

## ARTICLE

## 702

## Optional Standby Systems

**Part I. General**

**702.1 Scope.** This article applies to the installation and operation of optional standby systems.

The systems covered by this article consist of those that are permanently installed in their entirety, including prime movers, and those that are arranged for a connection to a premises wiring system from a portable alternate power supply.

**Informational Note:** Optional standby systems are typically installed to provide an alternate source of electric power for such facilities as industrial and commercial buildings, farms, and residences and to serve loads such as heating and refrigeration systems, data processing and communications systems, and industrial processes that, when stopped during any power outage, could cause discomfort, serious interruption of the process, damage to the product or process, or the like.

Article 702 applies not only to permanently installed generators and prime movers but also to portable alternate power supplies that can be connected to an optional standby system. For example, upon failure of an optional standby generator at a frozen food processing plant, a vehicle-mounted generator can be brought in and connected to the plant's optional standby system, which has the capability for such a connection. See Exhibit 702.1.

Generators used in residential-type occupancies are installed as optional standby systems because there is no code or AHJ mandate to provide an alternate source of power. Some of the largest and most sophisticated standby systems installed are optional standby systems that are installed to support uninterrupted operation of data systems associated with businesses such as financial institutions, mercantile operations, and Internet service providers.

**See also**

**Article 700** for emergency systems

**Article 701** for legally required standby systems

**702.2 Reconditioned Equipment.** Reconditioned transfer switches shall not be permitted.

**702.4 Capacity and Rating.****(A) System Capacity.**

**(1) Manual and Nonautomatic Load Connection.** If the connection of load is manual or nonautomatic, an optional standby system shall have adequate capacity and rating for the supply of all equipment intended to be operated at one time. The user of the optional standby system shall be permitted to select the load connected to the system.

**Informational Note:** Manual and nonautomatic transfer equipment require human intervention.



**EXHIBIT 702.1** A trailer- (vehicle-) mounted portable generator.  
(Courtesy of the International Association of Electrical Inspectors)

The use of manual transfer equipment requires the user to manually switch to the standby source. The user can then select the necessary loads. The standby source must have adequate capacity to supply the user-selected loads that are intended to be operated at the same time.

**Δ (2) Automatic Load Connection.** If the connection of load is automatic, an optional standby system shall comply with 702.4(A)(2)(a) or (A)(2)(b) in accordance with Parts I through IV of Article 220 or by another approved method.

For standby systems employing automatic transfer switches (ATS), the source must have the capacity to supply all the loads connected to it, unless an automatic load management system (sometimes referred to as load shedding) is used to ensure that the transferred load does not overload the source.

(a) **Full Load.** The standby source shall be capable of supplying the full load that is automatically connected.

(b) **Energy Management System (EMS).** Where a system is employed in accordance with 750.30 that will automatically manage the connected load, the standby source shall have a capacity sufficient to supply the maximum load that will be connected by the EMS.

**702.5 Interconnection or Transfer Equipment.**

**(A) General.** Interconnection or transfer equipment shall be required for all standby systems subject to the requirements of this article. Equipment shall be suitable for the intended use and shall be listed, designed, and installed so as to prevent the inadvertent interconnection of all sources of supply in any operation of the equipment.

Traditional automatic transfer switches (ATS) are not designed to permit parallel operation of generation equipment and the normal source and need not comply with Article 705. However, certain ATS configurations are intentionally designed to briefly