



Surge Protection (Overvoltage Protection) Requirements NFPA 70-23 and NFPA 780-23

NFPA 70-23, National Electrical Code (NEC)

Surge-Protective Devices (SPDs)	Surge Arresters	Surge Protectors
Article 100 Definitions	Article 100 Definitions	501.150(B)(3) Class I Locations
215.18 Feeders	235.409 Branch Circuits, Feeders, and Services Over 1000 Volts ac, 1500 Volts dc, Nominal	545.27 Manufactured Buildings and Relocatable Structures
225.42 Outside Branch Circuits and Feeders	230.82 Services	646.3(C) Modular Data Centers
230.67, 230.71(A), 230.82, 230.94 Services	Article 242 Overvoltage Protection	Article 800 General Requirements for Communications Systems
240.21(B), (C) Overcurrent Protection	250.6(A) Grounding and Bonding	Article 805 Communications Circuits
Article 242 Overvoltage Protection	395.30(A) Outdoor Overhead Conductors over 1000 Volts	Article 810 Antenna Systems
250.6(A) Grounding and Bonding	Table 495.24, 495.48(A) Equipment Over 1000 Volts ac, 1500 Volts dc, Nominal	Article 820 Community Antenna Television and Radio Distribution Systems
409.70 Industrial Control Panels	501.35 Class I Locations	Article 830 Network-Powered Broadband Communications Systems
501.35 Class I Locations	502.35 Class II Locations	
502.35 Class II Locations		
551.72(E) Recreational Vehicles and Recreational Vehicle Parks		
620.51(E) Elevators, Dumbwaiters, Escalators, Moving Walks, Platform Lifts, and Stairway Chairlifts		
645.18 Information Technology Equipment		
646.3(H) Modular Data Centers		
670.6 Industrial Machinery		
694.7 Wind Electric Systems		
695.15 Fire Pumps		
700.8 Emergency Systems		
708.20.(D) Critical Operations Power Systems (COPS)		
760.33 Fire Alarm Systems		
Informative Annex G(B) Supervisory Control and Data Acquisition (SCADA)		

*215.18, 225.42, 409.70, and 760.33 are new to the 2023 NEC

- Informational Note to 90.2(E) states the protection against overvoltage is a potential hazard addressed by the requirements of the NEC
- 250.4(A)(1) requires systems that are grounded shall be connected to earth in a manner that will limit the voltage imposed by lightning, line surges, or unintentional contact with higher-voltage lines and that will stabilize the voltage to earth during normal operation
- Informational Note to 250.36(C) points the user of the code to IEEE 3003-2019 for guidance on limiting transient overvoltages for industrial and commercial power systems
- 450.5(C) requires grounding autotransformer used to limit transitory overvoltages shall be of suitable rating and connected in accordance with 450.5(A)(1)

NFPA 780-23, Standard for the Installation of Lightning Protection Systems

Surge-Protective Devices (SPDs)	Surge Arresters	Surge Protectors
3.3.45 SPD Definition	3.3.43 Surge Arrester Definition	3.3.44 Surge Protector Definition
4.19.1(1) Surge Protection	4.19.1(2) Surge Protection	4.19.1(3) Surge Protection
4.19.2 SPD Requirements	4.19.3 Surge Arrester Requirements	4.19.4 Surge Protector Requirements
7.3.1, 7.3.6 Protection for Structures Containing Flammable Vapors, Flammable Gases, or Liquids That Can Give Off Flammable Vapors	7.3.1, 7.3.6 Protection for Structures Containing Flammable Vapors, Flammable Gases, or Liquids That Can Give Off Flammable Vapors	7.3.1, 7.3.6 Protection for Structures Containing Flammable Vapors, Flammable Gases, or Liquids That Can Give Off Flammable Vapors
8.6, 8.10.6.3 Protection of Structures Housing Explosive Materials	8.6, 8.10.6.3 Protection of Structures Housing Explosive Materials	8.6, 8.10.6.3 Protection of Structures Housing Explosive Materials
9.3.1, 9.3.2 Protection for Wind Turbines	9.3.1, 9.3.2 Protection for Wind Turbines	9.3.1, 9.3.2 Protection for Wind Turbines
12.4.1, 12.4.2, 12.4.3 Protection for Solar Arrays	11.4.2.4, 11.4.6 Protection for Airfield Lighting Circuits	B.2.2, B.4.8 Principles of Lightning Protection
B.2.2, B.4.8 Principles of Lightning Protection	B.2.2, B.4.8 Principles of Lightning Protection	C.2.3 Explanation of Bonding Principles
C.2.3 Explanation of Bonding Principles	C.2.3 Explanation of Bonding Principles	D.2.2.2 Inspection and Maintenance of Lightning Protection Systems
D.1.2, D.2.2.2 Inspection and Maintenance of Lightning Protection Systems	D.2.2.2 Inspection and Maintenance of Lightning Protection Systems	I.1.3 Protection for Parked Aircraft
Annex J Protection of Smart Structures	Annex J Protection of Smart Structures	Annex J Protection of Smart Structures
Annex L Lightning Risk Assessment		

- Related definitions in Chapter 3 include: Combination Waveform Generator, Maximum Discharge Current, Nominal Discharge Current, Lightning Protection System, Surge, Transient, Maximum Continuous Operating Voltage, Maximum Permitted DC Voltage, Measured Limiting Voltage, Rated Impulse Withstand Voltage Level, and Voltage Protection Rating
- The sections listed in the table above that include an asterisk (*) have explanatory material in Annex A
- The Annexes are not a part of the requirements of the standard but are included for informational purposes only