



DEDER GENERAL HOSPITAL

PREVENTIVE MAINTENANCE

PROTOCOL

BY: HSQU

July 2016E.C

Deder, Eastern Ethiopia

SMT APPROVAL SHEET




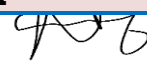
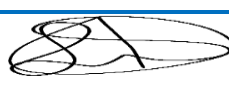












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1. Introduction

Preventive Maintenance (PM) is a systematic, scheduled approach to maintaining hospital facilities, systems, and equipment to **prevent failures, reduce downtime, extend service life, and ensure safety**. At Deder General Hospital, PM is critical to ensure that **all infrastructure, utilities, and equipment remain functional, safe, and reliable**, thereby supporting uninterrupted patient care and hospital operations.

This protocol provides **standard procedures, schedules, and responsibilities** for preventive maintenance of hospital systems and equipment.

2. Purpose

The purpose of this PM protocol is to:

1. Reduce the likelihood of system or equipment failure.
2. Ensure patient, staff, and visitor safety.
3. Extend the service life of hospital infrastructure and equipment.
4. Maintain regulatory compliance and hospital standards.
5. Establish a structured, accountable, and documented PM system.

3. Scope

This PM protocol applies to:

- ✂ Electrical systems (wiring, generators, UPS, lighting).
- ✂ Water supply systems (boreholes, pumps, tanks, pipelines).
- ✂ Sanitation and hygiene facilities (toilets, wash basins, showers).
- ✂ Sewerage and wastewater systems (sewer lines, septic tanks, soak pits).
- ✂ Ventilation and air circulation systems (fans, AC units, vents).
- ✂ Hospital equipment (non-biomedical: beds, trolleys, wheelchairs).
- ✂ Building and compound maintenance (walls, floors, roofs, walkways, fences, green areas).

4. Roles and Responsibilities

4.1 Maintenance Head

- ✍ Develops and approves the PM schedule.
- ✍ Monitors implementation and compliance.
- ✍ Supervises staff and coordinates contractors.
- ✍ Reviews PM records and reports to hospital management quarterly.

4.2 Electrician

- ✍ Conducts PM of electrical systems, including inspections, testing, and servicing.
- ✍ Maintains PM logbooks and reports deviations.

4.3 Plumber

- ✍ Conducts PM for water supply, sanitation, and sewerage systems.
- ✍ Reports findings and preventive actions to Maintenance Head.

4.4 Carpenters & Masons

- ✍ Conduct PM for building and compound infrastructure.
- ✍ Inspect structural elements, doors, windows, roofs, and walkways.
- ✍ Report defects or potential issues for corrective action.

4.5 Greenery Staff

- ✍ Assist in PM activities, particularly in compound cleanliness, landscaping, and waste management.
- ✍ Report anomalies or hazards.

4.6 External Contractors

- ✍ Perform specialized PM tasks (AC servicing, septic tank desludging, roofing inspection) under supervision.

5. Documentation and Reporting

- ✍ **Preventive Maintenance Logbooks:** All staff maintain detailed logs of inspections, findings, and preventive actions.
- ✍ **Monthly PM Report:** Submitted by Maintenance Head to hospital management.
- ✍ **Follow-up:** Identify issues requiring corrective or predictive maintenance and schedule accordingly.

5. Key Principles for PM Implementation

1. Scheduled maintenance is **mandatory and should not be skipped**.
2. Staff must **use appropriate PPE** during inspections and maintenance.
3. All findings must be **recorded immediately** in logbooks.
4. Any hazards discovered should trigger **immediate reporting** to the Maintenance Head.
5. External contractors must work **under supervision** and follow hospital safety guidelines.

6. Preventive Maintenance Procedures

6.1 Electrical Systems

Components: Wiring, sockets, switches, bulbs, panels, generators, UPS, emergency lighting.

Procedures:

1. Inspect sockets and switches for damage or discoloration; tighten connections.
2. Test indoor and corridor lighting; replace burnt-out or flickering bulbs.
3. Inspect wiring lines for wear, fraying, or exposure; repair or replace as needed.
4. Check electrical panels for corrosion or overheating; ensure proper grounding.
5. Test UPS and generator units for readiness; replace batteries if needed.
6. Clean lighting fixtures to remove dust and debris.
7. Document all inspections and replacements in the electrical maintenance log.

