

FACILITY ENVIRONMENTAL REQUIREMENTS FOR ROBOT MANUFACTURING

FACILITY ENVIRONMENTAL REQUIREMENTS

NaviFloor Robotics, Inc.

Effective Date: January 15, 2024

Document Reference: ENV-MFG-2024-001

1. PURPOSE AND SCOPE

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1. This document establishes the mandatory environmental requirements and

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2. These requirements apply to all Company-owned, leased, or operated manufacturing facilities.

2. DEFINITIONS

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1. "Clean Room Environment" means a controlled environment meeting ISO 14644-1 Class 100,000 or better.

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2. "ESD Protected Area" means designated zones meeting ANSI/ESD S20.20 requirements.

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3. "Hazardous Materials" include, but are not limited to, lithium-ion batteries, flammable liquids, and other materials identified in the Material Safety Data Sheet (MSDS).

3. FACILITY ENVIRONMENTAL CONTROLS

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1. Temperature and Humidity Requirements

- a) Main Assembly Areas: 20°C to 25°C (68°F to 77°F)
- b) Relative Humidity: 45% to 55%
- c) Maximum Temperature Variation: $\pm 2^{\circ}\text{C}$ per hour
- d) Continuous Monitoring and Recording Required

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2. Clean Room Specifications

- a) Minimum ISO Class 7 for LiDAR sensor assembly
- b) HEPA filtration with 99.97% efficiency at 0.3 microns
- c) Positive pressure differential of 0.05" water gauge
- d) Monthly particle count verification and documentation

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3. ESD Protection Requirements

- a) Conductive flooring with resistance between 1×10^6 and 1×10^9 ohms
- b) Grounded workstations and equipment
- c) Daily verification of personal grounding equipment
- d) Quarterly testing of all ESD protection systems

4. HAZARDOUS MATERIALS MANAGEMENT

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1. Storage Requirements

- a) Dedicated ventilated storage areas for all hazardous materials
- b) Secondary containment for liquid materials
- c) Fire-rated cabinets for flammable materials
- d) Segregation of incompatible materials

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2. Handling and Disposal

- a) Current Safety Data Sheets (SDS) maintained for all materials
- b) Proper PPE requirements posted and enforced
- c) Licensed disposal through approved vendors only
- d) Monthly inventory reconciliation required

5. ENVIRONMENTAL MONITORING AND REPORT

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1. Required Monitoring Systems

- a) Continuous particulate monitoring
- b) Temperature and humidity logging
- c) Differential pressure monitoring

d) VOC detection in specified areas

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2. Documentation Requirements

a) Daily environmental parameter logs

b) Weekly compliance checks

c) Monthly summary reports

d) Quarterly trend analysis

6. EMERGENCY RESPONSE AND CONTAINMENT

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1. Emergency Systems

a) Automated HVAC shutdown capability

b) Emergency power for critical systems

- c) Spill containment equipment
- d) Emergency evacuation procedures

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2. Response Procedures

- a) Immediate reporting of environmental excursions
- b) Investigation of root causes
- c) Corrective action implementation
- d) Documentation of all incidents

7. COMPLIANCE AND AUDITING

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1. Internal Audits

- a) Quarterly facility compliance audits

- b) Monthly safety inspections
- c) Documentation review
- d) Employee training verification

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2. External Audits

- a) Annual third-party environmental compliance audit
- b) ISO 14001 certification maintenance
- c) Regulatory agency inspections
- d) Customer audit support

8. TRAINING REQUIREMENTS

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1. All personnel must complete:

- a) Initial environmental awareness training
- b) Annual refresher training
- c) Specific hazardous materials handling training
- d) Emergency response procedures training

9. DOCUMENT CONTROL

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1. This document shall be:
 - a) Reviewed annually
 - b) Updated as required by regulatory changes
 - c) Distributed to all affected personnel
 - d) Maintained in the Company's document control system

10. AUTHORITY AND RESPONSIBILITY

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1. The Director of Manufacturing Operations shall maintain ultimate respons

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2. The Environmental Health and Safety Manager shall oversee daily implem

APPROVAL AND REVISION HISTORY

Version: 2.0

Approved By: Richard Torres, Chief Operating Officer

Date: January 15, 2024

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[Signature Block]

Richard Torres

Chief Operating Officer

NaviFloor Robotics, Inc.

