(C) Class III Combustible Fibers/Flyings. Combustible fibers/flyings shall not be further grouped.

(D) Class III Ignitible Fibers/Flyings. Ignitible fibers/flyings shall not be further grouped.

500.7 Protection Techniques. Electrical and electronic equipment in hazardous (classified) locations shall be protected by one or more of the techniques in 500.7(A) through (P). Suitability of the protection techniques for specific hazardous locations is shown in Chapter 9, Table 13.

(A) Explosionproof Equipment. This protection technique shall be permitted for equipment in Class I, Division 1 or 2 locations.

(B) Dust Ignitionproof. This protection technique shall be permitted for equipment in Class II, Division 1 or 2 locations.

(C) Dusttight. This protection technique shall be permitted for equipment in Class II, Division 2 or Class III, Division 1 or 2 locations.

(D) Purged and Pressurized. This protection technique shall be permitted for equipment in any hazardous (classified) location for which it is identified.

Purging is the process of supplying an enclosure with a protective gas at a sufficient flow and positive pressure to reduce the initial concentration of any flammable gases, flammable liquid–produced vapors, or combustible liquid–produced vapors to an acceptable level. Pressurization is the process of supplying an enclosure with a protective gas, with or without continuous flow, at sufficient pressure to prevent the entrance of a material.

NFPA 496, *Standard for Purged and Pressurized Enclosures for Electrical Equipment*, provides requirements for these enclosures in Class I and Class II hazardous locations. In Class I locations, purged and pressurized enclosures are used to eliminate or reduce the infiltration of the surrounding hazardous atmosphere from entering the enclosure. In Class II locations, pressurized enclosures prevent the entrance of dusts into an enclosure. Purged and pressurized enclosures make it possible for equipment that is not otherwise acceptable for Class I and Class II locations to be used in those locations.

The types of pressurizing are as follows:

1. Type X permits the use of unclassified equipment within the enclosure where it would otherwise be required to be rated for Division 1 or Zone 1 classification.
2. Type Y enables equipment installed within the enclosure to have the classification reduced from a Division 1 or Zone 1 rating to Division 2 or Zone 2 rating.
3. Type Z allows the rating of the equipment installed within the enclosure to be reduced from Division 2 or Zone 2 to unclassified.

Exhibit 500.4 shows a panel that uses the Type X purge and pressurization technique.

Δ **(E) Intrinsic Safety.** This protection technique shall be permitted for equipment in Class I, Division 1 or Division 2; Class II, Division 1 or Division 2; or Class III, Division 1 or Division 2 locations.

EXHIBIT 500.4 A panel using Type X pressurization. *(Courtesy of Pepperl+Fuchs, Inc.)*

(F) Nonincendive Circuit. This protection technique shall be permitted for equipment in Class I, Division 2; Class II, Division 2; or Class III, Division 1 or 2 locations.

(G) Nonincendive Equipment. This protection technique shall be permitted for equipment in Class I, Division 2; Class II, Division 2; or Class III, Division 1 or 2 locations.

(H) Nonincendive Component. This protection technique shall be permitted for equipment in Class I, Division 2; Class II, Division 2; or Class III, Division 1 or 2 locations.

(I) Oil Immersion. This protection technique shall be permitted for current-interrupting contacts in Class I, Division 2 locations as described in 501.115(B)(1)(2).

(J) Hermetically Sealed. This protection technique shall be permitted for equipment in Class I, Division 2; Class II, Division 2; or Class III, Division 1 or 2 locations.

Δ **(K) Detection System for Flammable Gases.** A detection system for flammable gases shall be permitted as a means of protection in restricted industrial establishments.

Δ **(1) General.** Any gas detection system used as a protection technique shall meet all of the requirements in 500.7(K)(1)(a) through (K)(1)(e).

(a) The gas detection equipment used shall be listed for Class I, Division 1 and listed for the detection of the specific gas or vapor to be encountered.

(b) The gas detection system shall not use portable or transportable equipment or temporary wiring methods.