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MAINTENANCE AND ASSET MANAGEMENT (QHSE)

Planned Preventive Maintenance (PPM) SOPs

Prepared in alignment with ISO 55001, ISO 41001, ISO 45001, ISO 9001, ISO 14001, EN 13306 and recognised international maintenance and fire / electrical safety standards

Facility / Project	[Facility Name]
Site / Location	[Site / Location]
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Organisation	[Company]
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This is a controlled document. Printed copies are uncontrolled unless stamped.

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1. Document Control and Approval

Rev	Date	Description	Prepared by	Reviewed by	Approved by
00	[DD/MM/YYYY]	Issued for approval	[Name, Maintenance Manager]	[Name, QHSE Manager]	[Name, Facility / Operations Director]

Distribution: Facility Manager, Maintenance Manager, QHSE Manager, Engineering Supervisors, Technicians, Approved Contractors, Event / Operations Teams, Client Representative.

Review triggers: Introduction of new assets or systems; change in legislation or manufacturer requirements; significant failure, incident or audit finding; change in event programme or occupancy profile; or annually, whichever occurs first.

2. Purpose, Scope and Objectives

2.1 Purpose

This document establishes the Standard Operating Procedures (SOPs) for the Planned Preventive Maintenance (PPM) of buildings, engineering systems, utilities, temporary event infrastructure and associated equipment. It defines how maintenance is planned, scheduled, executed safely, verified, recorded and continually improved, so that assets remain safe, reliable, compliant and fit for purpose.

2.2 Scope

The SOPs apply to all fixed and temporary assets under the control of the organisation, including:

- Electrical systems: LV / MV distribution, switchgear, UPS, generators, lighting and earthing.
- Mechanical systems: HVAC, chillers, air handling units, pumps, ventilation and smoke control.
- Fire and life safety: detection, alarms, sprinklers, extinguishers, emergency lighting and signage.
- Plumbing, water systems and drainage, including Legionella control.
- Vertical transport: lifts, escalators and hoists.
- Building management and control systems (BMS), CCTV and access control.
- Building fabric, doors, roofs, barriers, fencing and external areas.
- Temporary event structures, staging, rigging, power distribution and crowd barriers.

2.3 Objectives

- Maximise safety, availability and reliability of critical assets.
- Achieve at least [90]% PPM schedule compliance and zero overdue statutory inspections.
- Reduce reactive and emergency maintenance through risk-based planning.
- Ensure all maintenance is performed by competent persons under controlled safe systems of work.
- Maintain complete, auditable records in the CMMS.

3. Policy Statement and Management Commitment

Management is committed to maintaining all assets to a standard that protects people, the environment and business continuity. We will:

1. Comply with applicable legislation, statutory inspection regimes and manufacturer requirements, adopting the more stringent where they differ.
2. Plan maintenance using risk and criticality, applying the hierarchy of control to every task.
3. Allow only competent, trained and authorised persons to carry out maintenance.
4. Empower every person to exercise **Stop Work Authority** where conditions are unsafe.
5. Record, review and learn from failures, near misses and audit findings.
6. Provide resources, tools, spares and systems needed to deliver the PPM programme.

Signed: _____ [Facility / Operations Director] Date: _____

4. Legal, Regulatory and Standards Framework

4.1 International Standards and Guidance

Reference	Title / Relevance
ISO 55001:2014	Asset management systems: requirements
ISO 41001:2018	Facility management systems
ISO 45001:2018	Occupational health and safety management systems
ISO 9001:2015	Quality management systems
ISO 14001:2015	Environmental management systems
ISO 50001:2018	Energy management systems
ISO 31000:2018 / IEC 31010	Risk management and assessment techniques
ISO 17359:2018	Condition monitoring and diagnostics of machines
ISO 7010 / ISO 3864	Safety signs and symbols
EN 13306:2017	Maintenance terminology
EN 15341:2019	Maintenance key performance indicators
IEC 60364 / BS 7671	Electrical installations
NFPA 70B / NFPA 70E	Electrical equipment maintenance; electrical safety in the workplace
NFPA 25 / NFPA 72 / NFPA 101	Water-based fire systems; fire alarm; life safety
NFPA 110	Emergency and standby power systems
BS 5266-1 / BS 5839-1 / BS 5306-3	Emergency lighting; fire detection; extinguisher maintenance
ASHRAE 188 / HSG274 / ISO 11731	Legionella risk management and testing
ASHRAE 180	HVAC inspection and maintenance
SFG20	Standard maintenance specification (good practice reference)
OSHA 29 CFR 1910.147 / 1910.146 / 1926.501	Lockout / tagout; permit-required confined spaces; fall protection
LOLER / PUWER / WAHR (UK) or equivalents	Lifting equipment, work equipment, working at height

