DEMOLITION

J.A. Rosa Construction, LLC

Contents

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11.A HAZARDOUS MATERIALS SURVEY

(1) Prior to initiating demolition activities, a Registered Professional Engineer (PE) shall complete an engineering survey and demolition plan. The survey will show the structure layout, the condition of the framing, floors, walls, the possibility of unplanned collapse of any portion of the structure and the existence of other potential or real demolition hazards.

(2) In addition to the structural survey, a Lead Paint, Asbestos and Hazardous Materials (Mercury switches, PCBs) survey must be conducted to identify the potential hazards and their locations.

(3) Finaly, a demolition plan - by a PE and based on engineering, lead, and asbestos surveys - for the safe dismantling and removal of all building components and debris should be written.

The Owner or Host Employer shall provide written evidence that the required surveys have been performed and shall forward them to the contractor.

11.B SAFETY CONCERNS

All electricity, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled outside the building at the property line before demolition is started.

In each case, the utility company shall be notified.

a. The Host Employer shall provide J.A Rosa with an engineering drawing (e.g., site plans, utility plans) that indicates the location of all service lines entering the property and buildings, and the means for their control.

b. If it is necessary to maintain any power, water, or other utilities during demolition, such lines shall be temporarily relocated and protected.

c. If the project includes the abandonment or demolition of existing gas lines, ensure that the existing lines are accurately located and that termination procedures are accomplished in accordance with the ANSI/American Gas Association's Gas Piping Technology Committee (GPTC) guidelines ANSI/AGA GPTC Z380.1.

Determined if any hazardous building materials, hazardous chemicals, gases, explosives, flammable materials, or dangerous substances have been used historically in any portion of the building. Identify pipes, tanks, or other equipment on the property. Listed below are some of the common products, along with the related hazardous material found in these products, which should be removed from the C&D waste stream through diversion to appropriate recycling programs or properly disposed of in a hazardous waste site:

- Fluorescent Light Bulbs – Mercury
- High Intensity Discharge Lamps – Mercury
- Thermostats - Mercury
- Silent Switches – Mercury
- Lighting Ballasts – PCBs, DHP, & DEHP
- Batteries – Lead, Mercury, & Cadmium
- Flashing & Pipes – Lead
- Treated Wood – Arsenic
- Refrigerants – CFCs
- Smoke Detectors – Radioactive Materials

d. When hazards are identified, the owner shall conduct testing to determine the type and concentration of the hazardous substance and test results shall be provided to the J.A Rosa Project Manager or Safety Manager.

Hazards should be controlled or eliminated before demolition is started.

Numerous hazards exist with the possible deteriorating condition of the subject building. These hazards include damaged electrical sources and components, falling hazards due to openings in the floors, or the possibility of materials falling from overhead.

The primary physical hazards that may be encountered during demolition activities include excessive noise; excessive heat; inclement weather; manual lifting/handling of heavy objects; poor housekeeping; compromised structural integrity; traffic; hazardous materials handling; electrical equipment exposure hazards; use of hand and power tools; slips and falls; etc. In addition, biological hazards including rodents, insect bites, and air-borne bacterial infection might present a risk to the employee.

11.C HAZARDS

When employees work within a structure to be demolished that has been damaged by fire, flood, explosion, or other cause, the walls or floor shall be shored or braced. There are risks associated with dust, soil, and stormwater pooling inside the building.

1.Chemical Hazards

Chemical hazards are anticipated to be common to manufacturing facilities and are categorized in the table below:

Table 1
Potential Chemical Hazards on Site

Pollutant Class	Compound	OSHA PEL	NIOSH/TLV-TWA	IDLH	Symptoms of Exposure
Polycyclic Aromatic Hydrocarbons (PAHs)	Naphthalene	10 ppm STEL 15 ppm	10 ppm STEL 15 ppm	250 ppm	Eye irritation; headaches
Petroleum Hydrocarbons	No. 2 Fuel	--	1-500 ppm	10,000 ppm	Skin irritation; dizziness; nausea
Metals	Arsenic	0.010 mg/m^3	0.002 mg/m^3	5 mg/m^3	Nasal, respiratory, and skin irritation
	Lead	0.05 mg/m^3	0.01 mg/m^3	700 mg/m^3	Weakness; pallor
	PCBs	1 mg/kg air			Chronic - Cancer

2. Physical Hazards

Kinetic/Mechanical (Slip-Trip-Fall) Hazards

Kinetic/Mechanical hazards are referred to as "slip-trip-fall" type injuries; the kinetic/mechanical category includes "struck by" injuries along with the "striking" injuries.