Responsible Personnel: Electrician under Maintenance Head supervision

6.2 Water Supply & Plumbing Systems

Components: Taps, valves, sinks, showers, pipelines, tanks, water distribution networks.

Procedures:

1. Inspect all water fixtures for leaks or malfunctions.
2. Flush and clean overhead tanks to remove sediment.
3. Test water pressure and flow at key points.
4. Repair or replace faulty taps, valves, and pipelines.
5. Inspect drainage lines and clear minor blockages.
6. Monitor water storage equipment and repair minor leaks.
7. Conduct water quality testing at intake points; take corrective action if needed.
8. Maintain detailed logs of inspections, repairs, and water quality results.

Responsible Personnel: Plumber under Maintenance Head supervision

6.3 Sanitation Facilities

Components: Toilets, wash basins, showers, handwashing stations.

Procedures:

1. Inspect for leaks, clogged drains, and operational taps/flush systems.
2. Clean and disinfect fixtures regularly.
3. Repair or replace broken or malfunctioning fixtures.
4. Document findings and corrective actions.

Responsible Personnel: Plumber + Cleaning Supervisor

6.4 Sewerage & Wastewater Systems

Components: Sewer lines, septic tanks, soak pits, drainage channels.

Procedures:

1. Inspect sewer lines and manholes for blockages or damage.
2. Clean septic tanks and soak pits periodically.
3. Repair minor pipe cracks or damaged channels.
4. Monitor sludge levels to anticipate maintenance needs.
5. Document all inspections and interventions.

Responsible Personnel: Plumber + External Contractor as needed

6.5 Ventilation & Air Circulation

Components: Windows, vents, ceiling/exhaust fans, AC units, ducting.

Procedures:

1. Clean vents, ducts, and fan blades to ensure airflow.
2. Inspect AC units and filters; clean or replace filters as required.
3. Check windows, vents, and exhaust systems for functionality.
4. Repair minor damages to ventilation structures.
5. Document inspections, cleaning, and repairs.
6. **Responsible Personnel:** Electrician + Support Staff

6.6 Non-Biomedical Hospital Equipment

Procedures:

Movable Support Equipment

1. Inspect trolleys, carts, and racks for structural integrity and mechanical operation.
2. Lubricate wheels, hinges, and moving parts of trolleys and carts.
3. Tighten loose screws, bolts, and fasteners on racks, cabinets, and workbenches.
4. Clean surfaces to remove dust, dirt, or debris to prevent deterioration.
5. Check stability of shelves and cabinets; adjust leveling feet or supports.
6. Document inspections, cleaning, and repairs.

Responsible Personnel: Maintenance Technicians

Kitchen / Food Service Equipment (Non-Patient Food Storage)

1. Inspect refrigerators, freezers, ovens, and stoves for proper operation and temperature control.
2. Clean interior and exterior surfaces to prevent residue buildup.
3. Check electrical cords, plugs, and sockets for wear or damage.
4. Lubricate mechanical parts such as hinges, fans, and conveyor belts.
5. Ensure proper alignment and sealing of doors and lids.
6. Inspect water supply or drainage connections for leaks or blockages.
7. Document inspections, cleaning, and repairs.

Responsible Personnel: Maintenance Technicians

Furniture and Movable Equipment (Non-Clinical Areas)

1. Inspect chairs, desks, sofas, and tables for cracks, wear, or instability.
2. Tighten loose screws, bolts, and other fasteners.
3. Lubricate hinges, drawer slides, and moving components.

4. Clean and polish surfaces to prevent corrosion or material damage.
5. Replace worn-out or broken parts.
6. Document inspections, cleaning, and repairs.

Responsible Personnel: Maintenance Technicians

Miscellaneous Movable Equipment

1. Inspect ladders, step stools, and tool trolleys for structural safety and functionality.
2. Lubricate moving parts and hinges.
3. Clean tools and storage containers to remove dust, dirt, and residues.
4. Check for damage or deformation that could compromise safety.
5. Maintain an inventory of spare parts for mechanical components and fasteners.
6. Document inspections, cleaning, and repairs.

Responsible Personnel: Maintenance Technicians

Water Boilers

Components:

- Electric/gas boiler units, heating elements, safety valves, thermostats, water tanks, pipelines, insulation.