Reference	Title / Relevance
EN 81-20 / EN 81-50, EN 115	Lifts and escalators safety and examination
ANSI E1.21 / E1.43	Temporary structures and rigging for entertainment
ILO C155 and C187	Occupational safety and health conventions

4.2 National and Local Requirements

Statutory inspection and licensing obligations of the host jurisdiction take precedence. Complete the register below before approval.

Requirement	Authority	Frequency	Reference / Certificate No.
Fire and life safety system inspection and certification	[Civil Defence / Fire Authority]	[Annual]	[No.]
Lift and escalator statutory examination	[Competent Authority / Insurer]	[6 / 12 months]	[No.]
Pressure systems and vessels examination	[Competent Authority]	[Per written scheme]	[No.]
Electrical installation periodic inspection	[Competent Person]	[1 to 5 years]	[No.]
Lifting equipment thorough examination	[Competent Person]	[6 / 12 months]	[No.]
Water hygiene and Legionella audit	[Approved Contractor]	[Annual]	[No.]
Environmental permits (refrigerants, waste, emissions)	[Environmental Authority]	[As permitted]	[No.]

Order of precedence: (1) statutory law and licence conditions; (2) manufacturer instructions; (3) this document; (4) contractor procedures. The most stringent requirement applies.

5. Definitions and Abbreviations

Term	Meaning
PPM	Planned Preventive Maintenance: scheduled work to prevent failure or degradation
PdM / CBM	Predictive / Condition-Based Maintenance
RCM	Reliability-Centred Maintenance
CMMS	Computerised Maintenance Management System
SOP	Standard Operating Procedure
PTW	Permit to Work
LOTO	Lockout / Tagout
RAMS	Risk assessments and method statements
MTBF / MTTR	Mean time between failures / Mean time to repair
OEM	Original equipment manufacturer
SLA	Service level agreement
ALARP	As low as reasonably practicable

6. Roles, Responsibilities and Authorities

Role	Key responsibilities
Facility / Operations Director	Overall accountability; approves resources, budgets and this document
Maintenance Manager	Owns the PPM programme; schedules work; manages contractors and KPIs
QHSE Manager	Audits compliance; reviews risk assessments; investigates incidents
Engineering Supervisors	Allocate and supervise work; verify completion; authorise permits
Planner / Scheduler	Maintains asset register and CMMS schedules; issues job cards
Technicians / Engineers	Execute tasks to SOP; record findings; report defects
Authorised Persons (electrical, LOTO, PTW)	Isolate, test, verify and issue permits within their competence
Storekeeper	Controls spares, consumables, tools and calibrated equipment
Contractors	Provide competent labour, RAMS, certificates and records
Event / Operations Teams	Coordinate access windows; report faults and abnormal conditions

Stop Work Authority: any person may halt an activity that presents imminent danger. Work resumes only after the Supervisor and QHSE confirm the hazard is controlled.

7. PPM Programme Framework

7.1 Maintenance Strategy

The programme combines the following approaches, selected by asset criticality and failure mode:

Strategy	Description	Typical application
Time-based PPM	Tasks at fixed intervals or running hours	Filters, lubrication, inspections, statutory checks
Condition-based (CBM)	Tasks triggered by measured condition	Vibration, thermography, oil analysis, insulation resistance
Predictive (PdM)	Analysis of trends to forecast failure	Chillers, generators, critical motors, UPS batteries
Reliability-centred (RCM)	Failure mode analysis to optimise tasks	Critical life-safety and event-critical systems
Run-to-failure (planned)	Accepted for low-risk, low-cost assets	Non-critical lamps, minor fittings

7.2 Asset Register

All assets are tagged with a unique ID, location, description, manufacturer, model, serial number, installation date, criticality rating, manuals, spares list and statutory requirement flags. No asset may be maintained without an entry in the CMMS.

