

# Whole-House Safety Inspection and Maintenance

YES Electric • NEC 2026 with NEC 2023 numbers in parentheses

**Draft 1 (October 2026).** This chapter is under review. Code numbers are NEC 2026. Your local inspector may use an earlier edition, so ask your journeyman which one applies. Boxes marked "Picture coming" will get drawings and photos in a later version.

## Phase 2, Troubleshooting and Service Calls.

**Before this module:** R2.1 through R2.8. An inspection uses every test from Phase 2, done on purpose in a set order before anything has failed. R-OLDHOUSE goes deeper on older wiring and panels. Read it after this one.

**Code edition.** Code references are NEC 2026. Where a section moved, the NEC 2023 number is in parentheses. The local inspector (the AHJ) may enforce an earlier edition, so ask your journeyman which one applies before you quote a section to anyone.

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## Learning Objectives

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When you finish this module you will be able to:

1. Run an annual electrical safety inspection of a house in a fixed order, outside to inside, top to bottom.
  2. Sort every finding into one of three bands: Safety-Critical, Code Update, and Monitor.
  3. Write a report a homeowner can read, with photos, and hand it to the office for pricing. The inspection is a billable service. The tech does not quote the price.
  4. Do a pre-storm check and a post-flood check, and know which equipment must be replaced, not dried and re-energized, after it has been under water.
  5. Spot the panels and wiring types that raise the risk in older houses and send them to R-OLDHOUSE.
  6. Recommend upgrades in plain words without scaring the customer.
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## Background: Why We Inspect Houses That Are Working

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Every call in R2.1 through R2.8 starts with something broken. An inspection starts with nothing reported. You walk the house and find what is about to fail, what was never right, and what the code has changed since the house was built.

The Arc Workforce field guide lists the annual inspection as a service to offer as billable work and gives a checklist for it (Arc Guide, Part 7). It also says to sort findings into three severity levels: Safety-Critical (needs immediate attention), Code Update (not an emergency but should be corrected), and Monitor (watch but not urgent). We use those three bands at YES.

Three ideas run through this whole module:

- Existing work is not automatically wrong. Most houses were wired to the code of their year. The NEC does not make a homeowner rip out wiring that was legal when installed. The NEC does say that certain changes trigger current rules: replacing a receptacle (406.12(D), 2023: 406.4(D)), extending or replacing a branch circuit in an AFCI area (210.12(E)), replacing service equipment (230.67(D) and 230.70(E)), and replacing outdoor HVAC equipment (210.8(F)). You need to know which findings are hazards today and which are "the code changed since your house was built."
  - You do not fix during the inspection unless the office has agreed to it. You look, test, photograph, and write. The office prices. If you find something dangerous right now, you make it safe (R2.1, Part E4) and tell your journeyman.
  - The report is for a homeowner. A list of code sections scares people and helps no one. Every finding gets a photo, a plain sentence, and a band.
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## **Part A: Before the Inspection**

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### **Step A1. Confirm the scope with the office**

1. Confirm this is an inspection, not a repair call. The ticket should say "whole-house electrical safety inspection."
2. Confirm whether the customer has approved any repairs in advance. Usually the answer is no. The report comes first, then the office prices the findings.
3. Note the age of the house, any known additions or remodels, and whether it has a generator, EV charger, solar, or a pool. Each adds equipment to inspect.
4. Plan about 2 to 3 hours for a typical 1,500–2,500 sq ft house. Older houses and houses with an attic or crawl space you must enter take longer.

### **Step A2. Tools and supplies**

Everything from R2.1, Part A3, plus:

| Item                                    | Use on an inspection                                                                                                                                       |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plug-in receptacle tester (three-light) | Every receptacle you can reach                                                                                                                             |
| Plug-in GFCI tester                     | Every GFCI and GFCI-protected receptacle. The Arc Guide notes the TEST button only tests the button, while a plug-in tester applies a real fault (Part 9). |
| Spot (infrared) thermometer             | Panel breakers and devices under load (R2.7)                                                                                                               |
| Clamp meter                             | Each service leg, the neutral, and the grounding electrode conductor                                                                                       |
| Multimeter                              | Voltage at the panel and at the far receptacle under load; neutral-to-ground                                                                               |
| 1,500 W heater or similar known load    | Voltage drop under load (R2.2)                                                                                                                             |
| Tape measure                            | Working space, distances from sinks and tubs                                                                                                               |
| Ladder, headlamp, coveralls, dust mask  | Attic and crawl space                                                                                                                                      |
| Blue painter's tape                     | Mark devices that fail so you can find them for photos                                                                                                     |
| The inspection report template (Part D) | Fill in as you go                                                                                                                                          |

### Step A3. Talk to the customer first

Ask the R2.1 intake questions, adjusted for an inspection:

1. "Is anything electrical bothering you right now, even something small?" Flickers, a warm switch, a breaker that trips once a month.
2. "When was the house built? Any additions, remodels, or electrical work since? Who did it?"
3. "Has the house ever had water in it: a flood, a roof leak, a burst pipe, water in the basement?"
4. "Are there any rooms, closets, or outbuildings I can't get into today?"
5. "Do you have a generator, an EV charger, solar panels, or a pool or hot tub?"
6. "Does anyone in the house have a medical device that can't lose power?" If yes, do not shut off any circuit during the inspection without arranging it first.

Tell the customer what you will do: "I'm going to test outlets, look in the panel, and check the attic and outside. I'll need to plug testers into outlets and press a few test buttons, which may turn off some outlets for a second. I won't turn off the whole house. At the end you'll get a written report with photos."

## Part B: The Inspection, Step by Step

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Work in this order every time: outside, service and panel, inside room by room, attic and crawl space or basement, measurements, then alarms. A fixed order means you do not skip a room or forget the attic.

### **B1. Outside**

Walk all the way around the house.

