

Manual Section 7	Issue Date 06/14/10	Revision Date 01/01/24	Policy Number LLCP-063
Demolition Work			

Purpose

To provide for measures to protect the health and safety of, and minimize risk to, any employee working at a workplace or facility involved with or around demolition work activities. Strict adherence to this policy will help to meet health and safety requirements and demonstrate due diligence in situations where employees are involved in or around demolition work.

Scope

All LLC Companies including, Blanchard Industrial, LLC, GIS Engineering, LLC, Grand Isle Shipyard, Inc., and GWIS, Mack Steel, NuWave, Sun Industries, Valvemax, Discovery Industries, Inc.; hereafter identified as “Company”.

Policy

Before the start of every demolition job, the Company will take a number of steps to safeguard the health and safety of workers at the job site. These preparatory operations involve being involved in the planning of the demolition job, including the methods to be used to bring the structure down, the equipment necessary to do the job, and the measures to be taken to perform the work safely. Planning for a demolition job is as important as actually doing the work. Therefore all planning work should be performed by a competent person or company experienced in all phases of the demolition work to be performed.

No employee shall be permitted in any area that can be adversely affected when demolition operations are being performed. Only those employees necessary for the performance of the operations shall be permitted in these areas.

Engineering Survey

Prior to starting all demolition operations, OSHA Standard 1926.850(a) requires that an engineering survey of the structure must be conducted by a competent person. The purpose of this survey is to determine the condition of the framing, floors, and walls so that measures can be taken, if necessary, to prevent the premature collapse of any portion of the structure. When indicated as advisable, any adjacent structure(s) or improvements should also be similarly checked. The demolition contractor must maintain a written copy of this survey. Photographing existing damage in neighboring structures is also advisable.

The engineering survey provides the demolition contractor with the opportunity to evaluate the job in its entirety. The Company will plan for the wrecking of the structure, the equipment to do the work, manpower requirements, and the protection of the public. The safety of all workers on the job site should be a prime consideration. During the preparation of the engineering survey, the Company will plan for potential hazards such as fires, cave-ins, and injuries.

If the structure to be demolished has been damaged by fire, flood, explosion, or some other cause, appropriate measures, including bracing and shoring of walls and floors, shall be taken to protect workers and any adjacent structures. It shall also be determined if any type of hazardous chemicals, gases, explosives, flammable material, or similar dangerous substances have been used or stored on the site. If the nature of a substance cannot be easily determined, samples should be taken and analyzed by a qualified person prior to demolition.

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During the planning stage of the job, all safety equipment needs should be determined. The required number and type of respirators, lifelines, warning signs, safety nets, special face and eye protection, hearing protection, and other worker protection devices should be determined during the preparation of the engineering survey. A comprehensive plan is necessary for any confined space entry.

Utility Location

One of the most important elements of the pre-job planning is the location of all utility services. All electric, gas, water, steam, sewer, and other services lines should be shut off, capped, or otherwise controlled, at or outside the building before demolition work is started. In each case, any utility company which is involved should be notified in advance, and its approval or services, if necessary, shall be obtained.

If it is necessary to maintain any power, water, or other utilities during demolition, such lines shall be temporarily relocated as necessary and/or protected. The location of all overhead power sources should also be determined, as they can prove especially hazardous during any machine demolition. All workers should be informed of the location of any existing or relocated utility service.

Medical Services and First Aid

Prior to starting work, provisions should be made for prompt medical attention in case of serious injury. The nearest hospital, infirmary, clinic, or physician shall be located as part of the engineering survey. The job supervisor should be provided with instructions for the most direct route to these facilities. Proper equipment for prompt transportation of an injured worker, as well as a communication system to contact any necessary ambulance service, must be available at the job site. The telephone numbers of the hospitals, physicians, or ambulances shall be conspicuously posted. This information will be used in addition to notifying Corporate HSE via the Hotline as stated in our Corporate Incident Management Policy.

In the absence of an infirmary, clinic, hospital, or physician that is reasonably accessible in terms of time and distance to the worksite, a person who has a valid certificate in first aid training from the American Heart Association, the American Red Cross, or equivalent training should be available at the worksite to render first aid.

A properly stocked first aid kit as determined by an occupational physician, must be available at the job site. The first aid kit should contain approved supplies in a weatherproof container with individual sealed packages for each type of item. It should also include rubber gloves to prevent the transfer of infectious diseases. Provisions should also be made to provide for quick drenching or flushing of the eyes should any person be working around corrosive materials. Eye flushing must be done with water containing no additives. The contents of the kit shall be checked before being sent out on each job and at least weekly to ensure the expended items are replaced.