7.3 Programme Lifecycle

Commissioning and handover, baseline survey, PPM schedule creation, execution, feedback and review, optimisation, and decommissioning with records retained.

8. Asset Criticality and Frequency Determination

8.1 Criticality Rating

Rating	Definition	Examples
A: Critical	Failure endangers life, causes major legal breach or stops operations	Fire systems, emergency power, life-safety lighting, lifts, main LV switchgear
B: Essential	Failure causes major disruption or discomfort	HVAC plant, pumps, UPS, BMS, water systems
C: Standard	Failure causes minor inconvenience	General lighting, small power, fittings
D: Low	Failure has negligible effect	Non-essential decorative items

8.2 Frequency Determination

Frequencies are set from the highest of: statutory requirement, manufacturer recommendation, risk and criticality, operating environment (dust, heat, humidity, load), failure history and, for events, the programme calendar. Frequencies are reviewed at least annually using failure data and CBM results.

8.3 Event Considerations

Critical assets supporting an event are inspected and tested before the build phase, again before opening, and monitored throughout live operation. No planned shutdown of Category A assets is permitted during live event periods without Director approval and a documented risk assessment and contingency plan.

9. Planning and Scheduling

- The PPM master schedule is generated annually from the CMMS and approved by the Maintenance Manager.
- Work is planned in a rolling 12-week look-ahead and a firm 2-week plan.
- Job cards are issued with task lists, safety requirements, tools, spares, estimated duration and reference to the SOP.
- Shutdowns and access to occupied areas are coordinated with Operations and communicated at least [48] hours in advance.
- Statutory and Category A tasks have priority; if postponed, a risk assessment and Director approval are required.
- Resource loading, contractor availability and spares readiness are verified before work is released.

9.1 Priority Classification

Priority	Description	Target response
P1 Emergency	Immediate danger to life or critical system failure	Immediate, within [1] hour

Priority	Description	Target response
P2 Urgent	Serious defect affecting safety or operations	Within [24] hours
P3 Routine	Defect without immediate risk	Within [7] days
P4 Planned	PPM tasks	As per schedule, tolerance [+/- 10]% of interval

10. General PPM Execution Procedure (SOP-GEN-01)

Step	Action	Responsible
1	Receive job card; review task, RAMS, drawings and OEM manual	Technician
2	Confirm competence, tools, calibrated instruments, spares and PPE	Technician / Supervisor
3	Obtain PTW and access approval where required	Supervisor
4	Conduct toolbox talk and point-of-work risk assessment	Technician
5	Isolate and verify safe state using LOTO	Authorised Person
6	Perform inspection and maintenance tasks per SOP checklist	Technician
7	Record readings, defects and corrective actions	Technician
8	Test, restore, remove isolations and return equipment to service	Authorised Person
9	Housekeeping, waste segregation and area handover	Technician
10	Supervisor verifies, signs and closes permit and job card	Supervisor
11	CMMS update, defect work orders raised, next due date set	Planner

Acceptance criteria: all checklist items completed, readings within tolerance, no unresolved safety defects, equipment returned to service and signed off. Failed items trigger a corrective work order with priority per Section 9.1.

11. HSE Controls for Maintenance Activities

11.1 Risk Assessment

Each SOP is supported by a generic risk assessment reviewed annually. A point-of-work (dynamic) risk assessment is completed before every task. Contractors submit RAMS for approval before mobilisation.

11.2 Permit to Work

A PTW is mandatory for: hot work, confined space entry, work at height above [2] m, electrical work on or near live systems, lifting operations, excavation, work on fire systems (impairment), roof access and work in areas with crowds or live events. Permits are issued for a single shift, displayed at the work location and closed out on completion.

11.3 Lockout / Tagout

Energy isolation follows the sequence: identify energy sources, notify, shut down, isolate, lock and tag, release stored energy, verify zero energy (prove-test-prove), perform work, remove

locks only by the person who applied them, and test before restoration. Group locks and lock boxes are used for multi-person tasks.

11.4 Electrical Safety

Work on electrical systems is carried out dead wherever possible. Live work requires a documented justification, specific permit, authorised competent person, insulated tools, appropriate arc-flash PPE per NFPA 70E or equivalent and a second person in attendance.

11.5 Working at Height and Confined Spaces

Avoid work at height; use platforms and MEWPs before ladders; ladders only for short-duration low-risk tasks. Fall protection and a rescue plan are required. Confined space entry requires atmospheric testing, ventilation, standby person and rescue arrangements.