| # | Look at                                               | What you want to see                                                                                                     | Finding if not                                                                                                                                                                                                                                                                                          |
|---|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Service drop or underground riser                     | Drop clear of tree limbs and the roof surface; riser not cracked or pulled from the meter                                | Limbs on the drop or a damaged riser: Safety-Critical. Utility side; the customer or office calls Alabama Power.                                                                                                                                                                                        |
| 2 | Weatherhead and service-entrance cable                | Weatherhead pointing down, drip loops below it, cable jacket intact and strapped                                         | Cracked insulation showing copper or aluminum: Safety-Critical. Kuhlman shows feeders at a weatherhead cracked to bare copper with nothing upstream to protect them (p. 105). Water leaking down SE cable into the meter and panel is a common failure Kuhlman says he has seen many times (pp. 40-41). |
| 3 | Meter base                                            | Sealed, attached tight to the wall, no rust holes, no burn marks, meter seal in place                                    | Rust-through, burn marks, or loose base: Safety-Critical. Do not open it.                                                                                                                                                                                                                               |
| 4 | Outdoor service disconnect or emergency disconnect    | On a service replaced under recent codes, a disconnect outdoors (230.70(A)(1)) or a marked emergency disconnect (225.41) | Not present on an older service: Code Update (only required when the service is replaced, 230.70(E)). Present but unmarked: Code Update.                                                                                                                                                                |
| 5 | Grounding electrode conductor and rods                | GEC intact from the meter or panel to the rod(s), clamp tight, not cut by a mower                                        | Cut, missing, or loose: Safety-Critical.                                                                                                                                                                                                                                                                |
| 6 | Outdoor receptacles                                   | Weather-resistant (WR), tamper-resistant (TR), GFCI protected, with an in-use cover that closes with a cord plugged in   | No GFCI: Safety-Critical. No in-use cover or no WR on a damp or wet location: Code Update. Kuhlman notes outdoor WR GFCIs fail more often than indoor ones (p. 32), so test every one.                                                                                                                  |
| 7 | AC condenser disconnect and outlet                    | Disconnect in sight, not rusted through, whip intact; service receptacle near the unit                                   | Rusted or damaged disconnect: Safety-Critical. See the HVAC GFCI note below this table.                                                                                                                                                                                                                 |
| 8 | Generator, inlet box, and signs                       | R2.8 checks; labels per 702.7                                                                                            | Missing interlock on a portable-generator inlet: Safety-Critical (backfeed hazard). Missing signs: Code Update.                                                                                                                                                                                         |
| 9 | Landscape lights, post lights, pool and spa equipment | Covers on boxes, GFCI where required                                                                                     | Open boxes, cracked covers: Code Update or Safety-Critical by condition.                                                                                                                                                                                                                                |

**Outdoor HVAC and GFCI in 2026.** NEC 2026 210.8(F) requires GFCI protection for dwelling outdoor outlets on single-phase branch circuits of 150 V or less to ground and 60 A or less. Exception No. 2, which exempted listed HVAC equipment, expired September 1, 2026. 210.8(F) also says that if equipment on an outlet covered by the section is replaced, the outlet shall be supplied with GFCI protection. Exception No. 3 permits a listed Class C special-purpose GFCI (SPGFCI) for listed HVAC equipment, with the disconnect marked. On an inspection, an existing condenser without GFCI protection is a Code Update, and the report should say it becomes a requirement when the condenser is replaced. Ask your journeyman which edition your AHJ enforces, because under an earlier edition the exception may still apply.

**Picture coming:** Outside-of-house inspection walk drawn as a top view of a one-story house with numbered stops 1–9 matching the table: drop at the corner, weatherhead, meter on the side wall, outdoor disconnect beside it, ground rod at the foundation, front and back outdoor receptacles with in-use covers, AC condenser with disconnect and service receptacle, a generator pad, and a post light at the front walk.

## **B2. Service equipment and panel**

**Safety: PPE and permission.** You will take the dead front off a live panel. Do it only after your journeyman has signed you off for panel covers, with safety glasses and the PPE in R1.1. Remember the line side of the main breaker stays live with the main off (R2.1, Part E1). Do not tighten anything during an inspection unless the office approved repairs. Note it and move on.

Work through the panel in this order.

| #  | Check                     | How                                                                                                                                                                          | Band if it fails                                                                                                                                                                                                                          |
|----|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Working space (110.26)    | Tape measure: 30 in. wide or the width of the equipment, 3 ft deep in front (Table 110.26(A)(1), 0–150 V, Condition 1), clear to 6½ ft. No storage in the space (110.26(B)). | Storage that can be moved: Monitor, tell the customer. Built-in obstruction: Code Update. Kuhlman's photo pages show panels behind posts, under pipes, behind a vent, plastered in, and mounted so high a chair was needed (pp. 115–120). |
| 2  | Location (240.24)         | Not in a clothes closet (240.24(D)), not in a bathroom, not over stairway steps                                                                                              | Code Update. 240.24 allows existing bathroom panels that met earlier codes.                                                                                                                                                               |
| 3  | Panel label               | Brand, model, amp rating, listed breaker types                                                                                                                               | Federal Pacific Stab-Lok, Zinsco or Sylvania-Zinsco, or a fuse panel: list it and refer to R-OLDHOUSE for the band. Arc Guide Part 8 and Part 10 flag FPE and Zinsco.                                                                     |
| 4  | Directory (408.4)         | Every circuit described                                                                                                                                                      | Missing or wrong: Code Update.                                                                                                                                                                                                            |
| 5  | Surge protection (230.67) | A Type 1 or Type 2 SPD at or adjacent to the service equipment, status light correct (R2.8)                                                                                  | No SPD: Code Update (230.67(D) requires one when service equipment is replaced). Spent SPD: Monitor or Code Update.                                                                                                                       |
| 6  | Water and rust            | Look at the top of the panel and the cable entries; look for a rust line or water stains                                                                                     | Active water, corrosion on bus or breakers: Safety-Critical. Kuhlman shows a panel where years of water ruined the bus, neutral bar, and every breaker, and notes the meter outside is usually worse (p. 107).                            |
| 7  | Heat damage               | Look for brown, black, or melted plastic; scorched bus stabs; discolored conductor insulation                                                                                | Any burn marks: Safety-Critical (Arc Guide, Symptom 6, Step 4). Kuhlman shows bus burned by a bad breaker-to-bus connection (pp. 108–109).                                                                                                |
| 8  | Breakers match the panel  | Breaker brand and type listed on the panel label                                                                                                                             | Wrong brand or unlisted breakers: Code Update; Safety-Critical if heat-damaged.                                                                                                                                                           |
| 9  | Twin (tandem) breakers    | Only in panels and positions listed for them                                                                                                                                 | Twins in a panel not rated for them: Code Update; Safety-Critical if hot. Kuhlman shows a panel packed with twins that was not rated for any (p. 128).                                                                                    |
| 10 | Double taps               | One conductor per breaker terminal unless the terminal is identified for more than one (110.14(A))                                                                           | Code Update. Look at the breaker label; some are listed for two conductors.                                                                                                                                                               |
| 11 | Neutrals                  | One neutral per terminal on the neutral bar                                                                                                                                  | Two neutrals under one screw: Code Update. The Arc Guide calls double-tapped neutrals                                                                                                                                                     |