Striking injuries

Workers must be aware of their surroundings and walk cautiously to avoid tripping. Areas around excavations can be littered with stones or other excavation spoils, shovels, concrete blocks, equipment, and other debris that can increase the possibility of tripping. Hazards can be compounded by uneven terrain or mud. In addition, protective gear can limit vision or mobility and increase the occurrence of slips, trips, or falls.

Struck-by Injuries

Along with the "slip-trip-fall" dangers, there is the possibility of being struck by equipment or materials. Field personnel should be aware of the turning radius of excavators, direction of travel of bulldozers and other heavy equipment as well as truck movements. When backing up, operators and drivers have limited field of vision and may not be aware of personnel in their immediate vicinity.

Material Handling

Accidents in manual handling of materials are primarily the result of unsafe work habits such as improper lifting, carrying too heavy a load, incorrect gripping, or failing to wear personal protective equipment. ROSA employees should evaluate an object‘s weight before attempting to lift and carry it. If it is too heavy, call on assistance or use mechanical lifting aides.

3. Electrical Hazards

It is recommended that any electrical components with exposed wiring be treated as if they were live unless proven otherwise.

When working in overhead power lines, equipment such as excavators or backhoes should have a minimum 10-foot clearance, or the lines should be de-energized.

Before any excavation work begins, supervisors should complete the Excavation Checklist and verify the Call-Before-You-Dig (800-922-4455).

Electrical Safety Rules

Rosa personnel are advised to read and adhere to the following basic electrical safety rules:

1. Do not use power equipment or tools on which you have not been trained.
2. Keep power cords away from path of drills or saws.
3. Do not use cords that have splices, exposed wires or cracked or frayed ends.
4. Do not carry plugged in equipment or tools with your finger on the switch.
5. Do not carry equipment or tools by the cord.
6. Disconnect the tool from the outlet by pulling on the plug, not the cord.
7. Turn the power switch of the tool to "off" before plugging or unplugging it.
8. Do not leave tools that are "on" unattended.
9. Do not handle or operate electrical tools when your hands are wet or when you are standing on wet floors.
10. Do not operate spark inducing tools such as drills or saws near containers labeled

"Flammable".

11. Turn the power switch to the electrical tool to "off" and unplug it before attempting repairs or service work. Tag the tool "Out of Service".
12. Do not use extension cords or other grounded three-pronged power cords that have the ground prong removed or broken off.
13. Do not remove the ground prong from electrical cords.
14. Do not use an adapter such as a cheater plug that eliminates the ground.
15. Do not connect multiple electrical tools into a single outlet.
16. Do not run extension cords through doorways, through holes in ceilings, walls, or floors.
17. Do not drive over, drag, step on or place objects on a cord.
18. Do not use portable power tools unless they have a color-coded green band taped to the handle. These green labeled tools have ground Fault Circuit Interrupters incorporated into the plug end of the power cord. The use of these power tools is required when working in older buildings or temporary work locations where the work environment is often damp, and the available electrical outlets may not meet our wiring standards.
19. Do not stand in water or on wet surfaces when operating power hand tools or portable electrical appliances.
20. Do not use a power hand tool to cut wet or water-soaked building materials.
21. Do not use a power hand tool while wearing wet cotton gloves or wet leather gloves.
22. Wear rubber-soled or insulated work boots.
23. Do not operate power hand tools that have a frayed, worn, cut, improperly spliced or damaged power cord.
24. Do not operate power hand tools or portable appliances if the ground pin from the three-pronged power plug is missing or has been removed.

