

Standard Operating Procedure (SOP): HVAC Systems Operation and Maintenance Protocols

This SOP details the **HVAC systems operation and maintenance protocols**, encompassing routine inspection and servicing schedules, system startup and shutdown procedures, filter replacement and cleaning, calibration of controls and sensors, troubleshooting common issues, safety precautions, and documentation requirements. The objective is to ensure optimal performance, energy efficiency, and longevity of HVAC equipment while maintaining indoor air quality and occupant comfort.

1. Scope

This SOP applies to all facilities equipped with HVAC systems, including air handlers, chillers, boilers, packaged units, and associated control systems.

2. Responsibilities

- **Facility Manager:** Oversee implementation and schedule of HVAC maintenance.
- **HVAC Technicians:** Perform inspections, maintenance, and repairs as outlined.
- **Occupants:** Report any issues or irregularities to maintenance staff.

3. Routine Inspection and Servicing Schedule

Task	Frequency
Visual inspection of entire HVAC system	Monthly
Filter replacement/cleaning	Monthly/Quarterly (as recommended)
Calibration of sensors and controls	Semi-annually
Lubrication of moving parts	Quarterly
Cleaning of coils, ducts, and vents	Semi-annually
Inspection of electrical connections	Annually
Test system operation and safety devices	Annually

4. System Startup Procedure

1. Verify system is in good condition and maintenance is up to date.
2. Check that all safety devices are functioning.
3. Restore power supply and set controls to the desired settings.
4. Slowly start system and monitor for unusual noises or readings.
5. Allow system to reach normal operating parameters before occupancy.

5. System Shutdown Procedure

1. Adjust thermostat or control panel to shut down the system.
2. Allow fans to run for a few minutes to cool down components.
3. Disconnect power supply if performing maintenance.
4. Document shutdown and any issues observed.

6. Filter Replacement and Cleaning

1. Turn off the HVAC unit before servicing filters.
2. Remove filter(s) according to manufacturer instructions.
3. Replace with new filters or clean washable filters thoroughly and allow to dry.
4. Reinstall filters and restart the system.
5. Dispose of used filters appropriately.

7. Calibration of Controls and Sensors

1. Check calibration dates and compare sensor readings to standards.
2. Perform calibration as per manufacturer documentation.
3. Record updated calibration settings and dates in maintenance log.

8. Troubleshooting Common Issues

- **No Power:** Check circuit breakers, fuses, and power supply.
- **Poor Airflow:** Inspect filters, fans, and ductwork for blockages.
- **Unusual Noises:** Examine moving parts for wear, loose components, or debris.
- **Temperature Fluctuations:** Check thermostats and sensors for accuracy and functionality.
- **Water Leaks:** Inspect condensate drain lines and pans for clogs.

9. Safety Precautions

- Always disconnect power before performing maintenance.
- Wear appropriate PPE: gloves, safety glasses, masks.
- Ensure good ventilation when using chemicals or cleaning agents.
- Follow lockout/tagout (LOTO) procedures for major repairs.
- Be aware of hot or sharp surfaces and moving parts.

10. Documentation Requirements

- Maintain up-to-date records of all inspections, maintenance, calibrations, and repairs.
- Complete maintenance checklists and log sheets for each service visit.
- Document date, time, actions taken, and technician signatures.
- Retain records for at least five years or as required by local regulations.

11. References

- Manufacturer operation and maintenance manuals
- ASHRAE Standards
- Company-specific maintenance policies

12. Revision History

Date	Revision	Description	Author
2024-06-01	1.0	Initial release	Facility Management