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MEXICO'S NEW OFFICIAL STANDARD ON SAFETY CONDITIONS FOR STATIC ELECTRICITY.

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On November 7, 2008 the revised Official Mexican Standard NOM-022-STPS-2008 on Static Electricity-Safety Conditions, was published in Mexico's Official Journal of the Federation (similar to the U. S. Federal Register). The new standard went into effect sixty days following its publication, on January 6, 2009.

The objective of this new standard, which is a modification of the original NOM-022-STPS-1999 is "to establish the safety conditions to control the generation and accumulation of static electricity charges and to prevent possible effects of atmospheric discharges".

Among the employer's main responsibilities, the new rule includes some additional requirements, such as:

- Installing grounding systems, devices or equipment, such as electrical high-voltage eliminators, grounded circuits, electronic static bars, conductive materials in conveyor belts, or grounded metallic brushes, and anti-static or conductive floors, based on the processes and facilities, to control the accumulation of static charges.
- Installing lightning arrester systems in workplace areas or facilities where flammable or explosive substances are stored, handled or transported.

The employer continues to have the obligation to train workers with potential exposure on the preventive measures to control the generation and accumulation of static electricity, and on how to check the safety conditions of grounding systems and lightning arresters. Now, the employer must also keep the training program documentation, proof of work skills, diplomas and course certificates for one year.

The standard establishes the method for measuring and recording the resistance values for the grounding network, and the continuity of the grounding connections in equipment that can generate or store static charge. Reference Guide I – "Examples for measuring electrical continuity of lightning conductors", illustrates the inspection points and the procedure for evaluating connectors electrical continuity.

The new rule now requires that these measurements be performed at least every twelve months or when modifications are made that can affect the operating conditions of the grounding or lightning arrester systems. The following are acceptable values:

1. Resistance levels between 0 and 25 ohms for lightning arrester systems.
2. Resistance no greater than 10 ohms for grounding networks.
3. Must have electrical continuity in the grounding system's connection points to equipment that can generate or store static electricity.

In terms of safety conditions, relative humidity must be kept between 60 and 70% in closed work areas where relative humidity may be a factor in the accumulation of static electricity, and must be measured and recorded at least every 12 months. Those facilities where air humidity represents a hazard due to the types of substances used are exempted. In such cases, control of static electricity accumulation must be provided by other means.

Among the new safety measures are the following:

- Work areas where static electricity is present must have anti-static or conductive materials, or devices that can drain any currents that accumulate in the worker's body to ground.
- Areas where flammable or explosive materials are handled, stored or transported must ground metal parts that are not intended to conduct electricity, such as perimeter fences, metal structures and tanks, metal cases for equipment, machinery or piping (except gas pipelines).
- Structures and buildings that require protection due to the nature of the services they provide or the lightning density of the region where they are located, must be protected by lightning arrester systems.

The new version includes a list of factors to be considered in selecting lightning arrester systems and states that the grounding network in new lightning arrester systems must be interconnected to other grounding networks, such as those for motors, electrical substations, and general electrical systems.

The standard describes the instruments and voltage drop method to measure resistance in the grounding system, that must be followed by testing laboratories, as well as how to measure relative humidity according to NOM-015-STPS-2001 – “Elevated Thermal Conditions-Safety and Health Conditions”.

As in all the new and recently revised standards, this rule includes a procedure for evaluating compliance that applies to inspections conducted by the health and safety agency, as well as those performed by third party verification units. The aspects to verify during compliance evaluations are found on a table that lists by rule section number, the type of verification (physical inspection or record review), approval criteria, and comments to facilitate the evaluation.

The new version keeps the two original reference guides as non-mandatory complements to facilitate understanding of the rule. Reference Guide I consists of a diagram with instructions.

Reference Guide II “Examples of facilities where accumulation or generation of static electricity is present, or can receive an atmospheric discharge” includes the following examples:

- Loose metallic parts on equipment that are linked to the building’s structural framework.
- Equipment, such as blowers, pumps, vibrators, dryers, motors, among others.
- Metal piping and their accessories in areas where flammable or explosive materials are transported.
- Facilities for powder coating or varnishing, as well as metal objects that have been painted or varnished, and the metal walls of cabins, cubicles, containers, and the exhaust system, and
- Equipment used to transfer flammable and explosive substances.

This guide recommends reviewing NOM-001-SEDE-2005 to obtain more information on the types, materials, and accessories for grounding.

If you have questions about this topic or other environmental, and health and safety issues, please contact us at (619) 297-1469 or send us an email at emedina@pulse-point.com.

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