4. Biological Hazards

Stinging Insects

Stinging insects are part of a social network that will defend their nest at the risk of certain death. These insects include wasps, bees, yellow jackets, honeybees, and ants. The greatest hazard to field personnel is an allergic reaction to bees or wasps’ stings.

Toxic Plants

The threat to site personnel from toxic plants is through dermal contact. Toxic plants likely to be encountered by field personnel are poison varieties of ivy, oak, and sumac. All the components of this plant; leaves, stems, and roots can cause contact dermatitis. Symptoms include redness at the point of exposure, coupled with a burning and itching sensation.

These plants contain an oily resin that dries quickly on clothing, shoes, and tools. Therefore, it is important to wash surfaces of tools and clothing after exposure. Alcohol or cold water should be used when washing skin surfaces. Do not use hot water, which opens skin pores and results in greater exposure.

Drug Paraphernalia

Although it is not common, there is a potential for finding drug paraphernalia in abandoned buildings in an urban setting. If discarded hypodermic needles are discovered on the job site, employees should notify the Site Safety Officer immediately. Any blood or body fluids encountered because of injury should only be addressed by trained personnel.

Histoplasmosis

Histoplasmosis is a respiratory disease caused by inhalation of spores from the *Histoplasma capsulatum,* a fungus commonly found in pigeon, sea gull, or bat feces. In an abandoned industrial building, employees are likely to encounter enormous quantities of bird feces and should be warned of the hazards associated with this biological waste stream.

Dust is a perfect medium for the H. capsulatum spores. Demotion activities and subsequent clean-up of construction debris can generate copious quantities of dust, dust potentially laden with bird droppings.

Inadvertent exposures to environmental pathogens such as aspergillus and legionella or airborne pathogens including mycobacterium tuberculosis can result from dust transfer during demolition and reconstruction activities. Environmental infection-control strategies and airflow controls can effectively prevent these infections.

Vector Pathogens

Other contaminants of concern are vector pathogens, biological hazards carried by mice and rats. It can be anticipated that in an urban area, employees will encounter rodents or evidence of their presence. Mice and rats are vectors for diseases such as salmonella, streptobacillus, and hantavirus pulmonary syndrome (HPS)[1].

HPS can result from close, prolonged contact with infected feces and urine sometimes found in rodents. HPS typically begins with headache, fever, and muscle pain soon followed by an accumulation of fluid in the lungs, which often leads to severe respiratory compromise. The mortality rate is 38%. PPE must include a face mask or respirator.

[1] Hantavirus Pulmonary Syndrome (HPS) was first recognized in 1993 during an outbreak among the Navajo Nation. Transmission occurs from inhaling aerosolized virus particles from rodent excreta and saliva, with deer mice as a common host.

11.D SITE CONTROL MEASURES

Access Control

No unauthorized personnel will be allowed to enter the site unless they have reviewed and acknowledged conformance with this safety plan.

Employees shall implement the following general site control measures:

- Before beginning work, the area shall be carefully assessed for safety hazards.
- Visibly contaminated areas should be avoided when possible.
- NO EATING, DRINKING, OR SMOKING IS ALLOWED IN THE BUILDING.
- Follow guidance and direction provided by the owner's engineer.

Employee entrances to multistory structures being demolished shall be protected by sidewalk sheds, canopies, or both.

The access points shall be indicated on the demolition plan. Other egress points shall be marked as not safe and closed.

Only those stairways, passageways, and ladders designated as means of access to the structure shall be used.

Mechanical equipment shall not be used on floors on working surfaces unless such floors or surfaces are of sufficient strength to support the imposed load.

The stairwell shall be covered at a point no less than two floors below the floor on which work is being performed.

The site supervisor shall conduct a site safety briefing before starting field activities or as tasks and site conditions change. Attendance at safety briefings as well as topics discussed shall be documented.

11.E WORK SITE SET UP

Prior to starting demolition operations, all structural or other hazardous deficiencies noted during the survey should be shored, braced, or otherwise corrected as recommended in the survey.

