

2008 NEC Article 708 and SPD Commissioning

Appearing for the first time in the 2008 NEC, Article 708 defines CRITICAL OPERATIONS POWER SYSTEMS, commonly referred to as COPS. These systems are defined in the NEC as *"power systems for facilities or parts of facilities that require continuous operation for the reasons of public safety, emergency management, national security, or business continuity."* These systems may involve complete facilities or specific areas defined as DESIGNATED CRITICAL OPERATIONS AREAS or DCOA. These areas are specific to designated locations within a facility that requires critical operations power.

The immediate question becomes, what is a critical operations power system. The Fine Print Note No. 1 in Article 708 states that *"Critical operations power systems are generally installed in vital infrastructure facilities that, if destroyed or incapacitated, would disrupt national security, the economy, public health, or safety, and where enhanced electrical infrastructure for continuity of operation has been deemed necessary by governmental authority."* Given this definition, facilities that may fall into this realm may include air traffic control centers, HAZMAT facilities, hospitals, water/sewage treatment facilities and 911 centers, to name a few.

The Scope of Article 708 is considerably broader than in standard NEC articles. For example, 708.3 includes Application of Other Articles; 708.4 addresses Risk Assessment and .5 addresses Physical Security.

Under these sections, some of the specific requirements include the following:

- Comprehensive facility engineering documentation
- Telecommunications and controls protection
- More security, redundancy and fire protection
- Automatic operation
- Minimum 72-hour run time
- Full-load witness testing
- Ongoing testing, maintenance and service.

While there are many state issues and questions as to how this article is to be implemented, and by whom, one factor is certain: Low Voltage Surge Protective Devices will be a critical component within these systems.

Surge Suppression Incorporated® has, throughout its history, been very "hands-on" in assisting consultants, owners and contractors to ensure three very specific, critical things are accomplished:

1. Each specific SPD model that was specified is installed and properly connected to the correct piece of equipment or panel/switchboard as intended by the designer.
2. Each SPD is installed to help ensure maximum performance by the SPD, (i.e.: as close as possible to the load to be protected for phase, neutral and ground wires.)
3. Each SPD is installed correctly with each wire as short and straight as possible, no sharp bends, 90-degree angles, extended leads, etc. Each SPD is installed in strict accordance with the provided installation instructions from the manufacturer, the written specification and the NEC.

This type of attention to detail is an element of the commissioning that will be even more critical in the COPS environment. In the hardening of existing facilities as well as new facilities that have COPS system requirements, surge protective devices are absolutely essential.

As part of this effort, **Surge Suppression Incorporated®** has provided consultants throughout the world with a guide-form specification in which we have included specific language to cover inspection requirements to verify the three critical elements described above. Perhaps most importantly, it also helps to protect the consultant and the owner by placing the compliance responsibility squarely on the shoulders of the installer and/or contractor, as it should be. It contains specific language stating the consultant will not sign off on the project until receipt of written notification from the SPD manufacturer certifying that all pertinent criteria in the specification are satisfied.