

HANFORD MISSION SUPPORT CONTRACT

Demolition

MSC-PRAC-30491

Revision 0

Effective Date: January 15, 2010

Topic: Safety and Health

Demolition

PURPOSE This practice identifies a key aspect of the Safety and Health (S&H) program, and establishes the requirements for demolition work.

SCOPE This practice includes the following major sections:

- General Requirements
- Hazards Check
- Preliminary Surveys
- Fire Protection
- Demolition Balls and Clam Shells
- Stairs, Passageways, and Ladders
- Chutes
- Removal of Floors, Walls, Masonry Sections, and Chimneys
- Excavation

The requirements of this practice are consistent with the requirements published in the Hanford Mission Support Contract (MCS) Safety and Health virtual manual.

APPLICATION This practice applies to Mission Support Alliance (MSA) construction personnel.

GENERAL REQUIREMENTS Records generated during the performance of this activity are to be included in the Construction Work Package and will be managed in accordance with [MSC-PRAC-30374](#), *Construction Work Package* and [MSC-PRAC-30376](#), *Construction Document Control*.

Demolition of buildings and structures is conducted under the supervision of a Competent Person [designated in accordance with practice [MSC-PRAC-30452](#), *Program General Requirements*].

Demolition

Perform demolition and related operations in accordance with the following:

- National Fire Protection Association 241, Safeguarding Construction, Alteration, and Demolition Operations
- [DOE-RL-92-36](#), Hanford Site Hoisting and Rigging Manual (HSHRM)
- Hanford Site Lockout/Tagout Program, DOE-0336
- Benton Clean Air Authority (See [Appendix A](#))

The Notification of Intent to Remove Asbestos Containing Materials ([Appendix A](#)) is generated 10 working days in advance of project start. The notification form is completed by a certified asbestos project designer, or the customer asbestos point-of contact, and submitted to the Benton Clean Air Authority. Notification is documented in the work plan.

When using cranes, derricks, and other hoisting equipment for demolition activities, comply with practices [MSC-PRAC-30476](#), *Motorized Equipment*, [MSC-PRAC-30377](#), *Hoisting and Rigging*, [MSC-PRAC-30478](#), *Elevating Work Platforms and Aerial Lifts*, and other applicable practices.

Take precautions to prevent the emission of air pollutants resulting from *fugitive emissions*.

- Minimize fugitive dust generation during deactivation, decontamination, dismantlement, or closure activities.
- See [WAC 173-400-040\(3\)](#).

HAZARDS CHECK

Perform zero-energy checks on systems, equipment, or components immediately prior to demolition.

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It is acceptable practice to physically disconnect the energy sources of systems, equipment, or components to remove the hazards (such as lifting cables from circuit breakers in an energized panel). However, leave this physical disconnect in a condition that prevents inadvertent reconnection (such as cutting back the cables in the energized panel), or physically identify the disconnection (such as tagging the cables left coiled in the energized panel) and communicate system status to affected workers and the controlling organization.

If there are employees downstream that could be injured by reenergization, lock and tag in accordance with DOE-0336.

Isolate electric, gas, water, steam, sewer, and other service lines outside the building before starting demolition work. If it is necessary to maintain power, water, or other utilities during demolition; relocate and/or protect the lines.

Determine if any additional type of hazard exists in the structure or if there are hazards remaining from previous operations.

Some of the hazards that could be present at demolition sites are “fall through” hazards on roofs, lead-based paint, asbestos, asphyxiating or toxic atmospheres, radiation, and flammable materials. Coordinate demolition with a Competent Person and project safety (and the assigned MSA construction engineer for subcontractors) to ensure all hazard/potential hazards are appropriately identified and controlled.

When a hazard exists from fragmentation of glass, remove the glass.

PRELIMINARY SURVEYS

Prior to starting demolition, a Competent Person [designated in accordance with practice [MSC-PRAC-30452](#), *Program General Requirements* performs an engineering survey of the structure to determine the condition of the framing, floors, walls, and roof and the possibility of unplanned collapse of any portion of the structure. Also survey any adjacent structure to which employees may be exposed.

Document the survey(s) and retain until completion of the demolition activities.

Address fall protection in accordance with practice [MSC-PRAC-30472](#), *Fall Protection*.

Post demolition areas for potential hazards. As a minimum, post signs at each entrance to the project.

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Barricading/Site Control

As a minimum, erect orange “construction fencing” (or equal) to maintain site control.

