READY TO INSPECT — FIELD CHECKLIST

Power factor correction capacitor bank annual maintenance checklist

The annual capacitor bank service is the deep pass: the measurements, cleanings and tests a quarterly round doesn't reach. This checklist keeps the full service on record with the photos that make it defensible later. Work is commonly verified against NFPA 70B, NEC (NFPA 70). Confirm the edition your authority having jurisdiction has adopted.

Who runs it: The facility electrician recording the inspection during a planned outage, inspecting cans and connections after discharge while the testing firm performs the electrical tests. When: Once a year during a scheduled shutdown, coordinated with the NETA technician so the bank is locked out, the discharge resistors are given their full time to bleed the cans down, and it's inspected and tested before returning to service.

Outage planning

- [ ] Outage agreed with the owner before the bank is switched off
  Window, switching order and restoration agreed with the owner, including running without correction meanwhile, with the stages switched out before the feed is opened.
  No photo required

- [ ] Stages called in and imaged at load ahead of the shutdown
  Scan at normal load through IR windows, or with doors opened only as the energized-work procedure allows, marking hot cans, fuses and joints to open.
  1 photo required

Isolation and discharge

- [ ] Every source feeding the bank locked and tagged
  Main feed, controller supply and any separate fan, heater or control power circuit locked and tagged under the site's procedure, each lock hung by the person working.
  1 photo required

- [ ] Bank locked out and cans fully discharged
  Feed isolated, discharge time allowed per the manufacturer before contact, absence of voltage tested at the cans before any work begins.
  2 photos required

- [ ] Cans grounded with a grounding stick before hands go in
  After the manufacturer's discharge wait and a dead test, each can terminal shorted and grounded with a grounding stick, the grounds left on during work and logged for removal.
  1 photo required

- [ ] Discharge resistors inspected
  Discharge resistors or bleed devices confirmed intact and connected, no open or burnt resistor that would leave a can charged.
  1 photo required

Cans and connections

- [ ] Cans, reactors and connections inspected and torqued
  Cans cleaned and checked for bulging or leakage up close, reactor and bus connections torque-verified, re-torqued only where found loose, no discoloration at the terminations.
  2 photos required

- [ ] Contactors and controller wiring inspected
  Stage contacts checked for pitting and wear, controller sensing wiring and current transformer connections landed tight.
  1 photo required

- [ ] Capacitor fuses tested and ratings checked against the design
  Each fuse tested for continuity and its type and rating read against the design or the manufacturer's list, with blown or mismatched fuses replaced like for like.
  1 photo required

- [ ] Reactor windings inspected on detuned banks
  Windings and insulation free of discoloration, cracking or loose laminations, and any thermal switch wiring intact. Not applicable where the bank has no reactors.
  No photo required

- [ ] Vents and cooling path cleaned inside the enclosure
  Dust vacuumed, not blown, from vents and the contactor area, and where fitted fan blades turned by hand for free bearings and intake filters changed.
  1 photo required

Testing observed and recorded

- [ ] NETA electrical tests witnessed and logged
  Capacitance and insulation-resistance results from the testing tech recorded per stage, cans reading low or out of range flagged for replacement before re-energizing.
  2 photos required

Return to service

- [ ] Grounds removed and enclosure closed before re-energizing
  Grounding stick and temporary grounds off and counted, no tools left inside, doors fastened, and each lock and tag removed by the person who hung it.
  1 photo required

- [ ] Stages called in after restart and step currents read
  Bank re-energized to the plan, each stage called in by the controller or its test mode, and step current read under the energized-work procedure against the nameplate.
  1 photo required

- [ ] Capacitance trend and parts replaced sent to the owner
  Report with capacitance per stage against last year, cans and fuses replaced, and open defects goes to the owner for acceptance.
  No photo required