

# OVERVIEW OF NEC<sup>®</sup> HAZARDOUS LOCATION CLASSIFICATIONS AND METHODS OF PROTECTION

| CLASSES  | GROUPS  | DIVISIONS  |  |
|--|---|--|--|
| <b>Class I</b>   | <b>Examples</b>   | <b>1</b>   | <b>2</b>   |
| Location in which flammable gases or vapours are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures  | Group A: Acetylene<br>Group B: Hydrogen<br>Group C: Ethylene<br>Group D: Propane, Fuels, Solvents                 | Locations where hazardous material exists under normal operating conditions or through breakdown or repair.  | Locations where hazardous materials are expected to be confined within closed containers of closed systems but may become present through a leak or process failure. |
| <b>Class II</b>  | <b>Examples</b>   |  |  |
| Locations that are hazardous because of the presence of combustible dust.  | Group E: Metal Dusts<br>Group F: Carbon Dust<br>Group G: Combustible Dust, Flour, Grain, Wood, Plastic, Chemicals | Combustible dust is in the air under normal operating conditions in quantities sufficient to produce explosive or ignitable mixtures or through breakdown or repair. | Combustible dust may be in the air in sufficient quantities to produce an explosion due to abnormal operations or failure of electrical equipment.                   |
| <b>Class III</b>   | <b>Examples</b>   |  |  |
| Locations that are hazardous because of the presence of easily ignitable fibers or flyings are not likely to be in suspension in the air in quantities sufficient to produce ignitable mixtures. | There are no defined groups. Examples are Textiles, Woodworking, Paper Fibers.                                    | Easily ignitable fibers or material producing combustible flyings are handled, manufactured or used.   | Easily ignitable fibers are stored or handled other than in the process of manufacture.  |

## METHODS OF PROTECTION

| Explosion Proof (XP)<br>Class I, Division 1, 2   | Dust-Ignitable (DIP)<br>Class II, Division 1, 2  | Dust-Ignitable (DIP)<br>Class II, Division 1, 2<br>Class III, Division 1, 2   | Nonincendive (NI)<br>Class II, Division 2<br>Class III, Division 2   |
|--|--|---|--|
| Apparatus enclosed in a case that is capable of withstanding an explosion of a specified gas or vapour that may occur within it and of preventing the ignition of a specified gas or vapour within, and that operates at such an external temperature that a surrounding flammable atmosphere will not be ignited thereby. | Equipment enclosed in a manner that excludes dust and does not permit arcs, sparks or heat otherwise generated or liberated inside of the enclosure to cause ignition of exterior accumulations or atmospheric suspensions of a external temperature that a specified dust on or in the vicinity of the enclosure. | Equipment not capable of releasing sufficient electrical or thermal energy under normal conditions to cause ignition of a specific flammable or combustible atmospheric mixture. It is most easily ignitable concentration. | Equipment having electrical circuitry that is incapable, under normal operating conditions, of causing ignition of a specified flammable gas-air, vapour-air or dust-air mixture due to arcing or thermal means. |