

Work scope details:

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

Work Scope Summary: - The work plan involves roof repair tasks at Buildings 7930 and 7920's South Storage Room, requiring ORNL craft support for a subcontractor under AHA ORNL. The tasks include debris removal, installation of new roofing materials, and application of sealant.

Key Work Scope Components: - Removal of a 20x20 area of the roof at Building 7930 for repair. - Cleaning and disposal of roof debris. - Installation of new liquid adhered base and cap sheet, integrating with the existing roof at Building 7930. - Installation of new insulation to match existing insulation at Building 7930. - Removal of deteriorated sealant at counterflashing to wall and end termination at Building 7920 South Storage Room. - Application of new urethane sealant at Building 7920 South Storage Room. - Requirement for signed off forms from Systems Engineer/Safety Basis Engineer, including USQD and Equivalency Evaluation Form (NNFD-FRM-005).

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference link
Insulation Fastener Falls to Ground during Roofing Activities	During re-roofing activities, small, lightweight debris from the tear-off process can become airborne and fall to the ground. Installing barriers to limit access around and under the work area and sequencing work so that plant personnel are not onsite can mitigate dangers to pedestrians.	Installation of barriers and sequencing work to ensure safety from fallen debris.	Link
Management Concern: Possible OSHA Violation Associated with Roof Repair	A roofing subcontractor did not follow OSHA regulations, working outside safety barricades and near roof edges without proper fall protection. The crane operator lacked a current license, and asbestos mitigation controls were not performed.	Ensure compliance with OSHA regulations, proper licensing, and asbestos mitigation controls.	Link
Fatal Fall at Macon, Georgia Warehouse	A laborer died after falling 19 feet while removing tar and stone from metal roof panels. The worker stepped on a skylight, resulting in a fatal fall. OSHA cited the contractor for failing to provide fall protection and not installing covers or guardrails on skylights.	Provide fall protection and install covers or guardrails on skylights to prevent falls.	Link
Worker Injuries in Queensland, Australia	A worker suffered serious injuries after falling from a roof when the panel he stood on collapsed. Another worker fell and suffered head injuries while installing roof sarking.	Ensure proper safety measures and training during roofing work to prevent falls.	Link

Severe Injury in Grafton, West Virginia	A roofer suffered severe spinal injuries after a 12.5-foot fall from the roof while repairing hail damage. The accident was caused by losing footing on frozen shingles.	Implement adequate fall protection and training to prevent accidents.	Link
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Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference link	SBMS Link
Wildlife and insect encounters	Inadequate details on specific wildlife hazards	Include specific controls for wildlife encounters, such as training on wildlife behavior and emergency response procedures	N/A	Link
Exposure to hazardous materials (e.g., sealants)	Lack of detailed controls for chemical exposure	Implement comprehensive chemical exposure controls, including ventilation, PPE, and training on handling hazardous materials	OSHA Chemical Hazards	Link
Falling debris during roof repair	No specific mention of debris hazards during roof repair	Implement debris netting and overhead protection measures during roof repair activities	Roofing Hazards	Link
Working near roof edges without fall protection	General fall protection mentioned, but not specific to roof edges	Ensure use of guardrails, safety nets, and personal fall arrest systems near roof edges	Roof Safety	Link
Non-compliance with OSHA regulations	General compliance mentioned, but lacks specifics on OSHA standards	Regular audits and training on OSHA standards to ensure compliance	OSHA Safety Management	Link
Inadequate asbestos mitigation	No specific asbestos controls mentioned	Develop an asbestos management plan including identification, monitoring, and removal procedures	N/A	Link

Slippery surfaces (e.g., frozen shingles)	No specific controls for slippery surfaces	Implement anti-slip measures such as gritting, signage, and footwear with good grip	Winter Storm Safety	Link
Inadequate training and safety measures	General training mentioned, but lacks specifics on safety measures	Develop comprehensive training programs covering all potential hazards and safety protocols	Hazard Identification Training	Link

Failure mode analysis:

Current control	Failure mode of the control	Effect of Failure	Cause of Failure	Recommended action
Written permits for the work activity	Permit not obtained or incomplete	Unauthorized work, potential safety hazards	Miscommunication or oversight in permit process	Implement a checklist to ensure all permits are obtained and reviewed before work begins
Personal Protective Equipment (PPE)	Inadequate or improper use of PPE	Increased risk of injury to workers	Lack of training or awareness	Conduct mandatory PPE training sessions and regular audits to ensure compliance
Work instructions & safety procedures	Instructions not followed or misunderstood	Increased likelihood of accidents or errors	Inadequate training or unclear instructions	Provide clear, detailed instructions and conduct regular training sessions
Regular workplace inspections	Inspections not conducted or findings not addressed	Unidentified hazards leading to accidents	Lack of resources or oversight	Schedule regular inspections and ensure prompt action on findings
Hazard recognition and safety inspection training	Training not provided or ineffective	Workers unaware of potential hazards	Insufficient training programs	Develop comprehensive training programs and conduct regular refresher courses
Administrative controls	Policies not enforced or updated	Non-compliance with safety standards	Lack of enforcement or outdated policies	Regularly review and update policies, and enforce compliance through audits
Activity Hazard Analysis (AHA)	AHA not conducted or incomplete	Unidentified risks leading to unsafe work conditions	Oversight or lack of resources	Ensure AHA is completed for all tasks and reviewed by qualified personnel

Emergency procedures	Procedures not known or followed	Delayed response to emergencies, increased risk of harm	Lack of training or communication	Conduct regular emergency drills and ensure all workers are familiar with procedures
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