| #  | Check                              | How                                                                                                                | Band if it fails                                                                                                                                    |
|----|------------------------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                    |                                                                                                                    | the most common serious defect it sees in panels (Part 10).                                                                                         |
| 12 | Wire size vs breaker               | Read conductor size; compare to breaker (240.4(D))                                                                 | 14 AWG on 20 A, 12 AWG on 30 A, and similar: Safety-Critical. Turn the breaker off and tell your journeyman (R2.1, Part E).                         |
| 13 | Aluminum branch wiring             | 15 A and 20 A circuits with silver conductors, "AL" on the jacket                                                  | List it and follow R2.7 and R-OLDHOUSE. Never band it Monitor without a journeyman's look.                                                          |
| 14 | Unused openings (110.12(A), 408.7) | Missing breaker filler plates or open knockouts                                                                    | Code Update. An open slot in the dead front lets a finger touch the bus: Safety-Critical.                                                           |
| 15 | Subpanels                          | Neutral bar isolated from the enclosure, grounds on a separate bonded bar, 4-wire feeder                           | Neutral and ground bonded in a subpanel: Code Update or Safety-Critical by condition. Kuhlman says many electricians do not know this rule (p. 43). |
| 16 | AFCI and GFCI breakers             | Press each TEST button. The breaker should trip. Reset it fully OFF then ON.                                       | Does not trip: Safety-Critical, replace. Ask the customer before testing anything that feeds a freezer, a medical device, or a computer in use.     |
| 17 | Thermal scan                       | With the house under normal load, spot thermometer across each breaker face and the main lugs from a safe distance | One breaker much warmer than its neighbors: open the lead on R2.7. The Arc Guide gives more than 25°F above neighbors as a flag (Part 10).          |
| 18 | Debris                             | Paint, drywall dust, plaster, or nests inside the enclosure                                                        | Code Update. The Arc Guide notes contamination raises operating temperature (Part 10).                                                              |

**Picture coming:** Panel defect sheet: one residential panel drawn with the dead front off and seven numbered callouts: a double-tapped breaker, two neutrals under one bar screw, a wrong-brand breaker, an open filler slot, a scorched bus stab, a rust line from the top entry, and a 14 AWG conductor on a 20 A breaker. A legend gives the band for each.

### B3. Inside, room by room

Start at the room nearest the panel and work outward, one floor at a time. In each room:

1. Plug the three-light tester into every receptacle you can reach without moving heavy furniture. Note any you could not reach.
2. At every receptacle that should be GFCI protected, plug in the GFCI tester and press its button. The receptacle should go dead. Reset it at the GFCI that tripped. Note which GFCI protects which receptacles.

3. Feel the cover plate of each receptacle and switch while it is under its normal load. Warm devices go on the list for R2.7.
4. Look at receptacle type: tamper-resistant (TR) marking, 15 A vs 20 A, two-prong vs three-prong.
5. Turn every switch on and off. Note any that are warm, buzz, spark, or do nothing.
6. Look at fixtures and fans: wobble, missing canopies, scorched sockets, bulbs above the fixture's maximum rating.
7. Note extension cords used as permanent wiring, cords under rugs, and power strips daisy-chained together.
8. Note any open junction boxes, missing cover plates, or loose devices.

**Where GFCI protection is required for dwellings (210.8(A)).** The 2026 list is: bathrooms; garages; areas of accessory buildings; outdoors; crawl spaces at or below grade; basements; kitchens; areas with sinks and permanent provisions for food or beverage preparation or cooking; within 6 ft of the top inside edge of a sink bowl; boathouses; within 6 ft of the outside edge of a bathtub or shower stall; laundry areas; indoor damp locations; and indoor wet locations. 210.8(D) adds specific appliances, including dishwashers, electric ranges, wall ovens, cooktops, clothes dryers, microwave ovens, and sump pumps. Older houses will not have all of these. Band each missing one using Part C.

**Where AFCI protection is required for dwellings (210.12(B)).** 120 V, 10 A, 15 A, and 20 A branch circuits supplying outlets or devices in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas, and similar areas.

**Tamper-resistant receptacles (406.26, 2023: 406.12).** All 15 A and 20 A, 125 V and 250 V nonlocking receptacles in dwelling units, including attached and detached garages and accessory buildings, must be listed tamper-resistant in new work.

**Push-in (backstab) terminals (406.10(3)).** NEC 2026 allows push-in terminals only on branch circuits of 15 A or less and only with 14 AWG solid copper. Earlier editions left this limit to the device's UL listing. You will not see backstabs from the front of a device during an inspection. Note it when you do see one (for example, on a device the customer already has loose) and when the house is from an era of production wiring. Kuhlman's rule is that if he finds one failed backstab, the house was wired that way (p. 82).

**Three-prong receptacles with no ground.** If the three-light tester shows "open ground" on a three-prong receptacle, the receptacle was replaced without a ground path. The NEC permits three ways to replace a non-grounding receptacle where no ground exists (406.12(D)(2), 2023: 406.4(D)(2)): with another non-grounding receptacle; with a GFCI receptacle marked "No Equipment Ground"; or with a grounding-type receptacle supplied through a GFCI and marked "GFCI Protected" and "No Equipment Ground." 250.130(C) also allows an equipment grounding conductor to be added from specific points. An unmarked three-prong receptacle with no ground and no GFCI is a Code Update, and a Safety-Critical finding if it feeds a metal-cased appliance or

is in a wet area. The Arc Guide's Part 8 advice that you may never run a ground from another point is wrong under 250.130(C); do not repeat it.

#### **B4. Attic, crawl space, basement, garage**

**Safety: attics in Alabama.** Summer attic temperatures can make you sick in minutes. Inspect attics in the morning, take water, and tell someone you are going up. Step only on framing. Look before you touch any wire, because open splices and old knob-and-tube are common.

1. Look for knob-and-tube conductors (single wires on porcelain knobs and through porcelain tubes). NEC 394.12 does not allow concealed knob-and-tube in hollow spaces of walls, ceilings, and attics that are insulated with loose, rolled, or foamed-in-place insulation that envelops the conductors. K&T buried in blown insulation is a finding. Refer to R-OLDHOUSE.
2. Look for splices outside of boxes, cables lying where people walk, cables damaged by animals, and cables near the attic access not protected (300.6, 2023: 300.4, covers protection from damage).
3. Look at recessed fixture housings from above. Non-IC housings must have insulation kept away. Kuhlman notes that non-IC cans with insulation pushed back against them are a fire hazard and that you cannot rely on the thermal cutout (p. 48).
4. Look for open junction boxes and missing covers.
5. In basements and crawl spaces: look for water damage, rust on boxes, cables run across joists without protection, and the water and gas pipe bonding (250.104).
6. In the garage: GFCI on all receptacles, the garage door opener receptacle included under 2026 210.8(A).