FIRE PROTECTION

Provide adequate portable fire fighting equipment (fire extinguishers, hoses, etc.) and training for the use of the equipment.

When required, secure sites from unauthorized entry; however, maintain unobstructed access for Site emergency response vehicles to all buildings.

NOTE: *Factors to be considered in determining the need for security should include the hazards at the site, the chance of arson or accidental fires, and the exposure fire risk. Unobstructed access may be impeded by vehicle parking, storage location of construction material, and interference of established access routes due to security.*

Provide the site/project with 2-way radio communications, telephone service, fire alarm box, or other means for the purpose of emergency notification.

Provide the site/project with an adequate water supply for firefighting capability which includes strategically located hydrants at the site. Where a water supply is not available, construction permitting, fire prevention requirements, and fire loss liability will be clearly established.

If floors are soaked with flammable liquids, dust accumulations are present, or combustible insulation is present during hot work activities, charged water hose lines are required.

Maintain operation of sprinklers, hoses, and extinguishers in areas of buildings that are not being demolished.

DEMOLITION BALLS AND CLAMSHELLS

When mechanical demolition is in progress, personnel do not enter any portion of the structure.

Use demolition balls weighing less than, or equal to, the smaller of the following:

- 50 percent of the crane’s rated load, based on the length of the boom and the maximum angle of operation that the demolition ball will be used.
- 25 percent of the nominal breaking strength of the line by which it is suspended.

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Once mechanical demolition is stopped, suspended, interrupted, or terminated, personnel enter that portion of the structure only when authorized to do so by the Competent Person.

STAIRS, PASSAGEWAYS, AND LADDERS

Protect employee entrances to multistory structures being demolished by sidewalk sheds or canopies, or both, by providing protection from the face of the building for a minimum of 2.4 meters (8 feet).

- Make canopies at least 610 millimeters (2 feet) wider than the building entrance, 305 millimeters (1 foot) on each side, and capable of sustaining a load of 7200 Pa (7200 N/m²) (150 lb/ft²).
- Use only those stairways, passageways, and ladders designated as a means of access to the structure. Close other access ways entirely at all times.

Inspect stairs, passageways, ladders, and related incidental equipment and maintain in a clean, safe condition.

In multi-story buildings, the following requirements apply to stairwells in use:

- Illuminate by either natural or artificial means.
- Completely and substantially cover over at a point not less than 2 floors below the floor where work is being performed.

Provide access to the floor where the work is in progress through a separate passageway that is properly lighted and protected.

CHUTES

Do not drop materials outside the exterior walls of the structure unless the drop area is effectively protected.

Install a substantial gate on each material chute at, or near, the discharge end. Assign a Competent Person to coordinate truck movement, control operation of the gate, and ensure that unauthorized people are not allowed in the danger area.

Protect chute openings where employees dump debris by a substantial guardrail approximately 1070 millimeters (42 inches) above the surface where employees stand to dump the material.

Solidly cover over spaces between the chute and the edge of openings in the floors through which the chute passes.

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Provide a securely attached toeboard or bumper, not less than 100 millimeters (4 inches) thick and 150 millimeters (6 inches) high, at each chute opening where materials are dumped from mechanical equipment or wheelbarrows.

Design and construct chutes strong enough to eliminate failure due to the impact of materials or debris.

If chutes are not used when debris is dropped through floor holes, protect landing areas with barricades that are approximately 1070 millimeters high and 1830 millimeters (6 feet) back from the projected edge of the opening above. Provide a standard guarding for the floor opening.

FLOOR OPENINGS

Openings cut in a floor for the disposal of materials are no larger in size than 25 percent of the aggregate of the total floor area, unless the lateral supports of the removed area remain in place.

Floors weakened or otherwise made unsafe by demolition operations are shored to carry safely the intended imposed load from demolition operations.

REMOVAL OF FLOORS, WALLS, MASONRY SECTIONS, AND CHIMNEYS

Do not cut or remove structural or load-bearing members on any floor until all stories above that floor have been demolished and removed.

Do not exceed allowable floor loads by permitting large amounts of masonry walls or other sections of masonry to fall on the floors of the building.

Do not use mechanical equipment on floors or working surfaces unless the floors or surfaces are of sufficient strength to support the imposed load.

Do not store large amounts of waste material and debris on any floor where weight exceeds allowable floor load.

Identify and deenergize electrical lines. In all cases, guard against possible inaccuracies of drawings by wearing appropriate personal protective equipment and following safe practices for electrical work. Examples of additional precautions are voltage-rated gloves and double-insulated power tools.

