PSI Control Solutions

NEC Requirements
Emergency and Standby Power
NEC Requirements
Emergency and Standby Power
How to Implement

1. Emergency Power Systems – Legally Required
2. Standby Power Systems – Legally Required & Optional
   • Temporary Source of Power for Maintenance or Repair of Alternate Power Source

Specifying Alternate Power needs
Interpreting specifications ... selecting appropriate / required equipment
Design / Build your best solution
Connecting equipment to the electrical system

Combo MTS (Rotary Switch) & Gen Tap Box
or
MTS (Breaker / Breaker) with Tap Box

MTS (Rotary Switch)
Generator Tap Box
or
MTS (Breaker / Breaker) with Generator Tap Box

Generator Docking Station with Main Breaker
or
Dual Purpose Generator Docking Station (Load Bank)

Automatic Transfer Switch

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NEC Requirements
Emergency and Standby Power
Emergency Systems – Legally Required

NFPA 2017 / NEC 700. Emergency Systems

NEC 700.2
• Legally Required by governmental agency
  Applies to buildings such as hospitals and public utility facilities
NEC 700.3(F)
• Permanent switching required to connect a second temporary generator during periodic testing (i.e. Combo MTS & Gen Tap Box)
  • Manual Switching to second temporary generator permissible (i.e. Manual Transfer Switch)
NEC 700.3
• Periodic tests to be done under anticipated load (i.e. Load Bank)
  • Manual switching to Load Bank is permissible (i.e. Gen Docking Station with Main Breaker or Dual Purpose Generator Docking Station)
NEC 700.2
• If supplying power essential to human life, transfer equipment shall be automatic (i.e. Automatic Transfer Switch); Mechanical or electrical interlocking is required
NEC 700.12 & NEC 700.5
• Transfer shall not exceed 10 seconds
  • Transfer equipment shall be automatic
  • Transfer equipment shall supply only emergency loads
NEC 700.6
• Audible & Visual Signals are required when in use & when not functioning
**NEC Requirements**

**Emergency and Standby Power**

**Emergency Systems – Legally Required**

NFPA 2017 / NEC 700. Emergency Systems
NEC 701. Legally Required Standby Systems

NEC 700.

- Legally Required System supplying “Non Emergency” Loads ... i.e. HVAC, Telephone, Smoke Evacuation, Lighting (but not Egress or Emergency Lighting), or Necessary Industrial Process Systems

NEC 701.3

- Periodic tests to be done under anticipated load (i.e. Load Bank)
- Manual switching to Load Bank is permissible (i.e. Generator Docking Station with Main Breaker or Dual Purpose Generator Docking Station)

NEC 701.5

- Transfer equipment shall be automatic (i.e. Automatic Transfer Switch)
- Unlike Emergency Transfer Equipment, it is not prohibited from supplying other loads

NEC 701.6

- Audible & Visual Signals are required when in use & when not functioning
NEC Requirements
Emergency and Standby Power
Standby Systems – Legally Required

NEC 701. Legally Required Standby Systems
NEC Requirements
Emergency and Standby Power
Standby Systems – Optional

NEC 702. Optional Standby Systems

NEC 702.
• This system is not legally required; It is chosen for convenience

NEC 702.4(B)
• The type of transfer equipment employed (Automatic Transfer Switch or Manual Transfer Switch), determines the size of the Optional Standby System

NEC 702.4(B)(1)
• When manual transfer equipment is used (i.e. Manual Transfer Switch), the “user” can manually select the load connected to the Optional Standby System (i.e. manually turn off certain circuit breakers)

NEC 702.4(B)(2)
• When / If automatic transfer equipment is used (i.e. Automatic Transfer Switch), the Standby System shall be sized to the full load being transferred (unless using Automatic Load Shedding)

NEC 702.5(Exception)
• Transfer equipment (Automatic Transfer Switch or Manual Transfer Switch), is not needed if a portable generator is used; Must ensure only “qualified persons” operate & normal supply is physically isolated

NEC 702.6
• Audible & Visual Signals are required when in use except for when portable generators are employed
NEC Requirements
Emergency and Standby Power
Standby Systems – Optional

NEC 702. Optional Standby Systems
(With Permanent Generator Option)

- Standby Power
- Permanent Generator Option

- Normal Power (Utility)
  - MTS (Rotary Switch)
  - MTS (Breaker / Breaker)
  - (Automatic Transfer Switch is Optional)

- Standby Load
- Distribution Panel
- Facility
NEC Requirements
Emergency and Standby Power
Standby Systems – Optional

NEC 702. Optional Standby Systems
(With Portable Generator Option)

- Standby Power
- Portable Generator Option
- Cam-Lok Cables
- Normal Power (Utility)
- Combo MTS (Rotary Switch) & Gen Tap Box
  or
  MTS (Breaker / Breaker) with Gen Tap Box
- Standby Load
- Distribution Panel
- Facility