N **(A) Covered.** This article covers the requirements for the zone classification system for electrical and electronic equipment and wiring for all voltages where fire and explosion hazards might exist due to combustible dusts, combustible fibers/flyings, or ignitible fibers/flyings for the following:

(1) Zone 20 hazardous (classified) locations
(2) Zone 21 hazardous (classified) locations
(3) Zone 22 hazardous (classified) locations

Informational Note No. 1: See 505.20 or 505.22 for Zone 0, Zone 1, or Zone 2 hazardous (classified) locations where fire or explosion hazards might exist due to flammable gases, flammable vapors, or flammable liquids.

Informational Note No. 2: Zone 20, Zone 21, and Zone 22 area classifications are based on the modified IEC area classification system as defined in ANSI/ISA 60079-10-2 (12.10.05), *Explosive Atmospheres — Part 10-2: Classification of Areas — Combustible Dust Atmospheres*.

Informational Note No. 3: See NFPA 499, *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*, for information regarding classification of hazardous (classified) locations using Zone methodology.

N **(B) Not Covered.** This article does not cover electrical and electronic equipment and wiring of all voltages in the following:

(1) Class I, Class II, or Class III, Division 1 or Division 2 hazardous (classified) locations.
(2) Zone 0, Zone 1, or Zone 2 hazardous (classified) locations.
(3) Locations subject to the unique risk and explosion hazards associated with explosives, pyrotechnics, or blasting agents.
(4) Locations where pyrophoric materials are the only materials used or handled.
(5) Features of equipment that involve nonelectrical potential sources of ignition (e.g., couplings, pumps, gearboxes, brakes, hydraulic and pneumatic motors, fan, engine, compressor).

Informational Note No. 1: Common nonelectrical potential sources of ignition include hot surfaces and mechanically generated sparks.

Informational Note No. 2: See ANSI/UL 80079-36, *Explosive Atmospheres — Part 36: Non-Electrical Equipment for Explosive Atmospheres — Basic Method and Requirements*, and ANSI/UL 80079-37, *Explosive Atmospheres — Part 37: Non-Electrical Equipment for Explosive Atmospheres — Non-Electrical Type of Protection Constructional Safety "c" Control of Ignition Source "b", Liquid Immersion "k"*, for additional information.

Δ **506.4 Documentation.** Areas designated as hazardous (classified) or unclassified locations shall be documented on an area classification drawing and other associated documentation. This documentation shall be made available to the AHJ and to those authorized to design, install, inspect, maintain, or operate electrical equipment.

Informational Note No. 1: See ANSI/UL 60079-28, *Explosive Atmospheres — Part 28: Protection of equipment and transmission systems using optical radiation*, for information concerning the installation of equipment using optical emissions technology (such as laser equipment) that could potentially become an ignition source in hazardous (classified) locations.

Informational Note No. 2: See IEC/IEEE 60079-30-2, *Explosive atmospheres — Part 30-2: Electrical Resistance Trace Heating — Application Guide for Design, Installation and Maintenance*, for information on electrical resistance trace heating for hazardous (classified) locations.

Informational Note No. 3: See IEEE 844.2/CSA C293.2, *IEEE/CSA Standard for Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance*, for information on electric skin effect trace heating for hazardous (classified) locations.

Informational Note No. 4: See IEEE 844.4/CSA C293.4, *IEEE/CSA Standard for Impedance Heating of Pipelines and Equipment — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance*, for information on electric impedance heating for hazardous (classified) locations.

506.5 Classification of Locations.

Δ **(A) Classifications of Locations.** Locations shall be classified on the basis of the properties of the combustible dust, combustible fibers/flyings, or ignitible fibers/flyings that might be present, and the likelihood that a combustible or ignitible concentration or quantity is present. Each room, section, or area shall be considered individually in determining its classification.

Δ **(B) Zone 20, Zone 21, and Zone 22 Locations.** Zone 20, Zone 21, and Zone 22 locations are those in which combustible dust, combustible fibers/flyings, or ignitible fibers/flyings are or might be present in the air or in layers, in quantities sufficient to produce explosible or ignitible mixtures. Zone 20, Zone 21, and Zone 22 locations shall include those specified in 506.5(B)(1), (B)(2), and (B)(3).

Informational Note: Through the exercise of ingenuity in the layout of electrical installations for hazardous (classified) locations, it is frequently possible to locate much of the equipment in a reduced level of classification to reduce the amount of special equipment required.

(1) Zone 20. A Zone 20 location is a location where one of the following apply:

(1) Ignitible concentrations of combustible dust, combustible fibers/flyings, or ignitible fibers/flyings are present continuously or for long periods of time.
(2) Group IIIC combustible dusts are present in hazardous quantities continuously or for long periods of time.

Δ **(2) Zone 21.** A Zone 21 location is a location where one of the following apply:

(1) Ignitible concentrations of combustible dust, combustible fibers/flyings, or ignitible fibers/flyings are likely to exist occasionally under normal operating conditions.
(2) Ignitible concentrations of combustible dust, combustible fibers/flyings, or ignitible fibers/flyings might exist