Warehouse Security Perimeter Alarm And Camera Audit

1.0 Maintenance Objective & Frequency

The objective of this procedure is to perform a systematic audit of all warehouse perimeter security alarms and surveillance cameras to verify operational integrity, correct field of view, proper recording functionality, and alarm trigger accuracy. This PM ensures early detection of intrusions, reduces false alarms, and maintains compliance with facility security protocols.

Frequency: Monthly (or as specified by site security policy). Additional audits required after any power outage, storm, or construction activity near the perimeter.

2.0 Lockout/Tagout (LOTO) & Safety

- Electrical Isolation: For hardwired camera systems, isolate power at the local distribution panel and apply personal lock. For PoE (Power over Ethernet) systems, disconnect the Ethernet cable from the switch port and verify zero voltage with a multimeter.
- Battery Backup: For alarm panels with backup batteries, disconnect the battery terminals before servicing to prevent shock or short circuit.
- Fall Protection: When accessing cameras mounted at height (e.g., on poles or roof edges), use a certified ladder or aerial lift with full-body harness and lanyard. Ensure the lift is on stable ground and outriggers are deployed.
- PPE: Mandatory safety glasses, high-visibility vest, steel-toed boots, and cut-resistant gloves when handling wiring or mounting hardware.
- Confined Space: If accessing underground conduit or junction boxes, follow confined space entry procedures as per local regulations.

3.0 Required Tools, Parts & Lubricants

- Laptop with security system management software (e.g., DVR/NVR client, alarm panel programming tool)
- Multimeter (Fluke 117 or equivalent) for voltage and continuity checks
- Lens cleaning kit (microfiber cloth, isopropyl alcohol wipes)
- Compressed air duster (non-static generating)
- Spare fuses (as per panel specifications)
- Spare alarm contact magnets and reed switches (universal type)
- Spare RJ45 connectors and crimp tool (for PoE camera repairs)
- Torque screwdriver set (for camera mount bolts, typically 2-5 Nm)
- Laser distance measurer or tape measure (for verifying camera coverage zones)
- Test magnet (for triggering magnetic door contacts)
- Walkie-talkie or two-way radio (for communication with security control room)

4.0 Step-by-Step Maintenance Procedure

1. Obtain the site security system map and list of all perimeter alarm zones and camera locations. Verify the list against the physical installation.

2. Perform LOTO on the first camera or alarm panel as per Section 2.0. Confirm zero energy state with a multimeter.

3. Inspect the camera housing for physical damage, corrosion, or loose mounting. Torque the mounting bolts to the manufacturer specification (typically 3 Nm for small dome cameras).

4. Clean the camera lens using compressed air to remove dust, then wipe with a microfiber cloth and isopropyl alcohol. Inspect the IR LED ring for burned-out LEDs.

5. Reconnect power and log into the camera via the NVR/DVR client. Verify the camera is streaming video and recording to the correct storage location. Check the date/time stamp accuracy.

6. Adjust the camera field of view if necessary. Use the laser distance measurer to confirm coverage of the designated zone (e.g., 100% of the gate area). Tighten the pan/tilt locking screws to 2 Nm.

7. Test the camera's motion detection by walking through the field of view. Verify that the alarm event is logged in the NVR and that the recording duration meets the site policy (e.g., 30 seconds pre- and post-event).

8. For alarm contacts (magnetic switches on doors/gates): Inspect the alignment of the magnet and reed switch. The gap should not exceed 1/4 inch (6 mm). Use the test magnet to simulate door opening and confirm the alarm panel registers the zone as open.

9. Check all wiring connections at the alarm panel and junction boxes. Look for loose terminals, corrosion, or rodent damage. Torque terminal screws to 0.5 Nm.

10. Test the alarm panel's communication path (cellular, Ethernet, or dialer) by triggering a test alarm and confirming the central monitoring station receives the signal within 30 seconds.

11. Verify the backup battery voltage at the alarm panel. Replace if voltage is below 12.6 VDC for a 12V system. Load test the battery by disconnecting AC power and confirming the panel runs for at least 15 minutes.

12. Document all findings in the PM work order. Note any cameras with degraded image quality, misaligned zones, or alarm contacts that require adjustment. Flag any items that need replacement parts for the next PM cycle.

5.0 Verification & Return to Service

1. Restore all power and remove all LOTO devices. Confirm that all cameras and alarm panels are powered on and communicating with the central system.

2. Perform a final walk-through of the perimeter with the security control room. Trigger each alarm zone manually (open a door, walk through a motion detector) and confirm the correct alarm event is displayed on the monitoring software.

3. Review the recorded footage from the test events to ensure video quality, correct time stamps, and proper retention.

4. Sign off on the PM work order in ServiceGrid, including any notes on adjustments made or parts replaced. Update the asset history for each camera and alarm panel.

5. Notify the facility security manager that the audit is complete and the system is ready for normal operation.