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Fire Protection System Commissioning Checklist

Hydrant, sprinkler, deluge, foam and alarm systems — six steps, with sign-off. Summary of our guide: vasundharaperformance.com/blog/fire-protection-system-commissioning-guide.html

> **The rule:** do not accept a system without a 1.5× design-pressure hydrostatic test held for 2 hours, a full pipe flush before nozzles and sprinklers go in, a flow test at design flow and residual pressure, an end-to-end alarm test, operator training and a complete handover dossier. Anything less is installed, not commissioned.

Project: _____ Site: _____ Date: _____

Step 1 — Design review (before any water enters the pipe)

- [ ] All pipe runs match the design drawings
- [ ] Hydrant valves, sprinkler heads, deluge valves and alarm devices installed at the correct locations and elevations
- [ ] Fire pump room civil and electrical work complete
- [ ] Hydrant points placed per IS 3844 (30 m maximum from any point in the building)
- [ ] Sprinkler density matches the occupancy hazard classification (IS 15105 / NFPA 13)
- [ ] Walk-through recorded with photographs and a signed checklist

Step 2 — Hydrostatic pressure test (nozzles and sprinklers blanked off)

- [ ] System pressurised to 1.5× design pressure (typically 12–15 bar for hydrant networks)
- [ ] Pressure held for a minimum of 2 hours — not cut to 30 minutes
- [ ] Every joint, flange, valve and hydrant point walked for leaks
- [ ] Acceptance: zero drop, or under 0.5 bar over 2 hours; any leak repaired and re-tested
- [ ] Pressure test certificate signed by contractor and client

Step 3 — Pipe flush (nozzles and sprinklers still blanked off)

- [ ] Water run at maximum available flow from the furthest end-points until discharge runs clean
- [ ] Hydrants: each hydrant opened in turn for 5–10 minutes
- [ ] Sprinklers: inspector's test connection opened for 5–10 minutes
- [ ] Flush duration recorded per riser

Step 4 — Flow test and pump verification (nozzles and sprinklers installed)

- [ ] Pump run at design flow with outlets open to simulate design demand — at the most-remote point, not the nearest
- [ ] Recorded: flow rate (lpm) and residual pressure at the most-remote test point
- [ ] Recorded: pump suction pressure and discharge pressure
- [ ] Both flow and residual pressure meet the design; any shortfall root-caused (pump size, suction restriction, part-closed valve)
- [ ] Flow test and pump performance certificate issued with actual readings

Step 5 — Alarm and detection, end to end

- [ ] Every detector → control panel → annunciator → monitoring centre chain tested
- [ ] Smoke detectors: aerosol test; alarm verified at panel, security desk and monitoring centre
- [ ] Sprinkler flow switches: inspector's test connection opened, flow alarm verified through the chain
- [ ] Deluge: manual release station triggered, deluge activation and alarm chain verified
- [ ] Every zone recorded; failed zones repaired and re-tested before sign-off

Step 6 — Handover dossier and training

- [ ] As-built drawings updated with field changes
- [ ] Pressure test, flow test and alarm test records attached (Steps 2, 4, 5)
- [ ] Operator training given to the plant fire team and security: manual activation, silencing alarms, isolation valves, who to call
- [ ] OEM manuals: fire pump, jockey pump, alarm panel, hydrant valves, sprinklers, deluge valves
- [ ] Maintenance schedule per NFPA 25: weekly visual, monthly pump exercise, quarterly flow test, annual full system test
- [ ] First-year maintenance contract with a credentialed fire-protection contractor in place

Special systems

- [ ] Foam: concentrate suits the fuel (3% AFFF hydrocarbons, 6% polar solvents); proportioner within 10% of design; fresh-foam discharge test
- [ ] Deluge: valve opens on the detection signal; detection-to-discharge time measured (typically under 30 s for transformers); pattern checked at all nozzles
- [ ] Pre-action: wet tests plus nitrogen pressure-hold and detection-to-fill time (typically under 60 s)

Commissioning team

- [ ] Minimum 3 people: pump-room operator, system-walking inspector, monitoring-centre verifier
- [ ] Client representative present for Steps 2, 4 and 5

Sign-off

Contractor — name, signature, date

Client representative — name, signature, date

Consultant / fire officer (if applicable)

System handed over on

This checklist summarises good commissioning practice for industrial sites. Always follow the approved design, the applicable IS and NFPA standards and the requirements of the local fire authority. Hydrant valves, sprinklers, deluge valves, foam equipment and monitors: request a quote at vasundharaperformance.com or WhatsApp +91-9912825442.