

## Tailgate Topic Review

[PP 09/29/2019 - 10/12/2019]  
Demolition - Lead – Silica Safety

### Hazards are more than 5 tons of concrete falling on your head

## Falling concrete slab kills worker at building site

Los Angeles Times – June 11, 2017



A 68-year-old construction worker was killed by a large slab of concrete that fell from a building under demolition in Chinatown.

The concrete slab – approximately 5 tons - dropped from the fifth-floor outer wall of the car park of DT-CT Commercial Centre at about 10.30am.

It landed on the head of Tom Donghui, who was working on the ground floor. He was bleeding and lost consciousness before being taken to a nearby emergency hospital, where he was declared dead.

The worker's crushed helmet and a safety belt were among pieces found near a pool of blood.

Cal-OSHA investigators on site stated; "A piece of concrete as big as this one will kill anyone even if the worker is wearing a helmet made of steel".

Donghui, a worker with over 36 years of experience, was working with three others when the accident happened, with his colleagues saying it was his first day working at that site.

## HEALTH & SAFETY HAZARDS – BODY BLOWS

When demolition begins often the contractors fail to properly prepare for jobsite safety. When rushed and frustrated workers have to perform a demolition, which often means dismantling, razing or wrecking an installation, unexpected dangers can be disguised as irritating obstructions.

In fact, demolition work is so hazardous that Cal-OSHA has developed several sections of regulations in its Construction Standards. Cal-OSHA's has documented many tragic deaths:

*"Demolition worker impaled on rebar."*

*"Two demolition workers die of burns after flash fire at warehouse."*

*"Worker electrocuted during demolition work."*

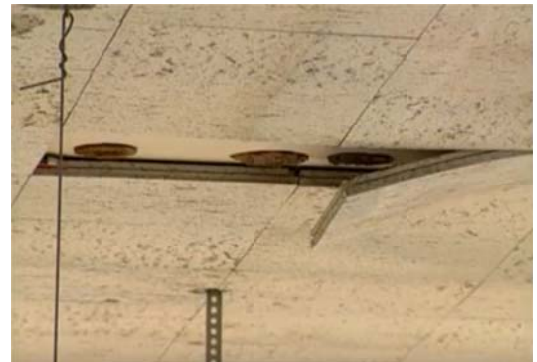
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Not surprisingly, demolition work involves most, and in some cases, all of OSHA’s “Fatal Four,” which includes falls, struck by object, electrocutions and caught-in/between accidents. The Fatal Four accounted for more than 60 percent of construction worker deaths in 2015.

## HEALTH & SAFETY HAZARDS – LUNGS



Silica dust is everywhere on demo sites where concrete structures are being removed. Look out for large clouds of dust and make sure the contractor is following regulations by flooding these areas with water.



Asbestos is an invisible killer where prolonged exposure will severely damage your lungs and may lead to cancer and death. Asbestos is typically found in old floor or ceiling tiles and pipe wrappings. The contractor needs to fully assess the site for any materials where asbestos may be found and then properly remove it.

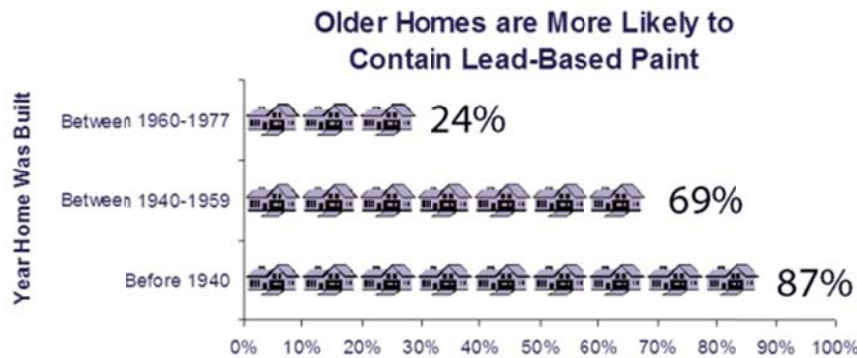


*If asbestos is in the area*

1. Leave the area
2. Everyone involved in successful abatement must have certified training on;
  - a. Health effects of asbestos exposure
  - b. Necessary PPE and how to use it
  - c. Proper asbestos removal and engineering controls
  - d. Proper disposal and personal hygiene

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## HEALTH & SAFETY HAZARDS – BLOOD - BRAIN



Exposure to high levels of **lead** may cause anemia, weakness, and kidney and brain **damage**. Very high **lead** exposure can cause death. ... **Lead** can **damage** a developing baby's nervous system. Even low-level **lead** exposures in developing babies have been found to **affect** behavior and intelligence.

Dangerous chemicals are very common at demolition sites; especially old warehouses and commercial/industrial buildings. **PCB** is extremely dangerous and is found in transformers. If the transformer is leaking it is important to contact the site safety team to evaluate.

Other chemicals may be either spilled or in abandoned containers.





