

### The Code Made Clear — Let's find the hard stuff and make it easier for you to move forward

This is Volume 1 of an 11-volume NEC 2023 field reference series from HardToFindCode.com, built for electricians, contractors, and inspectors who need fast, accurate answers on the jobsite.

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### What's Inside Volume 1

- Top 20 Most-Referenced NEC 2023 Articles — a quick-lookup table of the articles inspectors and electricians cite most often, with key sections and why each one matters.
- Essential Field Formulas — Ohm's Law, power calculations, voltage drop, box fill values, and dwelling service load calculations at a glance.
- 2023 NEC Key Changes Summary — the code changes that matter most for this cycle, from SPD requirements to the new Class 4 fault-managed power article.

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The full series: Vol. 1 – NEC 2023 Top 20 Articles Quick Reference, Vol. 2 – Grounding & Bonding Deep Dive, Vol. 3 – Load Calculation Worksheets, Vol. 4 – Motor Circuits, Vol. 5 – Solar PV & ESS, Vol. 6 – Emergency & Standby Systems, Vol. 7 – Low Voltage Systems (725/726/728), Vol. 8 – Commercial Wiring Methods, Vol. 9 – Service & Feeder Design, Vol. 10 – Overcurrent Protection, Vol. 11 – Inspection Readiness Checklist.

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## Top 20 Most-Referenced NEC 2023 Articles

| #  | Article | Title                  | Key Sections                              | Why It Matters                                   |
|----|---------|------------------------|-------------------------------------------|--------------------------------------------------|
| 1  | 210     | Branch Circuits        | §210.8 GFCI, §210.12 AFCI                 | Most-cited on residential/commercial inspections |
| 2  | 250     | Grounding & Bonding    | §250.4, §250.50, §250.104                 | Required on every installation                   |
| 3  | 220     | Load Calculations      | §220.12, §220.42, Table 220.12            | Sizing all services and feeders                  |
| 4  | 240     | Overcurrent Protection | §240.4, §240.21, §240.85                  | Protects conductors from overload                |
| 5  | 230     | Services               | §230.67 SPD, §230.85 Emergency Disconnect | 2023 major changes — surge + 6-handle rule gone  |
| 6  | 310     | Conductors             | Table 310.16, §310.15                     | Ampacity — most-used table in the field          |
| 7  | 300     | Wiring Methods         | §300.4, §300.5, §300.11                   | Physical protection of conductors                |
| 8  | 314     | Boxes                  | §314.16 Box Fill, §314.28                 | Box fill calc — inspector stops here first       |
| 9  | 110     | Installation Req.      | §110.26 Working Space, §110.12            | Clearances and neat/workmanlike                  |
| 10 | 430     | Motors                 | §430.6, §430.52, Table 430.52             | Branch circuit sizing for motors                 |
| 11 | 100     | Definitions            | Article 100                               | Know the language — every article references it  |
| 12 | 215     | Feeders                | §215.2, §215.18 SPD on feeders            | New 2023: SPD required on most feeders           |
| 13 | 408     | Panelboards            | §408.3, §408.36, §408.55                  | Directory, overcurrent, and directory labeling   |
| 14 | 404     | Switches               | §404.2, §404.9, §404.22                   | Grounding of snap switches                       |
| 15 | 690     | Solar PV               | §690.12 Rapid Shutdown, §690.47           | Required for all PV installations                |
| 16 | 706     | Energy Storage         | §706.7, §706.15                           | ESS — growing requirement in CA                  |
| 17 | 700     | Emergency Systems      | §700.3(F) Commissioning, §700.12          | Required testing and documentation               |
| 18 | 334     | NM-B Cable             | §334.10, §334.15, §334.23                 | Romex — where it can and can't go                |
| 19 | 358     | EMT                    | §358.10, §358.20, §358.26                 | Most common commercial conduit                   |
| 20 | 725/726 | Class 2/3/4            | §725.41, §726.12                          | Low voltage — fast-growing with smart buildings  |

## Essential Field Formulas

|                                        |                                                                                                    |
|----------------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Ohm's Law</b>                       | $V = I \times R$   $I = V/R$   $R = V/I$                                                           |
| <b>Power</b>                           | $P = V \times I$   $P = I^2 \times R$                                                              |
| <b>Voltage Drop (approx)</b>           | $VD = (2 \times K \times I \times L) / CM$ [K = 12.9 copper, CM = circular mils, L = one-way feet] |
| <b>Box Fill</b>                        | Each conductor = wire gauge cubic inch value (14 AWG = 2.0, 12 AWG = 2.25, 10 AWG = 2.5)           |
| <b>Service Load (§220.82 Dwelling)</b> | First 10 kVA @ 100%, remainder @ 40% + 100% of largest motor                                       |
| <b>Ampacity Correction for Temp</b>    | Use Table 310.15(B)(1) correction factors                                                          |

## 2023 NEC Key Changes Summary

|                    |                                                                                 |
|--------------------|---------------------------------------------------------------------------------|
| <b>§230.85</b>     | Emergency disconnecting means required at a readily accessible outdoor location |
| <b>§230.67</b>     | Surge protective device (SPD) now required on ALL new dwelling services         |
| <b>§215.18</b>     | SPD required on feeders supplying dwelling units                                |
| <b>§210.8</b>      | GFCI extended to include crawl spaces, unfinished basements more broadly        |
| <b>§210.12</b>     | AFCI required in all 120V, 15A and 20A circuits in dwelling units               |
| <b>§706</b>        | New article for Energy Storage Systems (reorganized from 480)                   |
| <b>§690.12</b>     | Rapid shutdown for PV now includes building-integrated PV                       |
| <b>Article 726</b> | New — Class 4 Fault-Managed Power Circuits (up to 450W)                         |

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