

Work scope details:

Title: Assembly and Disassembly of Portable Cleanroom in TRC Building 3700

Work Scope Summary: This work plan involves the assembly and disassembly of a portable cleanroom located in TRC Building 3700. The work will be performed by R&D staff utilizing hand and portable power tools, ladders, and performing overhead work, along with material handling and exhaust fan connection/disconnection.

Key Work Scope Components:

- Assembly and disassembly of the portable cleanroom
- Use of hand and portable power tools
- Use of ladders for overhead work
- Material handling for cleanroom components
- Connection and disconnection of exhaust fans

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference Link
Cleanroom Assembly Incident	During the assembly of a cleanroom, a worker fell from a ladder due to improper ladder placement, resulting in injury.	Ensure proper ladder placement and use of fall protection. Conduct ladder safety training before work begins.	OSHA Ladder Safety
Tool Malfunction During Maintenance	A power tool malfunctioned while in use, causing a minor injury to the operator.	Regular maintenance and inspection of tools are essential. Implement a tool check-out procedure to ensure tools are in good working condition.	OSHA Power Tool Safety
Overhead Work Safety Violation	A worker was injured when materials fell from overhead during assembly due to inadequate securing of items.	Use proper securing methods for overhead materials and conduct a pre-work inspection to ensure safety measures are in place.	OSHA Overhead Work Guidelines
Exhaust Fan Connection Incident	An exhaust fan was improperly connected, leading to a temporary loss of ventilation and potential contamination.	Ensure proper training on exhaust fan connections and implement a checklist to verify connections before operation.	N/A
Material Handling Injury	A worker sustained an injury while lifting heavy cleanroom components without proper technique.	Provide training on proper lifting techniques and use of mechanical aids for heavy lifting.	OSHA Material Handling

Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference Link	SBMS Link
Ladder Use	Not addressed	Implement ladder safety training and ensure proper ladder setup procedures are documented.	OSHA Ladder Safety	N/A
Tool Operation	Not addressed	Establish a tool inspection checklist and training program for tool usage.	OSHA Power Tool Safety	N/A
Overhead Work	Not addressed	Require the use of hard hats and implement a system to secure materials overhead.	OSHA Overhead Work Guidelines	N/A
Material Handling	Not addressed	Provide training on proper lifting techniques and use of mechanical aids.	OSHA Material Handling	N/A
Electrical Hazards	Inadequate mitigation	Ensure all electrical connections are performed by qualified personnel and documented.	OSHA Electrical Safety	N/A
Ventilation Issues	Not addressed	Conduct a pre-work assessment of ventilation systems to ensure proper function before work begins.	N/A	N/A
Contamination Control	Not addressed	Develop a contamination control plan specific to cleanroom assembly and disassembly.	N/A	N/A
Environmental Conditions	Inadequate mitigation	Monitor temperature and humidity levels in the work area and provide appropriate PPE.	N/A	N/A
Time Pressures	Not addressed	Establish realistic timelines for tasks and ensure adequate breaks to reduce fatigue.	N/A	N/A
Communication	Inadequate mitigation	Implement a communication protocol for all team members to ensure clarity of tasks and responsibilities.	N/A	N/A
First-Time Tasks	Not addressed	Pair inexperienced workers with experienced mentors during assembly tasks.	N/A	N/A

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference Link	SBMS Link
Distractive Environment	Not addressed	Conduct a pre-work briefing to address potential distractions and establish focus areas.	N/A	N/A

Failure mode analysis:

Current Control	Failure Mode of the Control	Effect of Failure	Cause of Failure	Recommended Action
Permit System	Permit not obtained or expired	Work may proceed without safety oversight, leading to accidents	Lack of awareness or oversight	Implement a tracking system for permits and regular audits.
PPE Requirements	PPE not used or inadequate	Increased risk of injury from tools and materials	Lack of enforcement or training	Conduct regular PPE audits and refresher training sessions.
Work Instructions	Instructions not followed or unclear	Increased risk of accidents due to improper procedures	Poor communication or vague instructions	Revise work instructions for clarity and conduct pre-work briefings.
Communication Protocol	Miscommunication among team members	Increased risk of errors and accidents	Lack of established communication channels	Establish clear communication protocols and conduct regular check-ins.
Emergency Response Procedures	Emergency plan not followed	Delayed response to incidents, worsening outcomes	Lack of training or familiarity	Conduct regular emergency drills and training sessions.

Current Control	Failure Mode of the Control	Effect of Failure	Cause of Failure	Recommended Action
Tool Availability	Tools not available or inadequate	Delays in work and increased risk of using improper tools	Poor inventory management	Implement a tool check-out system and regular inventory checks.
Training and Competency Verification	Workers not adequately trained	Increased risk of accidents due to lack of knowledge	Inadequate training programs	Develop comprehensive training programs and competency assessments.
Work Area Inspection	Inspections not conducted	Hazards may go unnoticed, leading to accidents	Lack of accountability	Schedule regular inspections and document findings.
Material Handling Procedures	Procedures not followed	Increased risk of injury during material handling	Lack of training or awareness	Provide hands-on training and clear guidelines for material handling.
Ventilation System Checks	Checks not performed	Potential contamination and health risks	Lack of routine maintenance	Schedule regular checks and maintenance of ventilation systems.
Ladder Safety Training	Training not provided	Increased risk of falls from ladders	Lack of awareness	Implement mandatory ladder safety training for all personnel.
Overhead Work Safety	Safety measures not enforced	Increased risk of falling objects	Lack of supervision	Enforce strict safety measures and conduct regular safety briefings.

This comprehensive risk assessment report identifies potential hazards associated with the assembly and disassembly of the portable cleanroom, references relevant historical safety events, and provides specific mitigation recommendations to enhance safety and compliance with established safety standards.