Preventive Maintenance Checklist

Checklist · 98 items · 10 sections

A working preventive maintenance program for building systems, equipment, and fleet. Built on ASHRAE handbooks, OSHA 1910 general industry standards, BOMA operations practices, NFPA codes, manufacturer intervals (Caterpillar, Trane, Carrier), and CMMS best practices.

Open the editable version online:
https://genechecklist.com/checklist/preventive-maintenance-checklist

PM PROGRAM SETUP

- [ ] Build a complete asset inventory: make, model, serial, install date, location, parent system for every asset $500+ or mission-critical
  HIGH
- [ ] Tag every asset with a durable barcode or QR label; bond to clean metal with industrial adhesive, not paper stickers
  HIGH
- [ ] Assign a criticality rating (A/B/C or 1-5); score on production impact, safety risk, replacement cost (ISO 55000)
  HIGH
- [ ] Document nameplate data for every motor, pump, compressor: voltage, FLA, HP, RPM, refrigerant type
  HIGH
- [ ] Set PM frequency using OEM O&M manual as the floor; adjust by runtime and failure history
  HIGH
- [ ] Choose trigger type: calendar (safety), runtime (rotating), cycle (compressors/elevators), mileage (fleet)
  HIGH
- [ ] Classify every PM: lubrication, inspection, cleaning, adjustment, replacement, calibration, condition-based monitoring
- [ ] Implement a CMMS (Fiix, UpKeep, Limble, eMaint, Maximo); reject paper logs and shared spreadsheets for any facility 25,000+ sq ft
  HIGH
- [ ] Standardize the work order workflow: identify, prioritize, plan, schedule, assign, execute, document, close, audit
  HIGH

- [ ] Write PM job plans: step-by-step instructions, parts, LOTO points per OSHA 1910.147, PPE, labor hours

HIGH

- [ ] Maintain a 5-10% backlog of planned PM work (zero backlog = overstaffed; 30% = failing)
- [ ] Hold a weekly scheduling meeting between maintenance, operations, production; lock next week's PM schedule by Thursday
- [ ] Track PM compliance weekly; target 90% on-time completion within ±10% of the interval

HIGH

HVAC (ASHRAE 180)

- [ ] Inspect and replace air filters monthly (MERV 8-13 pleated, 1-3 inch); replace when pressure drop exceeds 0.5 in. w.c.

HIGH

- [ ] Check thermostat operation and setpoints monthly; verify occupied/unoccupied schedules match operating hours
- [ ] Inspect condensate drain pans monthly during cooling; flush with 1:16 bleach solution to prevent algae

HIGH

- [ ] Inspect drive belts quarterly; replace if glazed, cracked, or fraying; tension allows 1/64" deflection per inch of span
- [ ] Clean evaporator and condenser coils quarterly with non-acid cleaner; fouled coils cut efficiency 20-30%

HIGH

- [ ] Lubricate motor/fan bearings per OEM (greased bearings: 2-4 pumps NLGI Grade 2 every 3-6 months)
- [ ] Inspect economizer dampers and linkages quarterly; stuck economizers waste 10-30% of cooling energy
- [ ] Verify refrigerant charge and pressures semi-annually via superheat and subcooling; log readings in CMMS

HIGH

- [ ] Inspect electrical connections at contactors and terminals semi-annually; tighten to torque spec; look for discoloration

HIGH

- [ ] Calibrate thermostats and temperature sensors annually against a NIST-traceable reference (tolerance ±1°F)
- [ ] Inspect ductwork annually for leaks, sagging, insulation damage; seal leaks with UL 181 mastic (not cloth duct tape)

- [ ] Measure indoor CO2 levels annually per ASHRAE 62.1 (keep below 1,000 ppm; investigate above 1,100 ppm)
- [ ] Test outdoor air ventilation rates annually; verify min CFM/person per ASHRAE 62.1 Table 6-1
- [ ] Brush and chemically clean chiller tubes every 3-5 years per ASHRAE 180; schedule during shoulder season

  HIGH
- [ ] Inspect boilers annually; test low-water cutoff weekly during operating season per ASME CSD-1; full combustion analysis annually

  HIGH
- [ ] Plan furnace replacement at 15-25 years; split AC at 10-15 years; build capital reserves at 1/lifespan per year

ELECTRICAL (NFPA 70B, 70E, NETA MTS)