#### **B5. Measurements**

Take and write down these readings. They catch problems you cannot see.

| # | Reading                                            | How                                                                                                  | Normal                                                                                  | Finding if not                                                                                              |
|---|----------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| 1 | Voltage at the panel, each leg                     | Meter AC volts, L1-N and L2-N at the main breaker load terminals, then L1-L2                         | 114-126 V each leg (Arc Guide, Part 3); 228-252 V L1-L2                                 | One high and one low: stop, R2.5. Both low: utility or service connection, R2.5.                            |
| 2 | Service current                                    | Clamp L1, L2, and the service neutral                                                                | Neutral current about equal to the difference between L1 and L2                         | Neutral much less than the difference: some neutral current is taking another path.                         |
| 3 | Grounding electrode conductor current              | Clamp the GEC to the water pipe or rod                                                               | Kuhlman expects 0 or about 0.1 A (p. 45)                                                | Above about 0.1 A: neutral problem likely, R2.5. Kuhlman has measured 10 A or more on bad neutrals (p. 45). |
| 4 | Voltage drop on the longest circuit                | 1,500 W heater at the farthest receptacle. Read at the panel and at the receptacle under load (R2.2) | Within about 3 percent on a branch circuit, the target in the 210.19 informational note | More: loose connection or long run. Open the leads on R2.3.                                                 |
| 5 | Neutral-to-ground at the far receptacle under load | Same setup                                                                                           | Small, a few volts                                                                      | Large and rising with load: high-resistance neutral connection.                                             |

## B6. Smoke and CO alarms

1. Find every alarm. Note its location: each bedroom, outside each sleeping area, and each level (R1.8 has the local rules).
2. Read the date on the back of each one. Kidde and First Alert both give a 10-year life (R2.8).
3. Press each alarm's test button. Note whether the others sound (interconnect).
4. Note any alarm that chirps, and decode it with R2.8.
5. Note fuel-burning appliances and an attached garage. These are where CO alarms matter. Placement rules are in R1.8.

The Arc Guide puts smoke alarm testing on the inspection list while noting it is separate from the electrical work (Part 7). We include it because hardwired alarms are on our circuits and because Kuhlman's "Somerville" call showed alarms reacting to a utility neutral problem (pp. 101-102).

## Part C: Sorting Findings into Bands

Every finding goes into exactly one band. Use the first band that fits, top to bottom.

| Band            | Test                                                                                                                                                                            | Examples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety-Critical | It could start a fire or shock someone now, or it has already started to fail.                                                                                                  | Burn marks or melted plastic anywhere; active water in the panel or meter; a conductor on a breaker larger than its rating; a lost-neutral pattern; no GFCI on bathroom, kitchen, outdoor, or garage receptacles; AFCI or GFCI that will not trip on test; exposed live parts (open slot in the dead front, missing cover on a live box); damaged service drop or cracked service conductors; cut grounding electrode conductor; portable generator connected without an interlock or transfer switch; warm devices or breakers well above neighbors; aluminum branch wiring with heat damage |
| Code Update     | It was legal when installed, or it is a code issue without an active hazard, and current code says it should be corrected, or it becomes required when the next change is made. | No SPD at the service; no outdoor disconnect on an older service; no AFCI on bedroom circuits in an older house; missing directory; double taps and doubled neutrals without heat damage; non-TR receptacles; unmarked three-prong receptacles with no ground in a dry area; missing in-use covers; outdoor HVAC without GFCI; no water-pipe bonding jumper; missing filler plates                                                                                                                                                                                                            |
| Monitor         | It is working and code-compliant for its age, but it is near the end of its life or worth watching.                                                                             | A panel near 30 years with no damage; an SPD near its stated life; smoke alarms in year 8 or 9; a dimmer that runs warm but within normal; a GFCI that trips slow on the tester; storage in the panel working space that the customer moved while you were there                                                                                                                                                                                                                                                                                                                              |

When you are not sure between two bands, pick the higher one and ask your journeyman before the report goes out.

## Part D: Writing the Report

The report goes to the office first. The office adds the price to each recommendation and sends it to the customer. You never put a price on the report.

### D1. Report layout

1. **Header:** address, customer name, date, your name, house age, and what you inspected and what you could not reach.
2. **Summary for the homeowner:** one paragraph, plain words, no code sections. Say how many findings are in each band, name the Safety-Critical ones in a sentence each, and say what happens next (the office will send prices).
3. **Safety-Critical findings:** one block per finding.
4. **Code Update findings:** one block per finding.
5. **Monitor findings:** one block per finding.
6. **Measurements:** the readings from B5.

7. **Not inspected:** rooms, attics, or equipment you could not reach, and why.

Each finding block has: a photo, the location, what you saw in one or two plain sentences, why it matters in one sentence, and what you recommend. Put the NEC section in small text at the end of the block for the office and the journeyman.

## D2. Example finding blocks

**Safety-Critical. Hall bath, receptacle by the sink.** [photo] This receptacle is not protected by a GFCI. A GFCI shuts off power in a fraction of a second if current leaks through a person, which matters most near water. Recommend: install GFCI protection. (NEC 210.8(A)(1))

**Code Update. Main panel.** [photo] There is no whole-house surge protector. Surge protectors limit voltage spikes from lightning and the utility that can damage electronics and appliance boards. The current code requires one whenever the service equipment is replaced. Recommend: install a surge protector at the panel. (NEC 230.67)

**Monitor. Smoke alarms.** [photo of date label] The five smoke alarms were made in 2018. Smoke alarms are made to last 10 years. They tested correctly today. Recommend: plan to replace all five by 2028.

## D3. The homeowner summary

Write it last, after all the findings are sorted. Example:

"We inspected the electrical system at 123 Example St. on October 2. We found 2 safety items that should be fixed soon, 5 code updates, and 3 things to keep an eye on. The two safety items are a bathroom outlet with no shock protection and a breaker in the panel that is too large for its wire, which we turned off and labeled. Everything else is working. Our office will send you a price for each recommendation, and you can choose what to do and when."

**Picture coming:** One-page inspection report template on a phone screen. Header block, a summary paragraph box, then three colored bands stacked: red "Safety-Critical," amber "Code Update," gray "Monitor." Each band shows one sample finding block with a photo thumbnail, location, two-line description, "Why it matters," and "Recommend." Footer sections "Measurements" and "Not inspected." No price column.

## D4. Presenting it out loud

After the report is written, walk the customer through it at the kitchen table or on their phone.

1. Start with the summary.
2. Walk to each Safety-Critical finding and show it.
3. Say what you already did to make anything safe ("I turned off this breaker and labeled it").

4. Go through the Code Updates briefly. Use the phrase "the code has changed since your house was built" where it is true.
5. Mention the Monitor items in one or two sentences.
6. Tell them the office will send prices.

Words to use and avoid, from R2.1 and the Arc Guide (Part 6):

| Say                                                                                     | Instead of                                                                                                        |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| "safety concern," "code requirement," "the code has changed since your house was built" | "violation," "illegal," "your house is a fire trap"                                                               |
| "this should be fixed soon"                                                             | "you need to fix this today or your house will burn" (unless it truly is, in which case you made it safe already) |
| "here's what I'd do first, and what can wait"                                           | a list of everything at once                                                                                      |
| "the office will send you prices"                                                       | any number                                                                                                        |

If the customer asks which items matter most, point to the Safety-Critical band. If they ask what they can afford to wait on, point to Monitor. Do not pressure. The report is there so they can decide.