11.6 Hot Work and Fire Precautions

Hot work is conducted under permit with fire watch for at least [60] minutes after completion. Fire detection impairment is notified to the control room and fire authority where required, with compensatory measures in place.

11.7 Hazardous Substances and Refrigerants

Safety Data Sheets are available at point of use. Refrigerant handling is performed only by certified technicians, with leak detection, recovery and records to prevent emissions. Chemicals are stored, segregated and disposed of in accordance with local regulation.

11.8 Manual Handling and Ergonomics

Mechanical aids are used for loads that exceed safe limits; team lifts are planned; work in heat is managed through hydration, shade and rest breaks.

11.9 Contractor Control

Contractors are pre-qualified, inducted and supervised; they provide certificates (competence, calibration, insurance) before starting and report incidents immediately.

11.10 Environmental Controls

Waste is segregated; oils, filters, batteries and lamps are managed as controlled waste; spill kits are available; energy and water consumption are minimised during testing.

12. Tools, Spares, Instruments and Calibration

- Tools are inspected before use; defective tools are tagged and withdrawn. Insulated tools are tested per schedule.
- Measuring and test instruments (multimeters, insulation testers, loop testers, thermal imagers, anemometers, gas detectors, torque tools) are calibrated to traceable standards; calibration status is labelled and recorded. Out-of-calibration instruments are quarantined and affected results reviewed.
- Critical spares (fuses, belts, filters, contactors, batteries, lamps, seals, pump parts) are stocked based on criticality and lead time, with minimum and reorder levels in the CMMS.
- Only OEM or approved equivalent parts are used; substitutions are approved by the Maintenance Manager.
- Lifting accessories and access equipment are certified and inspected per statutory requirements.

13. SOP Library Overview

SOP No.	Title	Discipline	Criticality
SOP-GEN-01	General PPM execution	All	All
SOP-ELE-01	Electrical distribution and switchgear	Electrical	A
SOP-ELE-02	Generators and standby power	Electrical	A
SOP-ELE-03	UPS and battery systems	Electrical	A / B
SOP-ELE-04	Lighting and emergency lighting	Electrical	A / C
SOP-HVAC-01	Chillers, AHUs, FCUs and ventilation	Mechanical	B
SOP-FIRE-01	Fire detection, alarm and suppression	Fire safety	A
SOP-WAT-01	Water systems, pumps and Legionella control	Plumbing	A / B
SOP-VT-01	Lifts, escalators and hoists	Vertical transport	A
SOP-BMS-01	BMS, CCTV and access control	Controls / security	B
SOP-FAB-01	Building fabric, roofs, doors and external areas	Civil	C
SOP-EVT-01	Temporary structures, rigging, power and barriers	Event infrastructure	A

Each SOP follows the same format: purpose, safety requirements, task and frequency schedule, procedure highlights, acceptance criteria and records.

14. SOP-ELE: Electrical Systems

14.1 SOP-ELE-01: Electrical Distribution and Switchgear

Purpose: Ensure safe, reliable operation of LV / MV switchgear, distribution boards, cabling and earthing.

Safety: Authorised persons only; LOTO and PTW; arc-flash assessment and PPE; prove-test-prove; clear working space; no live work unless permitted.

Task	Frequency	Responsible	Reference
Visual inspection of panels, signage, ventilation, housekeeping	Monthly	Electrician	NFPA 70B
Infrared thermography of connections under load	Annual	Specialist	NFPA 70B
Tighten connections, clean, inspect busbars and insulators (shutdown)	Annual	Electrician	OEM
Test circuit breakers, protection relays, trip settings	Annual / per OEM	Specialist	IEC 60364
RCD push-button test	Quarterly	Electrician	BS 7671
RCD trip time test	Annual	Electrician	BS 7671
Earthing and bonding continuity and resistance	Annual	Specialist	IEC 60364
Insulation resistance of cables and equipment	Per programme	Specialist	IEC 60364

Task	Frequency	Responsible	Reference
Periodic inspection and testing of installation	1 to 5 years per code	Competent Person	Local code

Acceptance criteria: no hot spots above the limit set by thermography criteria; readings within OEM and code limits; labels legible; all protective devices operating within tolerance.

