTRONIC MANUFACTURERS ASSOCIATION OF CANADA

10 Carlson Court, Suite 500

Rexdale (Toronto), Ontario

Canada, M9W 6L2



UNDERWRITERS LABORATORIES INC.

333 Pfingsten Road

Northbrook, IL 60062

- UL 50, Enclosures for Electrical Equipment
- UL 50E, Enclosures for Electrical Equipment Environmental Considerations
- UL 508A, Industrial Control Panels
- UL 870, Wireway, Auxiliary Gutters and Associated Fittings
- UL 414, Meter Sockets



CANADIAN STANDARDS ASSOCIATION

178 Rexdale Boulevard

Rexdale (Toronto), Ontario

Canada, M9W 1R3

- CSA Standard C22.2 No. 94, Special Purpose Enclosures, Industrial Control Equipment for use in Ordinary (Nonhazardous) locations.
- CSA Standard C22.2 No. 40 M1989, Cutout, Junction & Pull Boxes
- CSA Standard C22.2 No. 26 1952, Wireways, Auxiliary Gutters & Associated Fittings
- CSA Standard C22.1, 1990, Canadian Electrical Code

NFPA

NATIONAL FIRE PROTECTION ASSOCIATION

Batterymarch Park




Quincy, MA 02269

- NFPA 70 National Electrical Code

Industry Standards

An enclosure is a surrounding case constructed to provide a degree of protection to personnel against incidental contact with the enclosed equipment and to provide a degree of protection to the enclosed equipment against specified environmental conditions.

A brief description of the more common types of enclosures used by the electrical industry relating to their environmental capabilities follows:

 NEMA	 UL (UL 50)	 CSA 22.2 No. 94-M91
Type 1 Enclosures are intended for indoor use primarily to provide a degree of protection against limited amounts of falling dirt.	Type 1 Indoor use primarily to provide a degree of protection against limited amounts of falling dirt.	Type 1 General purpose enclosure. Protects against accidental contact with live parts.
Type 3 Enclosures are intended for outdoor use primarily to provide a degree of protection against rain, sleet, wind blown dust and damage from external ice formation.	Type 3 Outdoor use primarily to provide a degree of protection against rain, sleet, windblown dust and damage from external ice formation.	Type 3 An enclosure for either indoor or outdoor use, constructed so as to provide a degree of protection against rain, snow, and windblown dust; undamaged by the external formation of ice on the enclosure.
Type 3R Enclosures are intended for outdoor use primarily to provide a degree of protection against rain, sleet and damage from external ice formation.	Type 3R Outdoor use primarily to provide a degree of protection against rain, sleet, and damage from external ice formation.	Type 3R An enclosure for either indoor or outdoor use, constructed so as to provide a degree of protection against rain, and snow, undamaged by the external formation of ice on the enclosure.
Type 4 Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water and damage from external ice formation.	Type 4 Indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water and damage from external ice formation.	Type 4 An enclosure for either indoor or outdoor use, constructed so as to provide a degree of protection against rain, snow, windblown dust, splashing and hose-directed water; undamaged by the external formation of ice on the enclosure.
Type 4X Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water and damage from external ice formation.	Type 4X Indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water and damage from external ice formation.	Type 4X An enclosure for either indoor or outdoor use, constructed so as to provide a degree of protection against rain, snow, windblown dust, splashing and hose-directed water; undamaged by the external formation of ice on the enclosure; resists corrosion.
Type 12 Enclosures are intended for indoor use primarily to provide a degree of protection against circulating dust, falling dirt and dripping noncorrosive liquids.	Type 12/12K Indoor use primarily to provide a degree of protection against circulating dust, falling dirt and dripping noncorrosive liquids.	Type 12 An enclosure for indoor use, constructed so as to provide a degree of protection against circulating dust, lint, fibres, and flyings; dripping and light splashing of noncorrosive liquids; not provided with knockouts.
Type 12K Enclosures with knockouts are intended for indoor use primarily to provide a degree of protection against circulating dust, falling dirt and dripping noncorrosive liquids.		Type 12K An enclosure for indoor use, constructed so as to provide a degree of protection against circulating dust, lint, fibres, and flyings; dripping and light splashing of noncorrosive liquids; and provided with knockouts.
Type 13 Enclosures are intended for indoor use primarily to provide a degree of protection against dust, spraying of water, oil and noncorrosive coolant.	Type 13 Indoor use primarily to provide a degree of protection against dust, spraying of water, oil and noncorrosive coolant.	Type 13 An enclosure for indoor use, constructed so as to provide a degree of protection against circulating dust, lint, fibres, and flyings; seepage and spraying of noncorrosive liquids including oils and coolants.

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