- [ ] Walk electrical rooms monthly; check water intrusion, blocked clearances (OSHA 1910.303: 36" front clearance), missing covers

  HIGH
- [ ] Test all GFCI outlets monthly with the test button; replace any that fail to trip or reset

  HIGH
- [ ] Visually inspect panels, disconnects, MCCs monthly for discoloration, odor, buzzing

  HIGH
- [ ] Vacuum and clean panel interiors quarterly; de-energize and follow NFPA 70E arc-flash PPE

  HIGH
- [ ] Perform IR thermographic scans annually on all 480V+ panels, transformers, MCCs, switchgear (>18°F delta = investigate)

  HIGH
- [ ] Test panelboard breakers; exercise non-operated breakers every 3 years (stuck breakers cause cascade failures)
- [ ] Clean and torque-check transformer connections every 3 years per NETA MTS
- [ ] Load-bank test standby generators annually 2 hrs at 30% load min, or 4 hrs per NFPA 110 Level 1

  HIGH
- [ ] Exercise standby generators monthly 30 min min, under load when possible, per NFPA 110

  HIGH
- [ ] Test and inspect UPS batteries quarterly; replace VRLA at 3-5 years, flooded at 15-20 years

  HIGH
- [ ] Inspect/test emergency and exit lighting monthly (30-sec test) and annually (90-min full discharge test) per NFPA 101

  HIGH

PLUMBING (IPC, ASPE)

- [ ] Walk all mechanical rooms and restrooms monthly; look for leaks, corrosion, dripping fixtures

  HIGH
- [ ] Verify domestic water pressure monthly; target 40-80 psi; PRV above 80 psi to prevent fixture damage
- [ ] Test backflow preventers annually (some jurisdictions quarterly); certified backflow tester; file with local water authority

  HIGH
- [ ] Flush water heaters annually; inspect/replace anode rods every 3-5 years to extend tank life
- [ ] Test sump pumps and ejector pumps quarterly; pour water into pit; verify float switch activates pump

  HIGH
- [ ] Test mixing valves and lavatory temps annually; cap at 110°F per ASSE 1070
- [ ] Inspect pipe insulation in unconditioned spaces every 5 years; replace damaged; bare pipes below 40°F risk freezing
- [ ] Exercise main shutoff valves and isolation valves annually (seized valves turn small leaks into floods)
- [ ] Inspect grease interceptors monthly in commercial kitchens; pump when floating grease reaches 25% of depth

ROOF AND EXTERIOR BUILDING (NRCA, BOMA)

- [ ] Ground-level visual roof inspections quarterly: ponding water, displaced ballast, debris, damaged flashings

  HIGH
- [ ] Clear roof drains, scuppers, gutters semi-annually; blocked drains void most roof warranties

  HIGH
- [ ] Full walk-on roof inspection annually; photo-document seams, penetrations, flashings, sealants, parapets

  HIGH
- [ ] Renew roof sealants and pitch pans every 3-5 years; UV degrades polyurethane sealant before the membrane fails

  HIGH
- [ ] Recoat single-ply and modified bitumen roofs every 5-10 years per manufacturer warranty terms
- [ ] Inspect exterior caulking, EIFS, masonry, expansion joints annually (water intrusion behind cladding = top envelope failure)

  HIGH

- [ ] Plan full roof replacement at 15-25 years EPDM/TPO/mod bit; 30-50 years standing-seam metal

FIRE AND LIFE SAFETY (NFPA 10, 25, 72, 96)

- [ ] Inspect portable fire extinguishers monthly per NFPA 10: pressure in green, pin intact, no damage, clear access

  HIGH
- [ ] Inspect sprinkler system control valves weekly (non-supervised) or monthly (supervised); gauges monthly per NFPA 25

  HIGH
- [ ] Test sprinkler waterflow alarms and tamper switches quarterly per NFPA 25

  HIGH
- [ ] Test fire alarm panels and devices semi-annually; full annual test of all initiating/notification devices per NFPA 72

  HIGH
- [ ] Service portable extinguishers annually by a licensed contractor; tag with date and inspector ID per NFPA 10

  HIGH
- [ ] Inspect/clean commercial kitchen hood suppression systems semi-annually per NFPA 96; filters per use volume

  HIGH
- [ ] Test smoke and CO detectors annually; replace smoke detectors at 10 years and CO at 5-7 years