14.2 SOP-ELE-02: Generators and Standby Power

Purpose: Guarantee start-up and load acceptance of standby generators when needed.

Task	Frequency	Responsible	Reference
Inspect fuel, oil, coolant, belts, battery, leaks, exhaust, alarms	Weekly	Technician	NFPA 110
Start and run on load for [30] minutes at minimum recommended load	Monthly	Technician	NFPA 110
Check fuel quality and filter water separators; maintain fuel level	Quarterly	Technician	OEM
Oil and filter change, coolant test, battery health test	Per hours / 6 months	Technician	OEM
Automatic transfer switch test and inspection	Quarterly / Annual	Electrician	NFPA 110
Load bank test	Annual	Specialist	NFPA 110
Full black-start / transfer test	Annual and before major events	Specialist	NFPA 110

Acceptance criteria: start within the specified time (typically 10 seconds); stable voltage and frequency; correct transfer and return; no alarms or leaks; test logged. Fuel bunding and spill kits verified.

14.3 SOP-ELE-03: UPS and Battery Systems

Task	Frequency	Responsible	Reference
Visual check, alarms, temperature, ventilation	Monthly	Technician	OEM
Battery voltage, impedance or conductance check	Quarterly	Specialist	IEEE guidance / OEM
Capacitor, fan and bypass checks	Annual	Specialist	OEM
Autonomy / discharge test	Annual	Specialist	OEM
Battery replacement planned from age and condition	As required	Specialist	OEM

Safety: battery rooms ventilated; acid / hydrogen hazards controlled; insulated tools; eye wash available.

14.4 SOP-ELE-04: Lighting and Emergency Lighting

Task	Frequency	Responsible	Reference
Emergency lighting function test (monthly flick test)	Monthly	Electrician	BS 5266-1
Emergency lighting full-duration test (3 hours or rated)	Annual	Electrician	BS 5266-1
Exit sign and luminaire inspection, cleaning	Quarterly	Electrician	BS 5266-1

Task	Frequency	Responsible	Reference
General lighting inspection, lamp replacement, lux survey	Quarterly / Annual	Electrician	Local code
Outdoor and floodlighting, poles and control checks	Quarterly	Electrician	OEM

Records: test certificate with failures rectified within [7] days; temporary measures where escape lighting is out of service.

15. SOP-HVAC-01: Mechanical and Ventilation Systems

Purpose: Maintain thermal comfort, air quality, efficiency and smoke control performance.

Safety: LOTO; refrigerant handling by certified staff; working at height controls; biological hazards (cooling towers); noise and heat exposure controls.

Task	Frequency	Responsible	Reference
Chiller inspection: pressures, temperatures, oil, leaks, vibration, log readings	Monthly	Technician	ASHRAE 180
Chiller tube cleaning, eddy current testing, controls calibration	Annual	Specialist	OEM
AHU filter inspection and change	Monthly / Quarterly	Technician	ASHRAE 180
AHU coils, drain pans, fans, belts, dampers, bearings	Quarterly	Technician	ASHRAE 180
FCU filter cleaning, drain clearing, valve check	Quarterly	Technician	OEM
Pump and motor inspection, alignment, lubrication, vibration	Quarterly	Technician	ISO 17359
Cooling tower inspection, cleaning, disinfection and water treatment	Monthly / Quarterly	Specialist	ASHRAE 188 / HSG274
Refrigerant leak check and records	Per quantity / local law	Certified Tech	Local law
Kitchen and toilet extract cleaning, fire damper testing	Annual	Specialist	Local code
Smoke control and pressurisation systems function test	Quarterly / Annual	Specialist	NFPA 92 / local
Duct cleanliness inspection and air quality testing (CO_2, temperature, humidity)	Annual	Specialist	ASHRAE 62.1

Acceptance criteria: parameters within design tolerance; no abnormal noise, vibration or leakage; filters clean; setpoints verified; fire and smoke dampers close fully on test.

16. SOP-FIRE-01: Fire Detection, Alarm and Suppression

Purpose: Ensure fire protection systems are fully operational at all times; **impairment of any system is a controlled event.**

Impairment procedure: notify the Control Room, Fire Authority and insurer as required; post fire watch; limit hot work; restore as soon as possible; log all impairments and restoration.

