SECTION 26 4313

SURGE PROTECTIVE DEVICES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Surge protective devices (SPD's) for the protection of AC electrical circuits from the effects of lightning-induced currents, substation switching transients, and internally generated transients resulting from inductive or capacitive load switching.

1.2 RELATED SECTIONS

A. Panelboards: Section 26 2416.

1.3 DEFINITIONS

A. LED: Light-emitting diode.

B. MCOV: Maximum continuous operating voltage.

C. MOV: Metal-oxide varistor.

D. SPD: Surge protective device.

E. VPR: Voltage protection rating.

1.4 SUBMITTALS

A. Product data: Manufacturer's catalog information, including unit dimensions and rated capacities for each type of unit included in the project.

B. Certifications:

1. Cover page of manufacturer's UL test report for each type of unit, showing that the unit is UL 1449 Fourth Edition listed.
2. UL 1449 Fourth Edition listing documentation verifying the following:

a. Voltage protection rating (VPR).
b. Maximum continuous operating voltage (MCOV).

3. Electromagnetic interference certification in accordance with UL 1283.

1.5 QUALITY ASSURANCE

A. Each SPD shall be UL 1449 Fourth Edition listed and labeled.

B. A single manufacturer shall provide SPD's for every location.

1.6 WARRANTY

A. In addition to the general project warranty and correction period, provide manufacturer's special warranties providing unlimited replacements of suppressor modules if they are destroyed by transients. Length of warranties:

1. Secondary distribution SPD: Ten years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Distribution equipment SPD's: Basis-of-design product: Subject to compliance with requirements, provide SPD units manufactured by ASCO Power Technologies, 400 Series, or comparable product by one of the following:

1. ABB; General Electric products.
2. ASCO Power Technologies.
3. Eaton Corporation.
4. Erico International Corp.; Pentair.
5. Schneider Electric; Square D products.
6. Siemens Industry, Inc.
7. Surge Suppression Inc.

2.2 SURGE PROTECTIVE DEVICES FOR SECONDARY BRANCH CIRCUIT PANELBOARDS

A. SPD unit factory installed and mounted integral to the panelboard as specified in Section 26 2416, Panelboards. Externally mounted SPD's separate from panelboards shall not be acceptable.

B. Suppression components shall be MOV based, serviceable, and replaceable.

C. SPD shall provide surge current paths for the following modes of protection: L-N, L-G, L-L, and N-G.

D. SPD shall incorporate a UL 1283 listed EMI/RFI filter with minimum attenuation of - 50dB at 100 kHz.

E. Provide terminals for the necessary power and ground connections. Each terminal shall accommodate wire sizes of No. 10 to No. 1 AWG.

F. SPD's shall meet or exceed the following criteria:

1. Surge current capacity, single pulse rated, (L-N + N-G):

   a. For branch-circuit panelboards: 100 kA per phase.

2. The UL 1449 Fourth Edition; voltage protection ratings (VPR) shall not exceed the following:

System Voltage	L-N	L-G	L-L	N-G
480Y/277V	1200V	1200V	2000V	1200V
208Y/120V	700V	800V	1200V	700V

3. UL 1449 listed maximum continuous operating voltage (MCOV):

System Voltage	Allowable System Voltage Fluctuation	MCOV
480Y/277V	15 percent	320V
208Y/120V	25 percent	150V

G. SPD shall be equipped with the following:

1. Visual LED diagnostics including a minimum of one green LED indicator per phase, and one red service LED.

H. Enclosure: NEMA 250 Type 1.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Install per manufacturer’s installation instructions and recommendations.

B. Install SPD's plumb, level and rigid without distortion.

3.2 FIELD QUALITY CONTROL

A. Test and inspections:

1. Perform each visual and mechanical inspection and electrical test in accordance with NETA Acceptance Testing Specifications in section, Surge Arresters, Low-Voltage Surge Protection Devices. Certify compliance with test parameters.
2. After installing SPD devices but before electrical circuitry has been energized, test for compliance with requirements.
3. Complete startup procedures according to manufacturer’s written instructions.

B. SPD device shall be considered defective if it does not pass tests and inspections.

END OF SECTION