NEC Article for Generators: Cheat Sheet

Article 445 plus Articles 700, 701 and 702 | Section numbers follow the 2023 NEC | By Abdul Wassay, Electrical Engineer

1. Which article applies?

Article	Title	Use it for
90	Introduction	Purpose, scope, AHJ enforcement
100	Definitions	Terms such as separately derived system
110	General Requirements	Listing (110.3), terminations (110.14), interrupting rating (110.9), working space (110.26)
240	Overcurrent Protection	240.4(B) next-size-up rule
445	Generators	The generator itself: listing, marking, protection, conductors, disconnects
700	Emergency Systems	Life safety loads, restore power within 10 seconds
701	Legally Required Standby	Loads mandated by a government agency, 60 seconds
702	Optional Standby Systems	Most home and small business backup power

2. Article 445 key sections

Section	Requirement
445.6	Stationary generators shall be listed (since the 2020 NEC)
445.10	Generator must be suitable for its location (dry, damp, wet, outdoor)
445.11	Nameplate marking: kW or kVA, volts, amps, phases, frequency, ambient temperature
445.12	Overcurrent protection by inherent design, breaker or fuse
445.13	Conductors from generator terminals to first overcurrent device: at least 115% of nameplate current
445.18	Disconnecting means and prime mover shutdown
445.20	GFCI protection for receptacles on portable generators of 15 kW or smaller

3. Worked example: 22 kW, 240 V single-phase

Nameplate current = 22,000 / 240 = 91.7 A. Minimum conductor ampacity (445.13) = 91.7 x 1.15 = 105.4 A. At 75 C copper, 3 AWG (100 A) is too small, so use 2 AWG copper (115 A). Confirm with Table 310.16 and the manufacturer instructions.

4. 240.4(B) in one paragraph

The next higher standard overcurrent device rating is permitted when (1) the conductors do not supply multioutlet receptacle circuits for cord-and-plug portable loads, (2) the conductor ampacity does not match a standard rating, and (3) the next higher rating does not exceed 800 A.

5. Articles 700 vs 701 vs 702

Feature	Article 700	Article 701	Article 702
System	Emergency	Legally required standby	Optional standby
Purpose	Life safety	Government-mandated loads	Property protection
Restoration	10 seconds	60 seconds	No NEC time limit
Wiring	Independent of other wiring	Less strict separation	Standard wiring methods
Typical use	Hospitals, theaters, high-rises	Smoke control, sewage, firefighting	Homes, small shops, farms

6. Generator clearance checklist

• Working space at transfer switch and panels (110.26): 36 in. deep, 30 in. wide or equipment width, 6.5 ft headroom.
• Distance to walls, windows, doors and air intakes: follow the generator manual and listing (110.3(B)). Many manuals call for about 5 ft from openings and about 18 in. from the wall, but it varies by model.
• Fuel piping: NFPA 54 (natural gas) or NFPA 58 (LP gas).
• Exhaust and carbon monoxide: keep exhaust away from openings and install CO alarms.
• Local setbacks and permits: your AHJ may be stricter.

7. Residential install checklist (Article 702)

• Transfer equipment or listed interlock installed (702.5). Never backfeed through a dryer outlet.
• Generator capacity matches the calculated load (702.4 and Article 220).
• Neutral and grounding follow Article 250: switched neutral means a separately derived system.
• Feeder wiring method, burial depth and conduit fill checked.
• GFCI protection where required (210.8) and permit inspected before energizing.

8. Free NEC access

NFPA offers free read-only online access to NFPA 70 at nfpa.org after registration. It does not provide a free downloadable PDF of the code.

Free calculators and guides: azadtechhub.com/electrical-calculators/ | Generator Sizing Calculator | Conduit Fill Calculator | NEC Article 250 and 240 guides