Task	Frequency	Responsible	Reference
Fire alarm panel check, fault log review	Weekly	Technician	NFPA 72 / BS 5839-1
Test of manual call points (rotating sample)	Weekly / Quarterly	Technician	BS 5839-1
Full functional test of detectors, sounders, interfaces	Annual	Specialist	NFPA 72
Sprinkler: gauge and valve checks	Weekly / Monthly	Technician	NFPA 25
Sprinkler: alarm device and flow switch test	Quarterly	Specialist	NFPA 25
Sprinkler: main drain test, valve operation, internal inspection	Annual / 5 years	Specialist	NFPA 25
Fire pump: weekly churn run, annual flow test	Weekly / Annual	Specialist	NFPA 25 / NFPA 20
Fire hose reels, hydrants, landing valves	Quarterly / Annual	Technician	NFPA 25
Portable extinguishers: visual check	Monthly	Fire Warden	BS 5306-3 / NFPA 10
Portable extinguishers: service and discharge test	Annual / per type	Approved Contractor	BS 5306-3
Gaseous suppression: inspection, weighing, release test	Semi-annual	Specialist	NFPA 2001
Fire doors, shutters, dampers, exit hardware	Quarterly	Technician	Local code
Fire exit routes, signage, assembly points	Weekly	Safety Officer	ISO 7010
Fire evacuation drill	Per local law, at least annual	QHSE	Local code

Acceptance criteria: 100% of devices tested within tolerance; deficiencies corrected before sign-off or covered by interim measures; certificates issued and filed.

17. SOP-WAT-01: Water Systems, Pumps and Legionella Control

Purpose: Provide safe potable and process water and prevent waterborne disease.

Control parameters (typical, subject to local regulation): stored hot water at 60 degrees C or above; distribution at 50 degrees C or above within one minute; cold water below 20 degrees C; TVC and Legionella sampling as per risk assessment.

Task	Frequency	Responsible	Reference
Water safety / Legionella risk assessment	Annual or on change	Competent Person	HSG274 / ASHRAE 188
Flush little-used outlets and showers	Weekly	Technician	HSG274
Temperature monitoring of sentinel outlets	Monthly	Technician	HSG274
Calorifier inspection, drain and flow / return temperatures	Quarterly	Technician	HSG274
Cold water tank inspection and clean	6-monthly / Annual	Specialist	HSG274
Shower head and hose descale, disinfect	Quarterly	Technician	HSG274

Task	Frequency	Responsible	Reference
Water sampling and laboratory analysis	Per risk assessment	Accredited Lab	ISO 11731
Booster pump, valve and pressure vessel inspection	Quarterly	Technician	OEM
Backflow preventer test	Annual	Specialist	Local code
Drainage, grease traps, sumps, sewage pump clearing	Monthly / Quarterly	Technician	Local code
Pressure systems examination per written scheme	Per scheme	Competent Person	Local law

Acceptance criteria: temperatures within limits; microbiological results below action levels; any exceedance triggers disinfection, resampling and investigation under the water safety plan.

18. SOP-VT-01: Lifts, Escalators and Hoists

Purpose: Maintain safe, compliant vertical transportation.

Safety: work only by certified lift engineers; two-person rule for machine rooms and pits; isolation and barriers at landings; entrapment procedure available.

Task	Frequency	Responsible	Reference
Routine service, lubrication, adjustment, safety device tests	Monthly (per contract / OEM)	Lift Contractor	EN 81-20 / EN 81-50
Thorough examination by competent person / insurer	6 or 12 months per local law	Competent Person	LOLER / local law
Rescue and alarm system test, emergency phone	Monthly	Lift Contractor	EN 81-28
Escalator handrail, comb plate, safety switches, skirt checks	Monthly	Lift Contractor	EN 115
Hoist and lifting appliance inspection	Pre-use / 6 or 12 months	Competent Person	LOLER / PUWER
Machine room, pit and shaft condition	Quarterly	Technician	OEM

Acceptance criteria: all safety devices operational; levelling within tolerance; certificates valid and displayed; entrapment response time met.