PRE-PLANNING ACTIVITIES

The Project Manager, Site Supervisor, or his/her alternate shall perform the following pre-planning activities prior to the initiation of field activities:

• Confirm emergency telephone numbers and route(s) to hospital.

• Locate on-site emergency eyewash and/or supply of clean water.

• Review project plan for anticipated site conditions, any alterations in on-site operations, and personnel availability.

• Ensure that project team has a first aid kit and where it is.

• Check site emergency equipment operational status and supply inventory.

• Locate emergency information (e.g., evacuation routes) and designated assembly point on site map, if provided or designate a safe location and communicate this location to all personnel.

When setting up the work site, employees shall follow these procedures:

- Secure area from unauthorized entry by temporary fencing, caution tape, or other barricades around the work zone.
- Establish on-site communications, as appropriate. These consist of line-of-sight signals, hand signals, cell phones, and verbal communication.
- Establish a “buddy system, employees will strive to maintain line-of-sight contact with site workers during all site activities.”
- Remove any unnecessary encumbrances from the work area.
- Establish procedures for disposal of waste materials generated on site
- Do not place material such as boxes or trash in walkways.
- Do not block or obstruct exits or accesses to safety and emergency equipment such as fire extinguishers or fire alarms.
- Keep walking surfaces of elevated working platforms, such as scaffolds, clear of tools and materials that are not being used.
- Remove protruding nails or bend them down.
- Mark any holes, depressions, or other trip hazards with pink spray paint.
- Return tools to their storage places after using them.
- Do not use gasoline for cleaning purposes.

During demolition, continuing inspections by a competent person shall detect hazards resulting from weakened or deteriorated floors, walls, or loosened material. No employee shall be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other means.

The Project Manager and/or Site Safety Officer (SSO) will conduct periodic assessments of work practices to evaluate the effectiveness of this plan. Deficiencies in personnel adherence to work practices outlined in the plan will immediately be corrected. Deficiencies in the Plan itself will be corrected by the Project Manager and reviewed by the SSO.

11. F DEBRIS REMOVAL

1. Any chute opening into which debris is dumped shall be protected by a guardrail 42 in (106.6 cm) above the floor or other surface on which personnel stand to dump the material. Any space between the chute and the edge of openings on the floors through which it passes shall be covered.

2. When debris is dropped through openings in the floors without chutes, the openings and the area onto which the material is dropped shall be enclosed with barricades not less than 42 in (106.6 cm) high and not less than 6 ft (1.8 m) back from the projected edge of the opening above.

a. Signs warning of the hazard of falling materials shall be posted at each side of the debris opening at each floor.

b. Debris removal shall not be permitted in lower areas until debris handling ceases on the floors above.

3. All material chutes, or sections thereof, at an angle of more than 45□□from the horizontal shall be enclosed, except for openings equipped with closures at or about floor level for the insertion of materials.

c. The openings shall not exceed 48 in (121.9 cm) in height measured along the wall of the chute.

4. Where material is dumped from mechanical equipment or wheelbarrows, a toe board or bumper, not less than 4 in (10.1cm) thick and 6 in (15.2cm) high, shall be attached at each chute opening.

5. Storage space into which material is dumped shall be blocked off, except for openings for the removal of materials. Such openings should be kept closed when material is not being removed.

6. Floor openings should have curbs or stop logs to prevent equipment from running over the edge.

7. Any opening cut in the floor for the disposal of materials shall be no longer in size than 25% of the aggregate of the total floor area unless the lateral support of the removed flooring remains in place. Floors weakened or otherwise made unsafe by demolition shall be shored to carry safely the intended imposed load for demolition.

8. Except for the cutting of holes in floors for chutes, holes through which to drop materials, preparation of storage space, and similar necessary preparatory work, the demolition of exterior walls and floor construction shall begin at the top of the structure and proceed downward and each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing the removal of exterior walls and floors in the story next below.

9. Any openings cut in a floor for the disposal of materials shall be no

larger in size than 25 percent of the aggregate of the total floor area, unless the lateral supports of the removed flooring remain in place. Floors weakened or otherwise made unsafe by demolition operations shall be shored to safely support the intended imposed load from demolition operations.

