

## NEMA Enclosure Ratings

The below information is reproduced from the extensive reference section of the website  
<http://home.mchsi.com/~gweidner/site>.

“NEMA enclosure ratings” are found in the NEMA (National Electrical Manufacturers Association) standard 250, “Enclosures for Electrical Equipment (1000 Volts Maximum).”

Underwriters Laboratories standard UL 50, “Enclosures for Electrical Equipment,” is similar to NEMA 250 and uses the same numbering system.

The NEMA 250 standard pertains to all electrical enclosures except motors. The NEMA standard for motors and generators (MG 1) contains two methods for rating motor enclosures:

1. Traditional (ODP, TEFC, etc.);
2. The IEC “IP” system of enclosure ratings.

The NEMA types listed in the chart below are only those for use in ordinary, non-hazardous locations. The descriptions are condensed; consult the standard for full details.

Enclosure type	Usual Locations of use	Short designation	Provides a “Degree of protection” against
<b>1</b>	Indoor	Mainly intended for safety of users; no significant protection against contaminants.	Modest amounts of falling dirt.
<b>2</b>	Indoor	Drip-proof/Driptight.	Limited amounts of falling water and dirt.
<b>3</b>	Outdoor	Weather-proof/Raintight	Windblown dust, rain, sleet, ice.
<b>3R</b>	Outdoor	Weather-proof/Rainproof	Same as 3, but no dust.
<b>3S</b>	Outdoor	Weather-proof/Raintight	Same as 3, but external mechanisms operable when iced.
<b>4</b>	Outdoor	Watertight/Raintight	Splashing and hose-directed water, windblown dust, ice.
<b>4X</b>	Outdoor	Watertight/Raintight	Same as 4, plus corrosion resistance.
<b>5</b>	Indoor	Dust-tight/Driptight	Settling airborne dust, falling dirt, dripping non-corrosive liquids.
<b>6</b>	Outdoor	Watertight/Submersible	Same as 3R, plus temporary submersion.
<b>6P</b>	Outdoor	Watertight/Submersible	Same as 3R, plus prolonged submersion.
<b>12</b>	Indoor	Dust-tight/Watertight/Driptight	Circulating dust, falling dirt, dripping non-corrosive liquids.
<b>12K</b>	Indoor	Dust-tight/Driptight	Same as 12, but provided with knockouts.
<b>13</b>	Indoor	Oil-tight/Driptight	Dust, spraying water, oil, non-corrosive liquids.

Of course, enclosures intended for “outdoor” use may also be suitable for indoor use.