(13) Inadequately ventilated areas within spraying or coating operations using volatile flammable fluids
(14) Interior of exhaust ducts used to vent ignitible concentrations of gases or vapors
(15) All other locations where ignitible concentrations of flammable vapors or gases are likely to occur during normal operations

Experience has demonstrated the prudence of avoiding the installation of instrumentation or other electrical equipment in the areas covered in list items (11) through (15). Where it cannot be avoided because it is essential to the process and other locations are not feasible, electrical equipment or instrumentation approved for the specific application or consisting of intrinsically safe systems might be considered.

Δ **(2) Class I, Division 2.** A Class I, Division 2 location is a location:

(1) In which volatile flammable gases, flammable liquid–produced vapors, or combustible liquid–produced vapors are handled, processed, or used, but in which the liquids, vapors, or gases will normally be confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown of such containers or systems or in case of abnormal operation of equipment, or
(2) In which ignitible concentrations of flammable gases, flammable liquid–produced vapors, or combustible liquid–produced vapors are normally prevented by positive mechanical ventilation and which might become hazardous through failure or abnormal operation of the ventilating equipment, or
(3) That is adjacent to a Class I, Division 1 location, and to which ignitible concentrations of flammable gases, flammable liquid–produced vapors, or combustible liquid–produced vapors above their flash points might occasionally be communicated unless such communication is prevented by adequate positive-pressure ventilation from a source of clean air and effective safeguards against ventilation failure are provided.

Informational Note No. 1: This classification usually includes locations where volatile flammable liquids or flammable gases or vapors are used but that, in the judgment of the authority having jurisdiction, would become hazardous only in case of an accident or of some unusual operating condition. The quantity of flammable material that might escape in case of accident, the adequacy of ventilating equipment, the total area involved, and the record of the industry or business with respect to explosions or fires are all factors that merit consideration in determining the classification and extent of each location.

Informational Note No. 2: See NFPA 30, *Flammable and Combustible Liquids Code*, and NFPA 58, *Liquefied Petroleum Gas Code*. Piping without valves, checks, meters, and similar devices would not ordinarily introduce a hazardous condition even if used for flammable liquids or gases. Depending on factors such as the quantity and size of the containers and ventilation, locations used for the storage of flammable liquids or liquefied or compressed gases in sealed containers might be considered either hazardous (classified) or unclassified locations.

(C) Class II Locations. Class II locations are those that are hazardous because of the presence of combustible dust. Class II locations shall include those specified in 500.5(C)(1) and (C)(2).

Housekeeping, settlement rates, and air velocity are all factors in determining the need for, or the extent of, a Class II classified location. A settled layer of dust could ignite at a temperature different from that of the same dust dispersed into the air as a cloud. Classification of dust layers is based on the thickness of the dust or on the amount of dust expected to settle out, usually over a set period of time.

(1) Class II, Division 1. A Class II, Division 1 location is a location:

(1) In which combustible dust is in the air under normal operating conditions in quantities sufficient to produce explosive or ignitible mixtures, or
(2) Where mechanical failure or abnormal operation of machinery or equipment might cause such explosive or ignitible mixtures to be produced, and might also provide a source of ignition through simultaneous failure of electrical equipment, through operation of protection devices, or from other causes, or
(3) In which Group E combustible dusts may be present in quantities sufficient to be hazardous in normal or abnormal operating conditions.

Informational Note: Dusts containing magnesium or aluminum are particularly hazardous, and the use of extreme precaution is necessary to avoid ignition and explosion.

Group E dusts (metal dusts, e.g., aluminum or magnesium) are particularly hazardous. For example, current through the dust can cause a sufficient temperature rise or electrical arc to trigger ignition. The classification of an area where a Group E dust is or may be present will be Division 1.

(2) Class II, Division 2. A Class II, Division 2 location is a location:

(1) In which combustible dust due to abnormal operations may be present in the air in quantities sufficient to produce explosive or ignitible mixtures; or
(2) Where combustible dust accumulations are present but are normally insufficient to interfere with the normal operation of electrical equipment or other apparatus, but could as a result of infrequent malfunctioning of handling or processing equipment become suspended in the air; or
(3) In which combustible dust accumulations on, in, or in the vicinity of the electrical equipment could be sufficient to interfere with the safe dissipation of heat from electrical equipment, or could be ignitible by abnormal operation or failure of electrical equipment.