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## Part E: Pre-Storm Check

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Alabama gets severe thunderstorms, tornado outbreaks, and the inland remains of Gulf hurricanes. A pre-storm check is a shorter version of the inspection, done in spring or before a forecast storm. The Arc Guide gives the base list (Part 7). Do these, in order:

1. **Main breaker.** Show the customer the main breaker and have them find it and turn it off and on themselves (with your OK and loads warned). The Arc Guide's target is that the customer can shut off the whole house in 30 seconds.
2. **Sump pump.** Confirm the sump pump receptacle is GFCI protected (210.8(D) lists sump pumps) and that the pump runs. A GFCI that trips during a storm stops the pump. If the customer worries about that, the recommendation is a battery-backup pump and a GFCI that is tested monthly, not removing GFCI protection.
3. **Outdoor receptacles.** In-use covers present and closing. GFCI tests correctly.
4. **Service entrance.** Look for the weatherhead, mast, drop, and meter conditions in B1. Corroded lugs or a cracked weatherhead before storm season is a Safety-Critical finding.
5. **Portable generator.** Ask how the customer plans to connect it. The only acceptable answers are cords plugged directly into the generator's own receptacles, or a listed inlet with a listed interlock kit or transfer switch (R1.10). Plugging a generator into a dryer receptacle with a double-male cord backfeeds the house and the utility lines and can kill a lineman. The Arc Guide states the same thing (Part 7). If the customer has one of those

cords, tell them plainly, write it as Safety-Critical, and recommend an inlet with an interlock.

6. **Standby generator.** Run the R2.8 checks: AUTO mode, no yellow or red alarms, battery GOOD, last exercise. Recommend the maintenance visit if SERVICE A or B is showing.
  7. **SPD.** Status light correct.
  8. **Trees.** Limbs over or touching the service drop. That is utility work; the customer calls Alabama Power.
- 

## Part F: After a Flood or Water Intrusion

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### F1. The rule

Do not re-energize electrical equipment that has been under water until it has been evaluated. NEMA's guide Evaluating Water-Damaged Electrical Equipment lists which equipment must be replaced and which may be reconditioned only with the manufacturer's guidance (NEMA, 2016). The NEC refers to the same NEMA document (NEMA GD 1) in its list of referenced standards. The Arc Guide's post-flood list agrees: replace devices in the flooded zone, replace any subpanel or disconnect that was submerged, and do not restore power without inspection (Part 7).

## F2. NEMA's replace-or-recondition list for house equipment

| Equipment                                                                             | NEMA says                                                                              |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Molded-case circuit breakers (all residential breakers)                               | Replace                                                                                |
| Fuses                                                                                 | Replace                                                                                |
| Switches (disconnects)                                                                | Replace                                                                                |
| Panelboards                                                                           | May be reconditioned; contact the manufacturer                                         |
| AFCIs and GFCIs                                                                       | Replace                                                                                |
| Surge protective devices                                                              | Replace                                                                                |
| Wiring devices: switches, receptacles, dimmers                                        | Replace                                                                                |
| Wire or cable listed for dry locations, such as NM-B                                  | Replace                                                                                |
| Wire or cable suitable for wet locations                                              | May be reconditioned if the ends were not exposed to water and the wire is not damaged |
| Outlet and junction boxes                                                             | Replace                                                                                |
| Conduit and tubing                                                                    | May be reconditioned                                                                   |
| Luminaires, ballasts, and LED drivers                                                 | Replace                                                                                |
| Signaling, protection, and communications systems (this includes smoke and CO alarms) | Replace                                                                                |
| Batteries                                                                             | Replace                                                                                |
| Uninterruptible power supplies                                                        | Replace                                                                                |
| Motors                                                                                | May be reconditioned (motor shop)                                                      |

NEMA also warns that floodwater carrying chemicals, sewage, oil, or salt adds damage, and that reconditioning without the manufacturer can use cleaning agents that do more harm (NEMA, sections 1 and 2).

## F3. Post-flood procedure

**Safety: standing water and energized equipment.** Do not walk into a flooded basement or room until power to that area is off at a point that is dry and safe to reach. If the main panel itself is in the water or you cannot reach a disconnect without standing in water, the utility disconnects the service. Do not try.

1. Ask: "How high did the water get? How long was it there? Was it clean water from a pipe, or flood water from outside?" Ask the customer to show you the water line on the walls.
2. Find the water line and mark it with tape on the wall near the panel and in each affected room. Photograph it with a tape measure in the shot.

3. Compare the water line to the height of every piece of electrical equipment: the panel, receptacles, switches, the furnace or air handler, the water heater, the sump pump, any subpanel, and the generator or transfer switch.
4. Everything at or below the water line goes on the replace list per F2. That includes every receptacle and switch, every box, and NM cable whose length was under water.
5. Equipment above the water line in a room that was flooded: look for moisture inside boxes and the panel, rust, and condensation. If you see moisture in the main panel, the Arc Guide says dry it completely before restoring power (Part 7). If the panel bus or breakers were wet, it goes to the manufacturer per NEMA.
6. HVAC equipment, water heaters, and other hardwired appliances in the flooded zone are evaluated by their own trades before they get power back (Arc Guide, Part 7).
7. Photograph everything for the insurance claim. The Arc Guide lists this as a step (Part 7).
8. Write the report. Everything below the water line is Safety-Critical until replaced. Do not energize circuits that run through the flooded zone. Make the rest of the house safe to use if it is fed from circuits that were never wet and the panel was never wet, with your journeyman's approval.

**Picture coming:** Post-flood decision diagram: side view of a basement wall with a blue water line drawn at 24 in. Equipment drawn on the wall: a receptacle at 16 in. (below the line, labeled "Replace"), a switch at 48 in. (above, labeled "Inspect for moisture"), a subpanel with its bottom at 18 in. (labeled "Replace or manufacturer"), and the main panel upstairs (labeled "Inspect, dry, test before power"). A side box lists NEMA's replace items. A red callout reads "Main panel wet or unreachable = utility disconnects."