19. SOP-BMS-01: BMS, CCTV and Access Control

Task	Frequency	Responsible	Reference
BMS alarms, trends and communications review	Weekly	Controls Technician	OEM
Sensor, actuator and valve calibration	Annual	Specialist	OEM
Software, firmware and backup management; cyber hygiene	Quarterly	IT / Controls	ISO 27001
CCTV camera cleaning, focus and recording checks	Monthly	Security Technician	OEM

Task	Frequency	Responsible	Reference
Access control reader, lock, door contact and fail-safe tests	Quarterly	Security Technician	OEM
Fire alarm interface and emergency release test	Annual	Specialist	NFPA 72
Public address and voice alarm test	Monthly / Annual	Specialist	EN 54-16 / OEM

Acceptance criteria: system availability above [99]%; recordings retained for required period; emergency overrides operate; changes logged and approved.

20. SOP-FAB-01: Building Fabric, Roofs, Doors and External Areas

Task	Frequency	Responsible	Reference
Roof, gutters and drainage inspection	Semi-annual / after storms	Technician	Local code
Facade, cladding, glazing and sealant inspection	Annual	Specialist	Local code
Doors, closers, hinges, locks and automatic doors	Quarterly	Technician	EN 12453 / OEM
Floor surfaces, handrails, stairs, anti-slip condition	Monthly	Technician	Local code
Perimeter fences, gates, bollards, barriers	Quarterly	Technician	Local code
Roads, paving, car parks, kerbs, line marking, signage	Semi-annual	Technician	Local code
Pest control and landscape safety	Monthly	Approved Contractor	Local law
Structural condition survey	3 to 5 years	Structural Engineer	Local code

21. SOP-EVT-01: Temporary Structures, Rigging, Power and Barriers

Purpose: Verify the safety of event infrastructure before, during and after each event.

Safety: structures designed and certified by competent engineers; wind and weather limits applied; exclusion zones; rigging inspected by certified riggers.

Task	Frequency	Responsible	Reference
Pre-build inspection of components (trusses, clamps, steels, ballast, fixings)	Each build	Rigger / Engineer	ANSI E1.21
Structural handover inspection and certification	Before opening	Structural Engineer	BS EN 13782 / local
Rigging equipment inspection (hoists, slings, shackles, motors)	Pre-use / 6 or 12 months	Certified Rigger	LOLER / ANSI E1.43
Temporary power: PAT, cable, distribution, RCD and generator checks	Each event	Electrician	BS 7671 / IEC 60364

Task	Frequency	Responsible	Reference
Crowd barrier, fencing and anchorage inspection	Daily during event	Safety Officer	Event Safety Plan
Tent and canopy tension, anchors, flame-retardant certificates	Daily during event	Engineer	BS EN 13782
Wind, lightning and weather monitoring checks	Continuous	HSE Manager	Event Safety Plan
Post-event damage inspection and equipment quarantine	After derig	Supervisor	OEM

Acceptance criteria: certified by engineer; no defects classed critical; wind limits and action triggers recorded; defective equipment tagged out of service.

22. Breakdown, Emergency and Corrective Maintenance Interface

- Faults are logged through the helpdesk or Control Room and prioritised per Section 9.1.
- P1 events trigger immediate response, notification of management and, where relevant, activation of the emergency plan.
- Root cause analysis (5 Whys, fishbone or equivalent) is carried out for all P1 failures and repeat failures.
- Failure data feeds back to PPM frequency and task optimisation.
- Temporary repairs are risk assessed, time-limited and tracked to permanent fix.

23. Documentation, Records and CMMS

- All work orders, readings, certificates, permits and test results are recorded in the CMMS within [24] hours.
- Records include asset ID, date, technician, tasks, findings, parts used, time spent and sign-off.
- Statutory certificates are scanned, indexed and linked to assets; expiry alerts are set at least [60] days before due.
- Records are retained for the period required by law and at least [5] years for maintenance history, longer for statutory and incident-related records.
- Documents are version-controlled; superseded SOPs are withdrawn.
- Data integrity and backup are managed under the IT policy.

24. Training, Competence and Authorisation

Group	Minimum training / competence
All maintenance staff	Induction, SOP training, PTW, LOTO, manual handling, emergency procedures
Electricians	Qualified, licensed, electrical safety and arc-flash awareness, authorised person appointment

Group	Minimum training / competence
HVAC / refrigeration	Certified refrigerant handling, mechanical competence, confined space where relevant
Fire systems	Manufacturer or recognised certification for the system maintained
Lift engineers	Certified for lifts and escalators
Riggers / working at height	Certified competence, rescue training
Water hygiene	Legionella awareness and competent person training
Supervisors	Leadership in safety, permit issuing, incident investigation

Authorisations are issued in writing, recorded in the competency matrix, reviewed annually and withdrawn if competence or conduct is not maintained.

