

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 26 05 28 - Grounding - Secondary.
- .2 Section 26 24 02 - Service Entrance Board.
- .3 Section 26 27 26 - Wiring Devices.

1.2 REFERENCES

- .1 American National Standards Institute /Institute of Electrical and Electronics Engineers (ANSI/IEEE)
 - .1 ANSI/IEEE C62.41-.1, IEEE Guide on the Surge Environment in Low-Voltage (1000 V and less) AC Power Circuits.
 - .2 IEEE C62.41.2, IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and Less) AC Power Circuits.
 - .3 IEEE C62.45, IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits.
- .2 Underwriters' Laboratories of Canada (ULC)
 - .1 UL 1283 - Electromagnetic Interference Filters.
 - .2 UL 1449 3rd Edition - Standard for Safety for Surge Protective Devices.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for surge protective devices and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Indicate on drawings:
 - .1 Units Performance Characteristic.
 - .2 Units Features.

1.4 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for surge protection devices for incorporation into manual.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect surge protection devices from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return of packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.6 LEED 2009 REQUIREMENTS

- .1 LEED Documentation:
 - .1 Submit Material Safety Data Sheets (MSDS) or product data sheets, for all site applied interior paints, coatings, adhesives, sealants, sealant primers, concrete curing compounds, etc. to ensure compliance with LEED Requirements for low emitting materials as per Section 01 35 21.

PART 2 - PRODUCTS

2.1 SURGE PROTECTIVE DEVICE (SPD)

- .1 Location category: B - indoor service entrance.
 - .2 Exposure level: 2 - medium.
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- .3 Operational condition:
 - .1 Temperature: -40°C to +60°C.
 - .2 Humidity: 95% RH, non-condensing atmosphere.
 - .3 Altitude: 0 - 3600 m.
 - .4 Frequency: 60 Hz.
 - .5 Nominal Voltage: 347/600 Volts.
- .4 TVSS shall be MOV based, tested per IEEE C62.41.1.
- .5 TVSS component parts: to UL 1449 3rd Edition, UL 1283 and cUL.
- .6 TVSS characteristics:
 - .1 Protective mode: line-to-line, line-to-neutral, line-to-ground, neutral-to-ground.
 - .2 Clamping voltage to UL-1449:
 - .1 Mode L-N N-G L-G L-L.
 - .2 Volts 1000 1000 1000 1800.
 - .3 Maximum surge current 120 kA per mode (240 kA per phase).
 - .4 MCOV (maximum continuous operating voltage): greater than 115% of nominal (L-G).
 - .5 Radio influence attenuation: less than or equal to -50 dB @ 100 kHz.
 - .6 Filter band width: 10 kHz to 100 MHz.
 - .7 Response time: less than or equal to 1 ns.
 - .8 Integral fusing.
 - .9 Approved disconnect means.
- .7 Features:
 - .1 Monitoring of internal fuses and MOV's.
 - .2 Status indicator lights on each phase.
 - .3 Trouble light.
 - .4 SPDT (form C) auxiliary contact.

2.2 SURGE SUPPRESSION RECEPTACLES

- .1 Specification grade, heavy-duty surge suppression duplex receptacles, CSA type 5-15R, 125 V, 15 A, U ground, with following features:
 - .1 Monitor/indicator light and alarm.
 - .2 Colour: blue.
 - .3 Transient suppression: 210 joules, 13 kA.
 - .4 Suppressed voltage: 500 V.
 - .5 Response time: less than or equal to 5 ns.
 - .6 Provide two (2) spares.

2.3 LEED 2009 REQUIREMENTS

- .1 All site applied interior paints, coatings, adhesives, sealants, sealant primers, concrete curing compounds, etc. to comply with LEED Requirements for low emitting materials as per Section 01 35 21 - LEED 2009 Requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for secondary lightning arresters installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

- .1 SPD device shall be located as close as possible to the protected equipment (panel or switchboard). Lead length shall not exceed 600 mm.
- .2 Connect TVSS as per manufacturer recommendations.
- .3 Install surge suppression receptacles as indicated on drawings and connect as per manufacturer's recommendations.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.