NEC Article for Transformers: Article 450 Quick Reference

Prepared by Abdul Wassay, Electrical Engineer | Azad Circuit Hub | Applies to the NEC article for transformers across the 2020, 2023 and 2026 editions (confirm section numbers in your adopted edition)

1. Which NEC article covers transformers?

Article 450, Transformers and Transformer Vaults (Including Secondary Ties), is in Chapter 4. Use it with Articles 90, 110, 240 and 250.

Section	Topic	What it covers
450.1	Scope	Installation of all transformers, with listed exceptions
450.3	Overcurrent protection	Table 450.3(A) over 1000 V, Table 450.3(B) 1000 V or less
450.9	Ventilation	Openings must not be blocked; keep marked clearances
450.10	Grounding	Frame grounding per Article 250
450.13	Accessibility	Readily accessible to qualified personnel, with exceptions
450.14	Disconnecting means	Transformer disconnect location and rating
450.21 to 450.28	Part II	Dry-type, less-flammable liquid and oil-insulated transformers
450.41 to 450.48	Part III	Transformer vaults

2. Table 450.3(B): transformers 1000 V or less

Protection scheme	Primary OCPD	Secondary OCPD
Primary only, 9 A or more	125%	Not required
Primary only, less than 9 A	167%	Not required
Primary only, less than 2 A	300%	Not required
Primary and secondary	250%	125%

Example: 75 kVA, 480 V, three-phase gives about 90 A primary (75,000 / (1.732 x 480)). At 125%, 112.5 A rounds up to a 125 A OCPD where the table notes permit.

3. Transformer clearance requirements

Item	Requirement
Ventilation (450.9)	Do not block ventilating openings; follow manufacturer-marked clearances
Dry-type indoors, 112.5 kVA or less (450.21(A))	At least 12 in. from combustible material unless a fire-resistant, heat-insulated barrier is used; exception for totally enclosed non-ventilated units of 1000 V or less
Dry-type indoors, over 112.5 kVA (450.21(B))	Fire-resistant transformer room, or the exceptions for higher-temperature insulation systems
Outdoors (450.22, 450.27)	Locate away from combustible buildings, doors and windows; add barriers or spray systems where required
Working space (110.26)	Depth 3, 3.5 or 4 ft by condition (150 to 600 V to ground), width 30 in. minimum, headroom 6.5 ft

4. Related rules that people search for

Question	Short answer
Does NEC 110.26 apply to transformers?	Yes where terminals, taps or disconnects may need energized examination or servicing.
What does NEC 240.4(B) say?	Allows the next higher standard OCPD rating above conductor ampacity if the conductors do not supply multiple cord-and-plug receptacles, ampacity does not match a standard rating, and the next rating is 800 A or less.
What about secondary conductors?	240.21(C) gives the transformer secondary tap rules, including the 10 ft and 25 ft options.
What does Article 90 cover?	Purpose and scope of the NEC (90.1, 90.2): premises wiring and equipment, excluding utility-owned generation, transmission and distribution under utility control.
Is there a free NEC PDF?	No legal free PDF of the full code. NFPA offers free read-only online access to NFPA 70 after registration.
Is there a 2022 NEC?	No. Editions are 2017, 2020, 2023 and 2026. The 2022 California Electrical Code is based on the 2020 NEC.

5. Quick checklist before inspection

• Primary and secondary OCPD match Table 450.3 and the table notes
• Ventilation openings are clear and manufacturer clearances are marked and met
• Required working space is clear and dedicated to the equipment
• Combustible material separation or fire barrier is documented (450.21 to 450.27)
• Grounding and bonding follow Article 250, including 250.30 for separately derived systems
• The adopted NEC edition and local amendments are confirmed with the AHJ

6. Tools and guides

Full guide: azadtechhub.com/nec-article-for-transformers/ | OCPD sizing chart: azadtechhub.com/transformer-ocpd-sizing-chart-accurate-breaker/ | NEC articles list: azadtechhub.com/nec-articles-list/