  HIGH
- [ ] Hydrostatically test fire extinguishers every 5 or 12 years per NFPA 10 Table 8.3.1
- [ ] Internal sprinkler obstruction investigation every 5 years per NFPA 25 Section 14
- [ ] Conduct annual fire drill; document evacuation times per OSHA 1910.38

  HIGH

ELEVATORS (ASME A17.1)

- [ ] Walk-through every elevator monthly: alarm, emergency phone (two-way comm mandatory), cab lights, door reopen devices

  HIGH
- [ ] Schedule full mechanical elevator inspections quarterly through the service contractor; machine room, controller, brakes, door operators

  HIGH
- [ ] Schedule state/AHJ annual inspection and Category 1 testing per ASME A17.1; post current certificate in the cab

  HIGH

- [ ] Category 5 load testing every 5 years per ASME A17.1: full-load safety and governor tests

HIGH

- [ ] Inspect hoist ropes annually for broken wires, wear, corrosion; replace per ASME A17.6 retirement criteria

VEHICLES AND FLEET (49 CFR 396)

- [ ] Drivers complete pre-trip and post-trip inspection daily per 49 CFR 396.11 for commercial vehicles; log in CMMS/DVIR app

HIGH

- [ ] Change engine oil and filter every 3,000-7,500 mi conventional, or 7,500-15,000 mi synthetic, per OEM

HIGH

- [ ] Rotate tires every 5,000 mi; check tread depth (4/32 steer, 2/32 drive/trailer) and pressure weekly

HIGH

- [ ] Service transmissions and differentials every 30,000-60,000 mi depending on duty cycle
- [ ] Replace belts, hoses, coolant, brake fluid on the 60,000-100,000 mi major service
- [ ] Schedule annual DOT inspections per 49 CFR 396.17; place decal on driver's side

HIGH

- [ ] Verify emissions compliance annually in regulated states or counties
- [ ] Service Caterpillar and other heavy equipment per S.O.S. intervals (engine oil 250-500 hrs; hydraulics 1,000-2,000 hrs)

INDUSTRIAL EQUIPMENT AND MACHINERY

- [ ] Daily operator walk-arounds on rotating equipment; listen for new noises, look for leaks, check gauges vs baseline

HIGH

- [ ] Lubricate machine bearings, chains, slides per OEM chart (over-greasing causes as many failures as under-greasing)

HIGH

- [ ] Inspect drive belts and chains monthly; replace chains at 3% stretch; check sheave alignment with a laser tool
- [ ] Sample hydraulic and gear oil quarterly; ISO 4406 cleanliness + wear-metal analysis; target ISO 18/16/13 for servo systems
- [ ] Vibration analysis quarterly on motors over 5 HP and on critical pumps/fans per ISO 10816 severity charts

- [ ] Verify motor running amps quarterly; trending current draw catches winding degradation and load shifts
- [ ] Megger-test motor windings annually; insulation resistance below 1 megohm per kV + 1 megohm = EOL

  HIGH
- [ ] Perform annual comprehensive overhauls on critical production assets during planned shutdowns

  HIGH
- [ ] Calibrate process instruments, pressure gauges, safety relief valves annually per ASME and QMS calibration program

  HIGH

DOCUMENTATION, METRICS, LIFECYCLE PLANNING

- [ ] Track PM compliance rate weekly; target 95%+ of scheduled PMs completed within the compliance window

  HIGH
- [ ] Track MTBF (Mean Time Between Failures) and MTTR (Mean Time To Repair) for critical assets

  HIGH
- [ ] Track PM-to-reactive labor ratio; target 80/20 planned-to-reactive (50/50 = program failing)

  HIGH
- [ ] Maintain spare parts inventory tied to asset register; stock critical spares (bearings, belts, contactors, fuses) min/max in CMMS

  HIGH
- [ ] Track maintenance cost per asset and per sq ft (BOMA benchmark: typical office $2-$4/sq ft annually)
- [ ] Maintain warranty records for every asset; file claims before expiration (new HVAC: 5-10 year compressor warranties)
- [ ] Maintain service agreements and vendor contracts with annual review; renegotiate or rebid every 3 years
- [ ] Build a 10-year capital replacement plan; identify assets reaching EOL; budget replacement reserves annually

  HIGH
- [ ] Audit PM job plans annually; retire steps that no longer apply; add steps for recurring failure modes from RCAs
- [ ] Run RCA on every failure causing 4+ hour unplanned downtime or any safety incident; feed findings back into PM frequencies and job plans

  HIGH