Whenever possible, remove drywall first in order to visually inspect lines and conduit for unidentified hazards.

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EXCAVATION For excavation during demolition, comply with practice [MSC-PRO-090](#), *Excavation, Trenching and Shoring*.

FORMS None

RECORDS IDENTIFICATION

Records Capture Table

Name of Document	Submittal Responsibility	Retention Responsibility
All records produced by the use of this practice (including but not limited to, engineering surveys, evaluations, assessments, corrective actions, etc.) go into the Construction Work Package	Construction Supervisor/Superintendent	Project Document Control
Notification of Intent to Remove Asbestos Containing Materials, or to Demolish	Construction Supervisor/Superintendent	Project Document Control

REFERENCES [DOE-RL-92-36](#), *Hanford Site Hoisting and Rigging Manual*

- [MSC-PRAC-30374](#), *Construction Work Package*
- [MSC-PRAC-30376](#), *Construction Document Control*
- [MSC-PRAC-30452](#), *Program General Requirements*
- [MSC-PRAC-30472](#), *Fall Protection*
- [MSC-PRAC-30476](#), *Motorized Equipment*
- [MSC-PRAC-30377](#), *Hoisting and Rigging*
- [MSC-PRAC-30478](#), *Elevating Work Platforms and Aerial Lifts*
- [MSC-PRO-081](#) *Lockout/Tagout*
- [MSC-PRO-090](#), *Excavation, Trenching and Shoring*

National Fire Protection Association (NFPA)
 NFPA 241: *Safeguarding Construction, Alteration, and Demolition Operations*

[WAC 173-400-040\(3\)](#), *General regulations for air pollution sources*

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APPENDIX A, SAMPLE FORM



NOTIFICATION OF INTENT TO REMOVE ASBESTOS CONTAINING MATERIALS, OR TO DEMOLISH

This form will be considered incomplete until all information is supplied below. If any changes are made after the notification is logged with the Authority, an amendment must be filed before work begins. See other side for assistance in completing this form.

OFFICE USE: PROJECT # _____ Fee Rec'd \$ _____ Date Rec'd _____

I. OPERATION CATEGORY	ADVANCED NOTIFICATION PERIOD REQUIRED	FEE
<input type="checkbox"/> All Demolition Projects	10 working days	\$10.75
<input type="checkbox"/> Residential Asbestos Project	10 working days	\$10.75
<input type="checkbox"/> Asbestos Project: 10 to 259 lf or 48 to 159 sf	10 working days	\$137
<input type="checkbox"/> Asbestos Project: 260 to 999 lf or 160 to 4,999 sf	10 working days	\$274
<input type="checkbox"/> Asbestos Project: 1,000 to 9,999 lf or 5,000 to 49,999 sf	10 working days	\$548
<input type="checkbox"/> Asbestos Project: more than 10,000 lf or more than 50000 sf	10 working days	\$1643
<input type="checkbox"/> Amendment # _____	Prior Notification	Res. \$26.50 / Others \$55
<input type="checkbox"/> Annual Notification	10 working days	\$1643
<input type="checkbox"/> All Emergencies	Prior Notification	Res. \$55 / Others 2x Fee
<input type="checkbox"/> All Alternate Methods	10 working days	2x Fee

II. CONTRACTOR
Contractor's Name: _____ Certification # _____

Address: _____
Street City State Zip

Contact: _____ Title: _____ Phone: _____

III. JOB SITE
Property Owner: _____ Phone: _____

Address: _____
Street City State Zip

Name of Job Site: _____

Address: _____
Street City State Zip

Building/Room Where

Job Will Occur: _____

Site Contact: _____ Title: _____ Phone: _____

IV. Asbestos "good faith survey" has been conducted? YES NO. By whom? _____
Type(s) of asbestos present, if any (Friable, Category I, Category II): _____

V. Start Date of Removal: _____ Date of Completion: _____

Approximate Amount of Asbestos to be Removed: _____ Linear Feet _____ Square Feet

Method of Removal and Work Plan Specifications: (Attach description if more room is needed)

VI. Name of Disposal Site: _____ Phone: _____

Your Signature Date

Further Notification to Dept. of Labor & Industries? YES NO. Inspection Date: _____

Approval: BCAA _____ Date: _____

REMIT FEE AND FORM TO: BCAA, 114 COLUMBIA POINT DRIVE SUITE C, RICHLAND, WA 99352-4387

NOTE: Before each use, check MSC Docs Online to ensure this copy is current.