Police and Fire Contact

The telephone numbers of the local police, ambulance, and fire departments should be available at each job site. This information can prove useful to the job supervisor in the event of any traffic problems, such as the movement of equipment to the job, uncontrolled fires, or other police/fire matters. The police number may also be used to report any vandalism, unlawful entry to the job site, or accidents requiring police assistance.

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Fire Prevention and Protection

A "**fire plan**" should be set up prior to beginning a demolition job. This plan should outline the assignments of key personnel in the event of a fire and provide an evacuation plan for workers on the site.

Common sense should be the general rule in all fire prevention planning:

- All potential sources of ignition should be evaluated and the necessary corrective measures taken.
- Electrical wiring and equipment for providing light, heat, or power should be installed by a competent person and inspected regularly.
- Equipment powered by an internal combustion engine should be located so that the exhausts discharge well away from combustible materials and away from workers.
- When the exhausts are piped outside the building, a clearance of at least six inches should be maintained between such piping and combustible material.
- All internal combustion equipment should be shut down prior to refueling. Fuel for this equipment should be stored in a safe location.
- Sufficient firefighting equipment should be located near any flammable or combustible liquid storage area.
- Only approved containers and portable tanks should be used for the storage and handling of flammable and combustible liquids.

Heating devices should be situated so they are not likely to overturn and shall be installed in accordance with their listing, including clearance to combustible material or equipment. Temporary heating equipment, when utilized, should be maintained by competent personnel.

Smoking should be prohibited at or in the vicinity of hazardous operations or materials. Where smoking is permitted, safe receptacles shall be provided for smoking materials.

Roadways between and around combustible storage piles should be at least 15 feet wide and maintained free from accumulation of trash, equipment, or other materials.

When storing debris or combustible material inside a structure, such storage shall not obstruct or adversely affect the means of exit. A suitable location at the job site should be designated and provided with plans, emergency information, and equipment, as needed. Access for heavy firefighting equipment should be provided on the immediate job site at the start of the job and maintained until the job is completed.

Free access from the street to fire hydrants and to outside connections for standpipes, sprinklers, or other fire extinguishing equipment, whether permanent or temporary, should be provided and maintained at all times.

- Pedestrian walkways should not be so constructed as to impede access to hydrants.
- No material or construction should interfere with access to hydrants, Siamese connections, or fire extinguishing equipment.

A temporary or permanent water supply of sufficient volume, duration, and pressure, required to properly operate the firefighting equipment, should be made available.

Standpipes with outlets should be provided on large multistory buildings to provide for fire protection on upper levels. If the water pressure is insufficient, a pump should also be provided.

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An ample number of fully charged portable fire extinguishers should be provided throughout the operation. All motor driven mobile equipment should be equipped with an approved fire extinguisher.

An alarm system, e.g., telephone system, siren, two-radio, etc., shall be established in such a way that employees on the site and the local fire department can be alerted in case of an emergency. The alarm code and reporting instructions shall be conspicuously posted and the alarm system should be serviceable at the job-site during the demolition. Fire cut offs shall be retained in the buildings undergoing alterations or demolition until operations necessitate their removal.

Safe Work Practices when Working in Confined Spaces

Demolition contractors often come in contact with confined spaces when demolishing structure at industrial sites. These confined spaces can be generally categorized in two major groups: those with open tops and a depth that restricts the natural movement of air, and enclosed spaces with very limited openings for entry. Examples of these spaces include storage tanks, vessels, degreasers, pits vaults, casing, and silos.

The hazards encountered when entering and working in confined spaces are capable of causing bodily injury, illness, and death. Accidents occur among workers because of failure to recognize that a confined space is a potential hazard. It should therefore be considered that the most unfavorable situation exists in every case and that the danger of explosion, poisoning, and asphyxiation will be present at the onset of entry. Employees shall follow the Corporate Confined Space policy when required to enter a confined space.

Blasting Survey and Site Prep

Prior to the blasting of any structure or portion thereof, a complete written survey must be made by a qualified person of all adjacent improvements and underground utilities. When there is a possibility of excessive vibration due to blasting operations, seismic or vibration tests should be taken to determine proper safety limits to prevent damage to adjacent or nearby buildings, utilities, or other property.

The preparation of a structure for demolition by explosives may require the removal of structural columns, beams or other building components. This work should be directed by a structural engineer or a competent person qualified to direct the removal of these structural elements. Extreme caution must be taken during this preparatory work to prevent the weakening and premature collapse of the structure.

Personnel Selection

A blaster is a competent person who uses explosives. A blaster must be qualified by reason of training, knowledge, and experience in the field of transporting, storing, handling, and using explosives. In addition, the blaster should have a working knowledge of state and local regulations which pertain to explosives. Training courses are often available from manufacturers of explosives and blasting safety manuals are offered by the Institute of Makers of Explosives (IME) as well as other organizations.