Procedures:

1. Clean and descale boiler tanks to prevent mineral buildup.
2. Inspect heating elements for corrosion, wear, or burnout.
3. Check safety valves, thermostats, and pressure gauges for proper function.
4. Flush the system periodically to maintain water quality.
5. Inspect and maintain pipeline and tank insulation to reduce heat loss.
6. Document all inspections, cleaning, and minor servicing in the maintenance logbook.

Responsible**Personnel:**

Compound & Building Maintenance Technicians + Electrician/Plumber (depending on problem).

6.7 Building & Compound Structures

Components: Walls, floors, ceilings, roofs, doors, windows, fences, walkways, parking, green areas.

Procedures:

1. Inspect structural integrity of walls, floors, ceilings, roofs, doors, and windows.
2. Identify cracks, water damage, or subsidence; repair minor damages.
3. Maintain doors, locks, and frames (lubricate hinges, tighten screws).
4. Inspect and repair fences, gates, and outdoor structures.
5. Maintain landscaping, lawns, and walkways.
6. Record all inspections, repairs, and maintenance activities.

Responsible Personnel: Carpenters & Masons + Facility Technician + External Contractors as needed

6.8 Vehicle Maintenance

Components: Ambulances and hospital vehicles.

Procedures:

1. Perform regular oil changes according to manufacturer recommendations.
2. Inspect tires, brakes, lights, battery, and engine for wear and functionality.
3. Conduct minor repairs (brake adjustments, fluid refills).
4. Schedule annual general maintenance with authorized service providers.
5. Maintain vehicle maintenance logs, noting dates, issues, and interventions.

Responsible Personnel: Hospital Drivers + Private Garage + MOENCO

Annex 1: Deder General Hospital General Facility Preventive Maintenance Work Schedule 2017 EC

S n	Activities	Respon sible body	Week 1			Week 2			Week 3			Week 4			
			Service unit	Mo n	Tue	Service unit	We d	Thris day	Service unit	Fri d	M o n	Service unit	To e	W ed	Thris day
Electrical Maintenance Section															
1	Wall socket maintenance	Electrician	EOPD, ICU, NICU	✓	✓	SW, GYN W, MW, PW	✓	✓	OR, OBS	✓	✓	OPD, LAB, PHAR, G/BUL	✓	✓	✓
2	Indoor bulb maintenance	Electrician	EOPD, ICU, NICU	✓	✓	SW, GYN W, MW, PW	✓	✓	OR, OBS	✓	✓	OPD, LAB, PHAR, G/BUL			
3	Indoor lighting line repair	Electrician	EOPD, ICU, NICU	✓	✓	SW, GYN W, MW, PW	✓	✓	OR, OBS	✓	✓	OPD, LAB, PHAR, G/BUL	✓	✓	✓
4	Electrical wiring inspection in all units	Electrician	EOPD, ICU, NICU	✓	✓	SW, GYN W, MW, PW	✓	✓	OR, OBS	✓	✓	OPD, LAB, PHAR, G/BUL	✓	✓	✓
5	Electrical wiring maintenance on equipment	Electrician	EOPD, ICU, NICU	✓	✓	SW, GYN W, MW, PW	✓	✓	OR, OBS	✓	✓	OPD, LAB, PHAR, G/BUL			
6	Emergency response for malfunctioning bulbs	Electrician	EOPD, ICU, NICU	✓	✓	SW, GYN W, MW, PW	✓	✓	OR, OBS	✓	✓	OPD, LAB, PHAR, G/BUL	✓	✓	✓
7	Immediate response to requests/work orders	Electrician	EOPD, ICU, NICU	✓	✓	SW, GYN W, MW, PW	✓	✓	OR, OBS	✓	✓	OPD, LAB, PHAR, G/BUL			
8	Outdoor lighting line repair	Electrician	EOPD, ICU, NICU	✓	✓	SW, GYN W, MW, PW	✓	✓	OR, OBS	✓	✓	OPD, LAB, PHAR, G/BUL	✓	✓	✓

