

Part V. Flow Battery ESSs

Part V applies to ESSs composed of or containing flow batteries.

Informational Note: Due to the unique design features and difference in operating characteristics of flow batteries as compared with that of storage batteries such as lead acid or lithium ion batteries, the requirements for flow batteries have been included herein (Article 706, Part V).

Δ **706.40 General.** The system and system components shall also meet Parts I, II, and III of this article.

Informational Note: See NFPA 855-2020, *Standard for the Installation of Stationary Energy Storage Systems*, for installation requirements for ESS, including requirements for flow batteries.

706.41 Electrolyte Classification. The electrolyte(s) that are acceptable for use in the batteries associated with the ESS shall be identified by name and chemical composition. Such identification shall be provided by readily discernable signage adjacent to every location in the system where the electrolyte can be put into or taken out of the system.

706.42 Electrolyte Containment. Flow battery systems shall be provided with a means for electrolyte containment to prevent spills of electrolyte from the system. An alarm system shall be provided to signal an electrolyte leak from the system. Electrical wiring and connections shall be located and routed in a manner that mitigates the potential for exposure to electrolytes.

706.43 Flow Controls. Controls shall be provided to safely shut down the system in the event of electrolyte blockage.

706.44 Pumps and Other Fluid Handling Equipment. Pumps and other fluid handling equipment are to be rated/specified suitable for exposure to the electrolytes.

Part VI. Other Energy Storage Technologies

Part VI applies to ESSs using other technologies intended to store energy and when there is a demand for electrical power to use the stored energy to generate the needed power.

706.50 General. All electrical connections to and from the system and system components shall be in accordance with the applicable provisions of this *Code*. The systems shall comply with Parts I, II, III, and IV of this article.

N **706.51 Flywheel ESS (FESS).** Flywheel ESS (FESS) using flywheels as the storage mechanism shall also comply with all of the following:

- (1) FESS shall not be used for one- or two-family dwelling units.

Informational Note No. 1: FESS are intended for high-power shorter term applications. They contain parts that rotate under

high speed with hazardous kinetic energy and include parts such as magnetic bearings that require ongoing monitoring and maintenance and, therefore, are not suitable for residential-type applications.

- (2) FESS shall be provided with bearing monitoring and controls that can identify bearing wear or damage to avoid catastrophic failure.

Informational Note No. 2: The bearing monitoring controls should be evaluated as part of the listing evaluation.

- (3) FESS shall be provided with a containment means to contain moving parts that could break from the system upon catastrophic failure.

Informational Note No. 3: The containment means should be evaluated as part of the listing evaluation.

- (4) The spin-down time of the FESS shall be provided in the maintenance documentation.

ARTICLE

708

Critical Operations Power Systems (COPS)

Part I. General

Δ **708.1 Scope.** This article applies to the installation, operation, monitoring, control, and maintenance of the portions of the premises wiring system intended to supply, distribute, and control electricity to designated critical operations areas (DCOA) in the event of disruption to elements of the normal system.

Critical operations power systems are those systems so classed by municipal, state, federal, or other codes by any governmental agency having jurisdiction or by facility engineering documentation establishing the necessity for such a system. These systems include but are not limited to power systems, HVAC, fire alarm, security, communications, and signaling for designated critical operations areas.

Informational Note No. 1: Critical operations power systems are generally installed in vital infrastructure facilities that, if destroyed or incapacitated, would disrupt national security, the economy, public health or safety; and where enhanced electrical infrastructure for continuity of operation has been deemed necessary by governmental authority.

Informational Note No. 2: See NFPA 1600-2019, *Standard on Continuity, Emergency, and Crisis Management*, for further information on disaster and emergency management.

Informational Note No. 3: See NFPA 110-2019, *Standard for Emergency and Standby Power Systems*, for further information regarding performance of emergency and standby power systems.

Informational Note No. 4: See NFPA 101-2021, *Life Safety Code*, or the applicable building code, for specification of locations where emergency lighting is considered essential to life safety.