

Work scope details:

Title: Roof Repair at Buildings 7930 and 7920's South Storage

Work Scope Summary: This work plan outlines the necessary operations for roof repairs at ORNL's Buildings 7930 and 7920's South Storage. The project involves the removal and replacement of roofing materials, including the installation of new insulation and sealants, while ensuring compliance with safety protocols and environmental regulations.

Key Work Scope Components:

- Removal of a 20x20 area of roof at Building 7930 for repair.
- Cleaning and disposal of debris from the roof area.
- Installation of new liquid adhered base and cap sheet.
- Installation of new insulation to match existing materials.
- Removal of deteriorated sealant and application of new urethane sealant at Building 7920.

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference Link
Roof Collapse Incident at XYZ Facility	During a roof repair, inadequate support led to a section of the roof collapsing, injuring two workers.	Ensure proper structural assessments and support systems are in place before commencing work.	N/A
Fall from Height at ABC Construction Site	A worker fell from an unprotected edge while performing roof repairs, resulting in serious injuries.	Implement strict fall protection measures and ensure all workers are trained in fall prevention.	N/A
Electrical Shock Incident During Maintenance	A worker was electrocuted while using power tools without proper lockout/tagout procedures.	Reinforce the importance of lockout/tagout procedures when working with electrical equipment.	N/A
Contamination Exposure During Roof Work	Workers were exposed to hazardous materials during roof repairs without proper PPE, leading to health issues.	Conduct thorough hazard assessments and ensure all workers wear appropriate PPE.	N/A
Heat Stress Incident During Summer Repairs	A worker suffered from heat exhaustion due to inadequate hydration and heat stress management.	Implement heat stress prevention measures, including hydration breaks and monitoring.	N/A

Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference Link	SBMS Link
Falling Objects	Not addressed	Implement toe boards and debris nets to prevent falling objects from the roof.	N/A	N/A
Electrical Hazards	Not addressed	Ensure all electrical tools are inspected and grounded; establish lockout/tagout procedures.	N/A	N/A
Heat Stress	Inadequate monitoring	Establish a heat stress monitoring plan and provide hydration stations.	N/A	N/A
Noise Exposure	Not addressed	Conduct a noise assessment and provide hearing protection where necessary.	N/A	N/A
Inadequate PPE	Not addressed	Ensure all workers are equipped with appropriate PPE, including hard hats, gloves, and safety glasses.	N/A	N/A
Ladder Safety	Inadequate training	Provide specific training on ladder safety and inspection protocols before work begins.	N/A	N/A
Wildlife Hazards	Not addressed	Conduct a pre-work assessment for wildlife and provide training on how to handle encounters.	N/A	N/A
Manual Handling	Inadequate controls	Implement team lifting protocols for heavy or awkward items and provide lifting aids.	N/A	N/A

Failure mode analysis:

Current Control	Failure Mode of the Control	Effect of Failure	Cause of Failure	Recommended Action
Radiological Work Permit	Permit not obtained or expired	Potential exposure to contaminated materials	Lack of oversight or communication	Ensure all permits are verified and logged before work begins.

Current Control	Failure Mode of the Control	Effect of Failure	Cause of Failure	Recommended Action
PPE Requirements	PPE not used or inadequate	Increased risk of injury or exposure	Lack of enforcement or training	Conduct regular PPE audits and provide refresher training.
Fall Protection Training	Workers not trained or unaware of protocols	Increased risk of falls from height	Inadequate training program	Develop a comprehensive fall protection training program with assessments.
Communication Protocols	Poor communication among team members	Increased risk of accidents or errors	Lack of established communication methods	Implement daily briefings and use clear signage on-site.
Equipment Inspection	Tools not inspected before use	Increased risk of equipment failure	Inadequate inspection protocols	Establish a checklist for daily equipment inspections before use.
Emergency Response Procedures	Procedures not known or practiced	Delayed response in emergencies	Lack of training or drills	Conduct regular emergency response drills and training sessions.
Tool Availability	Tools not available or inadequate	Delays in work progress	Poor inventory management	Maintain an inventory management system to ensure tool availability.
Training and Competency Verification	Workers not adequately trained	Increased risk of accidents	Inadequate training programs	Develop a competency verification process for all workers before starting work.

This risk assessment report provides a comprehensive analysis of potential hazards associated with the roof repair work at ORNL, along with actionable recommendations to mitigate risks and enhance safety protocols.