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SYSTEMSHIELD™ EMERGENCY GROUND TESTING PROTOCOLS

PURPOSE

This document outlines the emergency procedures for assessing the integrity of SystemShield™ grounding systems following a grounding incident, electrical shock, equipment failure, or discovery of suspected bonding degradation. These protocols must be followed immediately when a compromised ground is suspected.

WHEN TO INITIATE EMERGENCY GROUND TESTING

Initiate this protocol under any of the following conditions:

- Personnel report electrical shock when touching bonded equipment
- Ground resistance tests return values above 1.0 ohm
- Physical damage observed to lugs, bus bar, or connected wires
- SystemShield grounding path disturbed, moved, or partially disconnected
- After lightning strike, electrical surge, or arc flash in the system
- Loose or detached grounding conductors identified during inspection
- Safety officer mandates retesting due to incident or near-miss

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STEP-BY-STEP EMERGENCY RESPONSE

1. ISOLATE THE SYSTEM

- De-energize equipment immediately
- Lockout/Tagout (LOTO) affected panels and circuits
- Prevent re-energization until testing is completed and documented

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2. IDENTIFY TEST POINTS

- Reference all SystemShield termination points:

    - Bus bar
    - Panel/chassis connections
    - #6 and #12 AWG wire ends
- Mark each test point clearly using approved labels

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3. PERFORM EMERGENCY RESISTANCE TEST

- Use a calibrated low-resistance ohmmeter or digital clamp meter
- Measure resistance between each ground point and primary bonded location
- Acceptable threshold: **≤ 1.0 ohm**
- Log all values on a new **Resistance Testing Record Sheet (Emergency Copy)**

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4. INSPECT ALL PHYSICAL CONNECTIONS

Visually inspect and gently test for:

Component	Inspection Focus
Lugs	Flush seating, no movement, signs of corrosion or deformation
Wires	Insulation integrity, crimps, no pullout or kinks
Bus bar	Solid mount, no rotation or displacement
Fasteners	Tightness, visible torque indicator (if used), no rust or oxidation

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5. IDENTIFY ROOT CAUSE

Based on findings:

- If test failure is localized → correct fastener, lug, or connection
- If test failure is systemic → replace full wire or perform continuity tracing
- If environmental factors are involved (moisture, corrosion) → escalate to supervisor

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6. CORRECTIVE ACTION

Take immediate steps to:

- Retorque or reterminate connections as needed
- Replace wires or lugs if visual indicators are present
- Remove corrosion or reapply anti-corrosion compound where required

- File a **Defect Report Form** if damage is confirmed

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7. RETEST AND SIGN OFF

- Retest all affected points after correction
- Re-verify that all test values are **≤ 1.0 ohm**
- Complete and sign a new **Final Inspection Sign-Off Sheet (Emergency Copy)**
- Do not return power to system until fully signed off by supervisor or safety officer

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SUPPORTING DOCUMENTS

Required for emergency testing:

- Resistance Testing Record Sheet
- Final Inspection Sign-Off Sheet
- Defect Report (if applicable)
- Field Inspection Checklist (for revalidation)

SAFETY & COMPLIANCE NOTES

- Always comply with NEC 250.4(A)(5) and 250.92(B) for effective ground path testing
- Follow NFPA 70E for approach boundaries and PPE during post-failure inspections
- If arc flash or surge occurred, test all grounding paths — even if not visibly damaged

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SUPPORT

For escalation procedures, part replacement, or guidance during emergency testing:

Email: systemshieldgrounding@gmail.com
Website: www.systemshield.tech
Secure Portal: https://systemshield.tech/distributor-access