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## Part G: Older Houses: What Raises the Risk

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R-OLDHOUSE covers these in depth. During an inspection, recognize them and put them in the report with a pointer to the R-OLDHOUSE plan.

| Item                                        | How to spot it                                                                                                                                                                             | Where to read more             |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Federal Pacific Stab-Lok panel              | "Federal Pacific" or "FPE" on the label, "Stab-Lok" on the breakers, often red handle markings. The Arc Guide says a tripped Stab-Lok breaker may look off while still energized (Part 8). | R-OLDHOUSE                     |
| Zinsco or Sylvania-Zinsco panel             | Brand on the label; colored breaker handles                                                                                                                                                | R-OLDHOUSE; Arc Guide, Part 10 |
| Fuse panel                                  | Screw-in plug fuses or cartridge fuses                                                                                                                                                     | R-OLDHOUSE                     |
| Knob-and-tube wiring                        | Single cloth-insulated conductors on porcelain knobs and tubes; often in attics and basements of pre-1950 houses                                                                           | R-OLDHOUSE; 394.12             |
| Ungrounded wiring (two-wire with no ground) | Two-prong receptacles; cloth-covered or early plastic cable with no bare conductor                                                                                                         | R-OLDHOUSE; 406.12(D)(2)       |
| Aluminum branch wiring                      | Silver conductors on 15 A and 20 A circuits, "AL" on the jacket; most common in houses built about 1965–1973 (Arc Guide, Part 10)                                                          | R2.7; R-OLDHOUSE               |
| Backstabbed devices throughout              | Production-built houses; found on one device                                                                                                                                               | R2.7                           |
| SE cable leaking into the meter and panel   | Rust and water stains at the top of the panel, rust in the meter base                                                                                                                      | Kuhlman, pp. 40–41             |

The Arc Guide also lists Chinese drywall (2006–2010 construction) as a cause of corroded copper that looks like an aluminum wiring problem (Part 10). If you see blackened copper throughout a house of that era, note it and tell your journeyman.

## Part H: Recommending Upgrades Without Scaring the Customer

1. Lead with what is working. Most of the house usually is.
2. Put Safety-Critical items first and keep the list short. Two real hazards get attention. Twenty findings read as a sales pitch.
3. Explain each item with what it does for them, not the code number. "A GFCI here shuts off the outlet if someone gets shocked near the sink."
4. Offer an order, not a deadline. "If it were my house, I'd do the bathroom outlet and that breaker first. The surge protector can go with any panel work later."
5. For older-house items, use the staged plan from R-OLDHOUSE: what today, what this year, what eventually.

6. Never say a house is "unsafe to live in" unless your journeyman has seen it and agrees. If it truly is (active burning, lost neutral, water in the panel), you have already made it safe and called your journeyman.
  7. Say "the office will send prices" and stop. Techs never collect payment and never quote.
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## Worked Examples

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### Example 1: Annual inspection, 1972 ranch house

**Setup.** A 1,600 sq ft brick ranch built in 1972. Original 150 A panel. The customer bought it two years ago and has had no problems. The customer asked for an inspection after a friend had a house fire.

**Outside.** Overhead drop clear of trees. SE cable jacket cracked near the weatherhead, no conductor showing. Meter base rusty at the bottom but solid. No outdoor disconnect. GEC intact to one rod. Front outdoor receptacle not GFCI protected and has a flat cover. AC condenser on a fused disconnect, no GFCI, no service receptacle.

**Panel.** Brand is a current-production brand and breakers match. Directory half filled in. No SPD. Two double-tapped 15 A breakers. Two neutrals under one bar screw. All conductors match their breakers. Bedroom circuits are standard breakers. 15 A and 20 A branch circuits are copper. One breaker reads 18°F warmer than its neighbors under load.

**Inside.** Bathroom receptacles: no GFCI. Kitchen: one GFCI by the sink protecting two counter receptacles; the other two counter receptacles are not protected. Living room: four three-prong receptacles read "open ground," no marking. Garage: no GFCI. Five smoke alarms dated 2019, all test and interconnect.

**Attic.** No knob-and-tube. One open junction box with a loose splice. Recessed cans in the hall are non-IC with blown insulation against them.

**Measurements.** L1-N 121 V, L2-N 120 V. GEC current 0.0 A. Far bedroom receptacle with a 1,500 W heater: 120.6 V at the panel, 115.8 V at the receptacle, 4.8 V drop (4.0 percent). Neutral-to-ground at that receptacle under load: 2.6 V.

**Banding.**

| Band            | Findings                                                                                                                                                                                                                                                                                                                                                            |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety-Critical | Bathroom receptacles without GFCI; kitchen counter receptacles without GFCI; garage and front outdoor receptacles without GFCI; non-IC recessed cans with insulation against them; open attic junction box with loose splice; warm breaker (open on R2.7)                                                                                                           |
| Code Update     | No SPD; no outdoor disconnect (required only on service replacement); no AFCI on bedroom and living area circuits; double taps; two neutrals on one screw; three-prong receptacles with no ground and no marking; outdoor receptacle without in-use cover; AC condenser without GFCI (required when the condenser is replaced under 210.8(F)); half-blank directory |
| Monitor         | Cracked SE cable jacket with no conductor exposed; rust at the meter base; 4.0 percent voltage drop on the far bedroom circuit; smoke alarms due in 2029                                                                                                                                                                                                            |

**Report summary.** "We found 6 safety items, 9 code updates, and 4 items to watch. Most of the safety items are missing shock protection near water and in the garage. One attic box was open with a loose connection, and the hall can lights have insulation packed against them, which can overheat. The office will send prices for each."

### Example 2: Post-flood, finished basement

**Setup.** A storm put 18 in. of water from outside into a finished basement. The water was out after two days. The customer wants the basement power back on.

**Steps.** The main panel is upstairs and dry. The basement circuits are off at the main panel. You mark the water line at 18 in. Every basement receptacle is at 14 in. Switches are at 48 in. A subpanel for the basement is mounted with its bottom edge at 36 in. and shows no water marks inside. The furnace and water heater are in the basement.

**Findings.** Every basement receptacle and its box: replace (NEMA). NM-B cable runs at receptacle height through the wet drywall: the portions that were under water are replaced (NEMA: dry-location cable). The switches and the subpanel were above the water line. You open them and find no moisture or rust. They go on the report as inspected, no water entry. The furnace and water heater are evaluated by HVAC and plumbing before power. Basement smoke alarm on the ceiling: above water, tests correctly.

**Report.** Safety-Critical: all basement receptacles, boxes, and the wet cable sections. Basement circuits stay off until replaced. Photos of the water line with a tape measure. The office prices the replacement and the customer sends the report to the insurer.

### Example 3: Pre-storm check finds a backfeed cord

**Setup.** Spring, a customer with a 7,500 W portable generator asks for a pre-storm check.

**Finding.** In the garage is a cord with a male plug on each end, one end a 10-30 dryer plug. The customer says a neighbor made it and they used it last year "with the main turned off."

**What you say.** "This cord is the one thing I can't leave unmentioned. When the generator is plugged into the dryer outlet, the power can go out through your meter to the street wires if the

main isn't off, and a lineman working on them can be killed. It also has live metal prongs on the end that isn't plugged in. I'm writing it up as a safety item. The safe way is an inlet box outside with a lockout on your panel so the main and the generator can't both be on. The office will send you a price."