Blasters shall be required to furnish satisfactory evidence of competency in handling explosives and in safely performing the type of blasting required. A competent person should always be in charge of explosives and should be held responsible for enforcing all recommended safety precautions in connection with them.

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Transportation of Explosives

Vehicles used for transporting explosives shall be strong enough to carry the load without difficulty, and shall be in good mechanical condition. All vehicles used for the transportation of explosives shall have tight floors, and any exposed spark-producing metal on the inside of the body shall be covered with wood or some other non-sparking material. Vehicles or conveyances transporting explosives shall only be driven by, and shall be under the supervision of, a licensed driver familiar with the local, state, and Federal regulations governing the transportation of explosives. No passengers should be allowed in any vehicle transporting explosives.

Manufacturers' instructions for the safe handling and storage of explosives are ordinarily enclosed in each case of explosives. The specifics of storage and handling are best referred to these instructions and the aforementioned IME manuals. They should be carefully followed. Packages of explosives should not be handled roughly. Sparking metal tools should not be used to open wooden cases. Metallic slitters may be used for opening fiberboard cases, provided the metallic slitter does not come in contact with the metallic fasteners of the case.

Storage Conditions

Providing a dry, well-ventilated place for the storage of explosives is one of the most important and effective safety measures. Exposure to weather damages most kinds of explosives, especially dynamite and caps. Every precaution should be taken to keep them dry and relatively cool. Dampness or excess humidity may be the cause of misfires resulting in injury or loss of life. Explosives should be stored in properly constructed fire and bullet-resistant structures, located according to the IME American Table of Distances and kept locked at all times except when opened for use by an authorized person. Explosives should not be left, kept, or stored where children, unauthorized persons, or animals have access to them, nor should they be stored in or near a residence.

DETONATORS SHOULD NEVER BE STORED IN THE SAME MAGAZINE WITH ANY OTHER KIND OF EXPLOSIVES

Proper Use of Explosives

Blasting operations shall be conducted between sunup and sundown, whenever possible. Adequate signs should be sounded to alert to the hazard presented by blasting. Blasting mats or other containment should be used where there is danger of rocks or other debris being thrown into the air or where there are buildings or transportation systems nearby. Care should be taken to make sure mats and other protection does not disturb the connections to electrical blasting caps.

Radio, television, and radar transmitters create fields of electrical energy that can, under exceptional circumstances, detonate electric blasting caps. Certain precautions must be taken to prevent accidental discharge of electric blasting caps from current induced by radar, radio transmitters, lightning, adjacent power lines, dust storms, or other sources of extraneous or static electricity. These precautions shall include:

- Ensuring that mobile radio transmitters on the job site which are less than 100 feet away from electric blasting caps, in other than original containers, shall be de-energized and effectively locked;
- The prominent display of adequate signs, warning against the use of mobile radio transmitters, on all roads within 1,000 feet of the blasting operations;
- Maintaining the minimum distances recommended by the IMES between the nearest transmitter and electric blasting caps;

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- The suspension of all blasting operations and removal of persons from the blasting area during the approach and progress of an electric storm.
- After loading is completed, there should be as little delay as possible before firing. Each blast should be fired under the direct supervision of the blaster, who should inspect all connections before firing and who should personally see that all persons are in the clear before giving the order to fire. Standard signals, which indicate that a blast is about to be fired and a later all clear signal have been adopted. It is important that everyone working in the area be familiar with these signals and that they be strictly obeyed.

Procedures after Blasting

Immediately after the blast has been fired, the firing line shall be disconnected from the blasting machine and short-circuited. Where power switches are used, they shall be locked open or in the off position. Sufficient time shall be allowed for dust, smoke and fumes to leave the blasted area before returning the spot. An inspection of the area and the surrounding rubble shall be made by the blaster to determine if all charges have been exploded before employees are allowed to return to the operation. All wires should be traced and the search for unexploded cartridges made by the blaster.

Disposal of Explosives

Explosives, blasting agents, and blasting supplies that are obviously deteriorated or damaged should not be used; they should be properly disposed of. Explosives distributors will usually take back old stock. Local fire marshals or representatives of the United States Bureau of Mines may also arrange for its disposal. Under no circumstances should any explosives be abandoned.

Wood, paper, fiber, or other materials which have previously contained high explosives, should not be used again for any purpose, but should be destroyed by burning. These materials should not be burned in a stove, fireplace or other confined space. Rather, they should be burned at an isolated outdoor location, at a safe distance from thoroughfares, magazines, and other structures.

It is important to check that the containers are entirely empty before burning. During burning, the area should be adequately protected from intruders and all persons kept at least 100 feet from the fire.