

NEMA Enclosure Standards

The following is from Nema Standard #250 of May 1988

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. Refer to the appropriate sections of this Standards Publication for more information regarding applications, features, and design tests.

Definitions Pertaining to Non-Hazardous Locations

Type 1 Enclosures

are intended for indoor use primarily to provide a degree of protection against contact with the enclosed equipment.

Type 2 Enclosures

are intended for indoor use primarily to provide a degree of protection against limited amounts of falling water and dirt.

Type 3 Enclosures

are intended for outdoor use primarily to provide a degree of protection against windblown dust, rain, sleet, and external ice formation.

Type 3R Enclosures

are intended for outdoor use primarily to provide a degree of protection against falling rain, sleet, and external ice formation.

Type 3S Enclosures

are intended for outdoor use primarily to provide a degree of protection against windblown dust, rain, sleet, and to provide for operation of external mechanisms when ice laden.

Type 4 Enclosures

are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, and hose-directed water.

Type 4X Enclosures

are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, wind-blown dust and rain, splashing water, and hose-directed water.

Type 5 Enclosures

are intended for indoor use primarily to provide a degree of protection against settling airborne dust, falling dirt, and dripping non-corrosive liquids.

Type 6 Enclosures

are intended for indoor or outdoor use primarily to provide a degree of protection against the entry of water during occasional temporary submersion at a limited depth.

Type 6P Enclosures

are intended for indoor or outdoor use primarily to provide a degree of protection against the entry of water during prolonged submersion at a limited depth.

Type 11 Enclosures

are intended for indoor use primarily to provide, by oil immersion, a degree of protection to enclosed equipment against the corrosive effects of liquids and gases.

Type 12 Enclosures

are intended for indoor use primarily to provide a degree of protection against dust, falling dirt, and dripping noncorrosive liquids.

Type 12K Enclosures

with knockouts are intended for indoor use primarily to provide a degree of protection against dust, falling dirt, and dripping non-corrosive liquids other than at 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.

Definitions Pertaining to Hazardous (Classified) Locations

Type 7 Enclosures

are for use indoors in locations classified as Class I, Groups A, B, C, or D, as defined in the National Electrical Code.

Type 8 Enclosures

are for indoor or outdoor use in locations classified as Class I, Groups A, B, C, or D, as defined in the National Electrical Code.

Type 9 Enclosures

are for use in indoor locations classified as Class II, Group E, F, or G, as defined in the National Electrical Code.

Type 10 Enclosures

are constructed to meet the applicable requirements of the Mine Safety and Health Administration.