25. Quality Assurance, Inspection and Audit

- **Supervisor checks:** at least [10]% of completed PPM jobs are verified on site each month; 100% of Category A tasks are reviewed.
- **Internal audits:** quarterly audits of PPM compliance, permits, LOTO, records and housekeeping against ISO 9001 and ISO 45001 requirements.
- **External audits:** statutory bodies, insurers, certification bodies and client audits as required.
- **Non-conformity management:** findings logged with root cause, corrective action, owner and due date, and tracked to closure.
- **Management review:** quarterly review of KPIs, audit results, incidents, resources and improvement actions.

26. Performance Indicators

Type	KPI	Target
Compliance	PPM schedule completion (on time)	[90]% or above
Compliance	Statutory inspections completed before due date	100%
Compliance	Category A PPM tasks completed	100%
Efficiency	Planned vs reactive maintenance ratio	[70:30] or better
Reliability	Availability of critical systems	[99]% or above
Reliability	MTBF trend and repeat failures	Improving trend
Response	P1 response within target	100%
Response	Backlog of overdue work orders	Below [5]%
Safety	Lost-time injuries during maintenance	0
Safety	Permit and LOTO audit non-conformities	0 critical
Quality	Rework / failed first-time fixes	Below [5]%
Environmental	Refrigerant leakage rate, waste diverted	Within legal and internal targets
Cost	Maintenance spend vs budget	Within [5]%

KPIs are defined and measured consistently with EN 15341 principles and reported monthly.

27. Management of Change

Any change to assets, systems, layouts, operating conditions or maintenance tasks is assessed through the management of change process: description of the change, risk assessment, impact on PPM scope and frequency, update of drawings and asset register, training of staff, approval by the Maintenance Manager and QHSE, and communication to stakeholders. Temporary changes carry an expiry date and review.

28. Continual Improvement

The programme applies the Plan-Do-Check-Act cycle. Improvements are identified from failure analysis, CBM data, audits, technician feedback, OEM bulletins and benchmarking. Tasks are added, removed or re-timed on the basis of evidence, with approved changes recorded in the revision history.

29. Appendices

Appendix A: PPM Job Card Template

Field	Entry
Work order no. / SOP ref.	
Asset ID, description, location	
Criticality and frequency	
Scheduled date / completed date	
Technician(s) and competence	
PTW no. / LOTO tag nos.	
PPE and tools required	
Tasks completed (check list)	
Readings and measurements	
Defects found and corrective action	
Spares and consumables used	
Time spent	
Technician signature / date	
Supervisor verification / date	

Appendix B: Generator Weekly Inspection Checklist (Example)

Item	Acceptable (Y/N)	Comments
Engine oil level and leaks		
Coolant level and hoses		

Item	Acceptable (Y/N)	Comments
Fuel level, day tank and bund		
Battery charger and terminals		
Belts and exhaust system		
Control panel, alarms, mode switch in AUTO		
Enclosure, ventilation and housekeeping		
Spill kit and fire extinguisher present		

Appendix C: Lockout / Tagout Record

Item	Entry
Equipment and isolation points	
Energy sources identified and isolated	
Lock and tag numbers / owner	
Verification (prove-test-prove) by	
Stored energy released	
Time applied / removed	
Restoration authorised by	

Appendix D: Master PPM Schedule Template

Asset ID	Asset	Location	SOP ref.	Frequency	Last done	Next due	Responsible
[ID]	[Asset]	[Location]	[SOP]	[Freq.]	[Date]	[Date]	[Name]

Appendix E: Impairment Notification Form (Fire and Life Safety Systems)

Item	Entry
System impaired and area affected	
Reason and expected duration	
Authorities and insurer notified (name, time)	
Interim measures (fire watch, signage, hot work ban)	
Restored by / date and time	
System tested and verified by	

Appendix F: Risk Assessment Template

Activity; hazard; persons at risk; existing controls; initial risk (likelihood x severity); additional controls; residual risk; owner; review date.

This document is a controlled template. All bracketed values, frequencies and thresholds must be completed and verified against manufacturer instructions, applicable legislation and the specific risk profile of the facility before approval. It does not replace legal or engineering advice.