**Report.** Safety-Critical: backfeed cord. Recommend inlet and listed interlock or transfer switch (R1.10).

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## Common Mistakes

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1. **Skipping the attic or crawl space.** The worst findings in older houses are often up there.
  2. **Testing GFCIs with only the TEST button.** Use the plug-in GFCI tester on every protected receptacle so you know which GFCI protects which outlet.
  3. **Calling every old condition a hazard.** Existing work legal in its year is a Code Update unless it is failing.
  4. **Missing the triggers.** Replacements bring current rules: receptacles (406.12(D)), AFCI extensions (210.12(E)), service equipment (230.67(D), 230.70(E)), outdoor HVAC equipment (210.8(F)).
  5. **Putting prices on the report.** The office prices.
  6. **Fixing things during the inspection without approval.** Make it safe if it is dangerous, then write it up.
  7. **Writing code sections instead of plain words.** The homeowner reads the plain sentence. The code number goes in small text for the office.
  8. **Energizing anything that was under water.** Follow NEMA's replace list.
  9. **Repeating the Arc Guide's grounding advice.** 250.130(C) allows an equipment grounding conductor to be added from specific points. Do not tell a customer it is never allowed.
  10. **Forgetting the measurements.** GEC current and voltage under load catch neutral problems and bad connections that look fine.
  11. **Tightening panel terminals during an inspection.** If torque is part of the approved work, it is done with the power off per R2.7.
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## Field Exercise

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**Setup.** Your journeyman picks a real older house, ideally built before 1975, with the owner's permission. Bring the report template, all testers, a 1,500 W heater, a ladder, and PPE. The journeyman comes along and watches.

### Steps.

1. Run the intake from A3 with the homeowner.

2. Inspect in the order of Part B: outside, panel, inside room by room, attic and crawl space or basement, measurements, alarms. Use the Arc Guide Part 7 checklist alongside Part B and mark both.
3. Photograph every finding, with the location in the shot or noted.
4. Take and record all five readings in B5.
5. Sort every finding into Safety-Critical, Code Update, or Monitor using Part C. Mark any you were unsure about.
6. Write the report in the D1 layout with a one-paragraph summary a homeowner can read. No prices.
7. Present the report out loud to the journeyman acting as the homeowner, following D4 and Part H.
8. The journeyman red-pens the report: missed findings, wrong bands, unclear sentences, any code citation that is wrong.

**Pass standard.** You pass when the journeyman signs off that you followed the order without skipping a space, tested every reachable receptacle with both testers, took all five measurements, banded every finding correctly or flagged it, wrote a summary the homeowner could understand without help, presented without scaring or pressuring, and put no prices on anything.

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## NEC 2026 Cross-References

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| Section                          | What it says                                                                                                                                                                                                                                                | Where it shows up on an inspection                                |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 210.8(A)                         | GFCI for dwelling receptacles in bathrooms, garages, accessory buildings, outdoors, crawl spaces, basements, kitchens, food-prep sink areas, within 6 ft of sinks and tubs, boathouses, laundry areas, indoor damp and wet locations                        | Bathroom, kitchen, garage, outdoor, laundry, basement receptacles |
| 210.8(D)                         | GFCI for specific appliances including dishwashers, ranges, wall ovens, cooktops, dryers, microwaves, sump pumps                                                                                                                                            | Kitchen and laundry appliances, sump pump                         |
| 210.8(F)                         | GFCI for dwelling outdoor outlets, 150 V or less to ground, 60 A or less. Exception No. 2 for listed HVAC expired September 1, 2026. Replacing equipment on a covered outlet requires GFCI. Exception No. 3 allows a listed Class C SPGFCI for listed HVAC. | AC condenser and other outdoor outlets                            |
| 210.12(B)                        | AFCI for dwelling 120 V, 10/15/20 A branch circuits in listed rooms                                                                                                                                                                                         | Bedrooms, living areas, kitchens, hallways, closets, laundry      |
| 210.12(E)                        | AFCI when branch-circuit wiring in those areas is modified, replaced, or extended; 6 ft exception                                                                                                                                                           | Remodels and additions found on inspection                        |
| 406.10(3)                        | Push-in terminals only on 15 A or less branch circuits, 14 AWG solid copper only (new in 2026 as a code rule; earlier editions left it to the listing)                                                                                                      | Backstabbed devices                                               |
| 406.12(D)<br>(2023:<br>406.4(D)) | Replacement receptacles: grounding, non-grounding options, GFCI, AFCI, TR, WR                                                                                                                                                                               | Ungrounded three-prong receptacles; any device replacement        |
| 406.26 (2023:<br>406.12)         | Tamper-resistant receptacles in dwelling units, garages, and accessory buildings                                                                                                                                                                            | Receptacle type                                                   |
| 250.130(C)                       | Adding an equipment grounding conductor for a replacement receptacle                                                                                                                                                                                        | Ungrounded receptacle recommendations                             |
| 230.67                           | SPD required for services supplying dwelling units; Type 1 or Type 2; at or adjacent to service equipment; required when service equipment is replaced (230.67(D)); In at least 10 kA (230.67(E))                                                           | Panel                                                             |
| 230.70(A)(1)<br>and (E)          | One- and two-family service disconnects in a readily accessible outdoor location, on or within sight of the dwelling, unless a 225.41 emergency disconnect is installed; applies when service equipment is replaced                                         | Outside, at the meter                                             |
| 225.41 (2023:<br>230.85)         | Emergency disconnect for one- and two-family dwellings, readily accessible outdoors                                                                                                                                                                         | Outside, at the meter                                             |
| 250.104                          | Bonding of metal water piping and other metal piping                                                                                                                                                                                                        |                                                                   |

| Section             | What it says                                                                                              | Where it shows up on an inspection      |
|---------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------|
|                     |                                                                                                           | Water heater, water entry, gas          |
| 110.26              | Working space about electrical equipment                                                                  | Panel                                   |
| 240.24              | Breakers readily accessible; not in clothes closets (240.24(D)), bathrooms, or over steps                 | Panel location                          |
| 240.4(D)            | Small conductor protection                                                                                | Wire size vs breaker                    |
| 110.12(A), 408.7    | Unused openings closed                                                                                    | Panel fillers and knockouts             |
| 110.14(A)           | Terminals for more than one conductor shall be identified                                                 | Double taps                             |
| 408.4               | Circuit directory                                                                                         | Panel                                   |
| 394.12              | Concealed knob-and-tube not permitted in insulated hollow spaces where insulation envelops the conductors | Attic and walls                         |
| 300.6 (2023: 300.4) | Protection against physical damage                                                                        | Cables in attics, crawl spaces, garages |
| 702.7               | Signs for standby systems                                                                                 | Generator                               |

## End-of-Chapter Checklist

**Before** - [ ] Confirmed inspection scope and any pre-approved repairs with the office. - [ ] Ran the intake, including water history, outbuildings, generator, and medical devices. - [ ] Told the customer what you will test.

**Outside** - [ ] Drop, weatherhead, SE cable, meter base, riser. - [ ] Outdoor disconnect or emergency disconnect. - [ ] GEC and rods. - [ ] Every outdoor receptacle: GFCI, WR, TR, in-use cover. - [ ] AC condenser disconnect and GFCI status. - [ ] Generator, inlet, interlock, signs.