9	Corridor lighting line repair	Electrician	EOPD, ICU, NICU	✓	✓	SW, GYN W, MW, PW	✓	✓	OR, OBS	✓	✓	OPD, LAB, PHAR, G/BUL	✓	✓	✓
Plumbing Maintenance Section															
1	Water fixture inspection/inventory	Plumber	OPD, LAB, PHAR, G/BUL	✓	✓	EOPD, ICU, NICU	✓		OR, OBS	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
2	Isolate and fix non-functioning water fixtures	Plumber	OPD, LAB, PHAR, G/BUL	✓	✓	EOPD, ICU, NICU		✓	OR, OBS			SW, GYN W, MW, PW			
3	Repair hand-washing stations	Plumber	OPD, LAB, PHAR, G/BUL	✓	✓	EOPD, ICU, NICU	✓		OR, OBS	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
4	Repair drainage lines	Plumber	OPD, LAB, PHAR, G/BUL	✓	✓	EOPD, ICU, NICU		✓	OR, OBS	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
5	Repair shower lines	Plumber	OPD, LAB, PHAR, G/BUL	✓	✓	EOPD, ICU, NICU	✓		OR, OBS			SW, GYN W, MW, PW			
6	Repair outdoor water lines	Plumber	OPD, LAB, PHAR, G/BUL	✓	✓	EOPD, ICU, NICU	✓		OR, OBS	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
7	Repair water storage equipment	Plumber	OPD, LAB,	✓	✓	EOPD, ICU, NICU		✓	OR, OBS			SW, GYN W, MW, PW			

			PHAR, G/BUL												
8	Routine inspection of water systems	Plumber	OPD, LAB, PHAR, G/BUL	✓	✓	EOPD, ICU, NICU	✓		OR, OBS	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
9	Water quality control	Plumber	OPD, LAB, PHAR, G/BUL	✓	✓	EOPD, ICU, NICU		✓	OR, OBS	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
Compound Maintenance Section															
1	Inventory of building materials	Facility Technician	OR, OBS		✓	EOPD, ICU, NICU	✓		✓	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
2	Identify & immediately fix construction-related needs	Facility Technician	OR, OBS	✓		EOPD, ICU, NICU		✓				SW, GYN W, MW, PW			
3	Submit procurement list of necessary items	Facility Technician	OR, OBS		✓	EOPD, ICU, NICU	✓		✓	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
4	Maintenance of house cornices	Facility Technician	OR, OBS		✓	EOPD, ICU, NICU		✓	✓	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
5	Repair of broken ceilings	Facility Technician	OR, OBS	✓		EOPD, ICU, NICU	✓					SW, GYN W, MW, PW			
6	Repair of broken walls	Facility Technician	OR, OBS		✓	EOPD, ICU, NICU	✓		✓	✓	✓	SW, GYN W, MW, PW	✓	✓	✓

7	Maintenance of doors and frames	Facility Technician	OR, OBS	✓		EOPD, ICU, NICU		✓				SW, GYN W, MW, PW			
8	Repair of broken windows and ventilation	Facility Technician	OR, OBS			EOPD, ICU, NICU	✓		✓	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
9	Repair of broken locks	Facility Technician	OR, OBS		✓	EOPD, ICU, NICU		✓	✓	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
10	Outdoor fence repair	Facility Technician	OR, OBS	✓		EOPD, ICU, NICU	✓					SW, GYN W, MW, PW			
11	Repair of plant fence walls	Facility Technician	OR, OBS		✓	EOPD, ICU, NICU	✓		✓	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
12	Repair of toilets	Facility Technician	OR, OBS	✓		EOPD, ICU, NICU		✓				SW, GYN W, MW, PW			
13	Repair of broken floor tiles	Facility Technician	OR, OBS			EOPD, ICU, NICU	✓		✓	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
14	Repair of chairs and tables (furniture)	Facility Technician	OR, OBS		✓	EOPD, ICU, NICU		✓	✓	✓	✓	SW, GYN W, MW, PW	✓	✓	✓
14	Repair of kitchen furniture	Facility Technician	OR, OBS	✓		EOPD, ICU, NICU	✓					SW, GYN W, MW, PW			

Vehicle Maintenance Section

No.	Vehicle Type	Maintenance Type	Performed By	Location	Frequency
1	Ambulance	Oil change	Hospital Driver	Deder	Every 2 months
	Minor Maintenance	Private Garage	Harar / Deder	Every 3 months	
	General Maintenance	MOENCO	MOENCO	Annually	
2	Hospital Vehicles	Oil change	Hospital Driver	Deder	Every 2 months
	Minor Maintenance	Private Garage	Harar / Deder	Every 3 months	
	General Maintenance	MOENCO	MOENCO	Annually	

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