Δ *TABLE 242.3 Other Articles*

Equipment	Article
Class I locations	501
Class II locations	502
Community antenna television and radio distribution systems	820
Critical operations power systems	708
Elevators, dumbwaiters, escalators, moving walks, platform lifts, and stairway chairlifts	620
Emergency systems	700
Equipment over 1000 volts, nominal	495
Fire pumps	695
Industrial machinery	670
Information technology equipment	645
Modular data centers	646
Outdoor overhead conductors over 1000 volts	395
Radio and television equipment	810
Receptacles, cord connectors, and attachment plugs (caps)	406
Wind electric systems	694

EXHIBIT 242.2 An SPD as an integral component of a receptacle, providing local point-of-use protection of equipment when transient events occur within the facility. *(Courtesy of Legrand®)*

Δ Part II. Surge-Protective Devices (SPDs), 1000 Volts or Less

242.6 Listing. An SPD shall be a listed device.

UL 1449, *Standard for Surge Protective Devices*, covers Types 1, 2, 3, and 4 devices. SPDs are permitted to be installed on ungrounded systems, impedance grounded systems, and corner-grounded systems where the device is listed for the specific characteristic of the system per 242.12(2).

242.8 Short-Circuit Current Rating. The SPD shall be marked with a short-circuit current rating and shall not be installed at a point on the system where the available fault current is in excess of that rating. This marking requirement shall not apply to receptacles.

In residential and small commercial electrical systems, the first SPD is commonly installed either as an integral component of or near to the service-entrance equipment.

Depending on the system voltage, surge protection in larger commercial and industrial electrical systems can be provided by installing a Type 1 SPD (a surge arrester for systems 1000 volts and less) or surge arrester (the devices covered in Part III for systems over 1000 volts) on the line side of the service equipment. Subsequent levels of SPDs are then provided at intermediate points in the distribution system (such as at panelboards that serve loads susceptible to transients) and at the point where utilization equipment connects to the electrical system.

Point-of-use SPDs such as receptacles and relocatable power taps (power strips) can be installed at the equipment (such as computers or equipment with electronic controls). The function of a point-of-use SPD is to remove small transients that pass through the more robust surge devices located at the service. Point-of-use SPDs are also useful in removing small transients that have been generated within the building. See Exhibit 242.2 for a point-of-use, or Type 3 SPD.

N **242.9 Indicating.** An SPD shall provide indication that it is functioning properly.

242.12 Uses Not Permitted. An SPD device shall not be installed in the following:

(1) Circuits over 1000 volts
(2) On ungrounded systems, impedance grounded systems, or corner grounded delta systems unless listed specifically for use on these systems
(3) Where the rating of the SPD is less than the maximum continuous phase-to-ground voltage at the power frequency available at the point of application

242.13 Type 1 SPDs. Type 1 SPDs shall be installed in accordance with 242.13(A) and (B).

(A) Installation. Type 1 SPDs shall be permitted to be connected in accordance with one of the following:

(1) To the supply side of the service disconnect as permitted in 230.82(4)
(2) As specified in 242.14

(B) At the Service. When installed at services, Type 1 SPDs shall be connected to one of the following:

(1) Grounded service conductor
(2) Grounding electrode conductor
(3) Grounding electrode for the service
(4) Equipment grounding terminal in the service equipment

Although four locations for connecting the SPD grounding lead are acceptable, the requirement in 242.24 covering the length and physical routing of the conductor must be followed.