10. Flooring boards may be removed from not more than one floor above grade to provide storage space for debris, provided falling material is not permitted to endanger structural stability.

11. When wood floor beams serve to brace interior walls or free-standing exterior walls, such beams shall be left in place until other equivalent support can be installed to replace them.

12. During demolition, continuing inspections shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors or walls, or loosened material. Employees shall not be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.

13. In demolishing any building, structure, or alteration involving partial demolition thereof, all material displaced, unless required for reconstruction, shall be transported immediately to the ground. The amount of material stored upon any structure or any portion of such structure shall not exceed its safe carrying capacity.

14. Sections of walls shall not be allowed to fall upon floors supported by wood joists or other floors unable to withstand such impact.

15. Walkways that meet the requirements of the sections outlined in this manual should be provided where necessary for access. Walking across exposed floor joists, steel beams, or girders is prohibited

16. All people on demolition projects shall be protected from falling material at employee entrances to multi-story structures being demolished by sidewalk sheds, canopies, or both, providing protection extending from the face of the building for a minimum of 8 feet. All such canopies shall be at least two feet wider than the building entrances or openings (one foot wider on each side thereof) and shall be capable of sustaining a load of 150 pounds per square foot.

17. Exterior wall openings on all floors shall be protected to a height of not less than 42 inches, except on the ground floor and the floor being demolished.

18. No wall section, which is more than one story or 12 feet in height, shall be permitted to stand alone without lateral bracing. Unless a civil engineer, currently registered in “state,” has submitted engineering data to substantiating the capability of the wall to stand without lateral support.

19. All walls shall be left in stable condition at the end of each workday.

20. Where a hazard exists from fragmentation of glass, all glazed openings shall be removed at least one floor below the working level.

11.G MECHANICAL DEMOLITION

1. No person shall be permitted in any area that can be affected by demolition when balling or clamming is being performed. Only those people necessary for the operations shall be permitted in this area at any other time.

2.The weight of the demolition ball shall not exceed 50% of the crane's rated load, based on the length of the boom and the maximum angle of operation at which the demolition ball will be used, or it shall not exceed 25% of the nominal breaking strength of the line by which it is suspended, whichever is less.

3. The ball shall be attached to the load line with a swivel connection to prevent twisting of the load line and shall be attached by positive means so that the weight cannot accidentally disconnect. The crane boom and load line shall be as short as possible

4. When pulling over walls or portions of walls, all steel members affected shall have been cut free.

5. All roof cornices or other ornamental stonework shall be removed prior to pulling walls over

11.H DECONTAMINATION PROCEDURES

It is not anticipated, based on the scope of work, that decontamination procedures will be necessary. Site condition may change however, and if decontamination becomes a requirement, Rosa personnel should follow these procedures outlined below.

Personnel

Site personnel shall follow these decontamination procedures in the order listed:

All contaminated equipment and tools shall be washed using a biodegradable cleaner called Z-Green or similar cleaner and power washed using 2800psi power washers. All personnel will be in the appropriate PPE with Face shields. Decontamination of all contaminated equipment will be performed on 6mil poly[i], and all contaminated liquid will be collected and pumped into a drum for treatment.

Step 1: Decontaminate equipment, as needed (triple rinsed).
Step 2: Remove Tyvek® (if applicable).
Step 3: Remove outer gloves (if applicable).
Step 4: Remove latex gloves.
Step 5: Wash hands thoroughly with soap and water.

Personnel shall wash hands and other affected body parts with soap and water or by other means prior to breaks, when leaving the site, and when potentially contaminated equipment/material comes in direct contact with the skin.

Eyewash is available for rinsing the eyes if potentially contaminated material encounters the eyes.

Wastes (e.g., PPE – gloves, safety glasses, etc.) generated from decontamination activities shall be bagged and properly disposed.

[i] Plastic sheeting is extremely slippery, especially when wet. Be continuously careful of your footing.