**Panel** - [ ] Working space, location, label, directory. - [ ] SPD present and light correct. - [ ] Water, rust, heat damage. - [ ] Breaker brand, twins, double taps, doubled neutrals. - [ ] Wire size vs breaker; aluminum. - [ ] Unused openings; subpanel neutral and ground separation. - [ ] AFCI and GFCI breakers tested. - [ ] Thermal scan under load.

**Inside** - [ ] Every reachable receptacle with the three-light tester. - [ ] Every GFCI-required location with the GFCI tester. - [ ] TR, ungrounded three-prong, warm devices, switches, fixtures, cords, open boxes.

**Attic, crawl, basement, garage** - [ ] Knob-and-tube, open splices, damaged cable, non-IC cans, open boxes, bonding.

**Measurements** - [ ] L1-N, L2-N, L1-L2 at panel. - [ ] L1, L2, neutral, and GEC current. - [ ] Voltage drop and N-G under load at the farthest receptacle.

**Alarms** - [ ] Every alarm located, dated, tested, interconnect checked.

**Report** - [ ] Every finding in exactly one band, with photo and plain sentences. - [ ] Homeowner summary paragraph. - [ ] Measurements and "not inspected" sections. - [ ] No prices. No license numbers. - [ ] Presented out loud without pressure; office will send prices.

**Pre-storm and post-flood** - [ ] Pre-storm: main breaker drill, sump pump GFCI, outdoor covers, service entrance, generator connection method, SPD, trees. - [ ] Post-flood: water line marked and photographed, NEMA replace list applied, nothing wet re-energized, other trades for HVAC and water heater, insurance photos.

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## Sources

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- Arc Workforce, Residential Electrical Field Guide. Part 3 (voltage targets), Part 5 (common violations in older homes), Part 6 (customer scripts), Part 7 (annual inspection, pre-storm, post-flood), Part 8 (older home quirks, Federal Pacific), Part 9 (tools), Part 10 (panel inspection, aluminum, grounding, thermal inspection, flickering root causes). Its code citations are NEC 2020; this chapter uses NEC 2026 numbers. Its Part 8 statement against adding a ground from another source is not followed here because of 250.130(C).
  - Jesse Kuhlman, Residential Electrical Troubleshooting (2019). Pages cited: 32 (WR GFCI failures), 40–41 (SE cable leaking into meter and panel), 43 (subpanel neutrals and grounds), 45 (current on the water pipe GEC), 48 (non-IC cans and thermal cutouts), 82 (backstabs), 101–102 ("Somerville"), 105 (cracked service conductors at weatherhead), 107 (water-damaged panel), 108–109 (bus damage from bad breaker connection), 115–120 (blocked and inaccessible panels), 128 (panel overfilled with twin breakers). Paraphrased.
  - National Electrical Manufacturers Association, Evaluating Water-Damaged Electrical Equipment (2016). Copy retrieved from [https://leviton.com/content/dam/leviton/digital-marketing/solutions---by-application/emergency-preparedness/NEMA\\_-\\_Evaluating\\_Water\\_Damaged\\_Electrical\\_Equipment\\_Guide.pdf](https://leviton.com/content/dam/leviton/digital-marketing/solutions---by-application/emergency-preparedness/NEMA_-_Evaluating_Water_Damaged_Electrical_Equipment_Guide.pdf). Sections 1–3 and 4.1.
  - Kidde 20SAR and First Alert 9120B user manuals (10-year alarm life), as cited in R2.8.
  - NFPA 70, National Electrical Code, 2026 edition, sections above.
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# Videos to watch

These videos are made by other electricians and companies, not YES Electric. Watch each one after you read the section it goes with. Where a video does something differently from this module, the caution line says so. Follow this module and your journeyman, not the video. Click a title to open it on YouTube.

| Section                                               | Video                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part B, B1 Outside and B2 Service equipment and panel | <a href="#">Electrical Inspection   Open House   Ask This Old House</a><br>This Old House • 5:42<br>This Old House inspects an occupied condo outside to inside: meter socket, service drop attachment (found loose), panel condition, breaker type listing, grounding electrode conductor, and cable types.<br><b>Caution:</b> He checks breakers by feeling for warmth with the cover on; the module adds a thermal scan and clamp readings (B5).                                                                                              |
| Part B The inspection, step by step (checklist)       | <a href="#">How to Perform an Electrical Inspection According to the InterNACHI® SOP</a><br>International Association of Certified Home Inspectors (InterNACHI) • 24:21<br>InterNACHI walks a 1971 house against the home-inspector standard: meter seal, panel labeling, aluminum branch wiring, double-tapped neutrals, GFCI and AFCI testing, smoke and CO alarms.<br><b>Caution:</b> Home-inspector standard, not electrician scope. He opens the energized panel without gloves or a face shield for the camera and says so; YES wears PPE. |
| Part E Pre-storm check (backfeed)                     | <a href="#">Backfeed Protection</a><br>Huntsville Utilities • 5:06<br>Huntsville Utilities (Alabama) shows a generator backfed through a dryer cord putting about 7,700 V on the primary line, then shows a proper transfer switch that cannot backfeed.<br><b>Caution:</b> Lineman-safety focus; the in-house fix (interlock or transfer switch) is installed per R1.10.                                                                                                                                                                        |
| Part F, F1 The rule; F3 Post-flood procedure (wiring) | <a href="#">Electrical safety after a flood.</a><br>Transworld Electric • 3:05<br>A contractor shows NM cable from a flooded crawl space that burned months later because water wicked into the paper wrapper, and says submerged cable must be replaced.<br><b>Caution:</b> Short and conversational. He says NM 'can be submerged in clean water briefly'; follow NEMA and the module: anything submerged is evaluated per F2 and usually replaced.                                                                                            |
| Part F, F2 NEMA's replace-or-recondition list         | <a href="#">NEMA Evaluating Water-Damaged Electrical Equipment   Hurricane Helene</a><br>CMECP® Program • 44:55<br>Electrical Code Academy walks through the NEMA 'Evaluating Water-Damaged Electrical Equipment' guide after Hurricane Helene: what must be replaced and when to ask the manufacturer.<br><b>Caution:</b> 45 minutes and the first several minutes are about insurance claims; skip ahead to the document walkthrough. Over 30 minutes, kept because it is the best source for F2.                                              |

Part G Older houses:  
what raises the risk (FPE  
Stab-Lok)

[FEDERAL PACIFIC ELECTRICAL PANELS - why their panels are dangerous](#)

Electrician U • 23:27

Electrician U tells the history of Federal Pacific Stab-Lok breakers: the UL listing loss, test failures, and why electricians recommend replacing them.

**Caution:** Profanity and long channel promos at the start; 23 minutes of mostly history. Recommend replacement in plain words without scaring the customer, per Part H.