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## HEALTH & SAFETY HAZARDS – BURNS



A routine demolition of a shed at DeButts Yard quickly turned into a fiery situation. (Photo by Bruce Garner/Chattanooga Fire Dept.)

All construction sites where cutting or welding is done are required to have fire extinguishers close by.

Wool or cotton clothing with leather gloves;  
**NO SYNTHETICS.**

Many workers are severely injured every year due to electrocution or flash fires.

All sites need a Fire prevention and evacuation plan.

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### STARTS AT THE TOP

The more direct participation from the people at the top, the higher the chances of reducing accidents. The idea behind this approach is that when senior leadership directly communicates safety expectations to all employees, it establishes personal accountability throughout the company. Workers are also empowered to be a part of the safety process and look out for each other.

### IDENTIFYING HAZARDS

The first step is to identify the hazards associated with demolition work.

Walk around the work area and look for any hazards that are associated with the demolition work, consult with your workers on any potential hazards of which they are aware, and check records of previous demolition injuries, including 'near miss' incidents.



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You should also consult, co-ordinate and co-operate with any other experts involved that will participate in the demolition activities e.g. mobile plant operators, structural engineers or asbestos removal.

Common demolition hazards include:

- unplanned structure collapse
- falls from one level to another or falling objects
- the location of above and underground essential services
- exposure to hazardous chemicals including silica dust, asbestos, lead and others
- hazardous noise from plant and explosives used in demolition work
- proximity of the building or structure being demolished to other buildings or structures

### **SITE SAFETY COMMITTEE**

Field staff is the company's eyes and ears. They most often are the people who have intimate knowledge of current and future conditions around the jobsite. That valuable insight can help superintendents, foremen or safety manager head off potential safety risks.

Demolition work should be carefully planned before work starts so that it can be carried out safely. The best way to manage risks associated with demolition work is to carry out a risk assessment.

The risk assessment process involves four steps:

- Identify the problem - this is known as hazard identification
- Determine how serious the problem is - this is known as risk assessment
- Decide what needs to be done about the problem - this is known as risk control
- Review the risk controls to make sure they are working as planned.

### **NEW HIRE SAFETY ORIENTATION**

The type of safety education and length of time provided for new-hire orientation can have a dramatic effect on the number of safety incidents. According to an [ABC 2017 Safety Performance Report](#), companies that incorporated an in-depth indoctrination of new hires into the safety culture and processes had a 50 percent lower incident rate than businesses that provided only basic safety and health compliance topics.

Time spent on the training also made a huge impact. Companies that held new-hire orientation safety sessions of more than three hours compared to those who spent 30 minutes on safety issues, found their Total Recordable Incident Rate (TRIR) improved by more than 90 percent.

The new-hire orientation is where companies can begin to establish a safety culture. More importantly, safety becomes a fundamental part of a project's overall planning and execution process.



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### **CAL-OSHA REGULATIONS**

Demolition safety requirements are governed by Cal-OSHA per Subchapter 4. Construction Safety Orders Article 31. Demolition (Three Sections – Abridged)

#### **§1734. Supervision;**

(a) Demolition work shall at all times be under the immediate supervision of a **qualified person** with the authority to secure maximum safety for employees engaged in demolition work.

(b)(1) Prior to permitting employees to start demolition operations, a **qualified person shall make a survey of the structure** to determine the condition of the framing, floors, and walls, and the possibility of an unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be similarly checked.

(2) The **survey shall be in written form, kept on the job-site** and made available to the Division upon request. The written survey shall be maintained for the duration of the demolition project.

#### **§1735. Demolishing Buildings**

(a) Utility companies shall be notified and all utility service shut off, capped, or otherwise controlled, at the building or curb line before starting demolition, unless it is necessary to use electricity or water lines during demolition.

(b) It shall also be determined if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. **When the presence of any such substances is apparent** or suspected, testing and purging shall be performed and **the hazard eliminated before demolition** is started.

(c) Pipe-covering insulation, steel beam and column fire protection, and heating, ventilating and air-conditioning duct work shall be surveyed for asbestos. **If asbestos is present**, the employer shall comply with Section 1529.

(d)(1) Prior to starting demolition operations, all structural or other hazardous deficiencies noted during the survey required by Section 1734(b)(1) shall be shored, braced or otherwise corrected as recommended in the survey

(e) In demolishing any building or 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.

(j) All persons on demolition projects shall be protected from falling material at employee entrances to multi-story structures being demolished, by sidewalk sheds or canopies or both,



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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.

(q) In a multi-story building, when a stairwell is being used for access or egress, it shall be properly illuminated by either natural or artificial means, and completely and substantially covered over at a point not less than two floors below the floor on which work is being performed, and access to the floor where the work is in progress shall be through a properly lighted, protected, and separate passageway.

### **§341. Permit Requirements.**

(d) Work Activities Subject to Permit Requirements and the Types of Permits Required to Conduct the Activities.

(3) To conduct the demolition or dismantling of any building or structure more than 36 feet in height, the Project Administrator shall hold a Project Permit and all other employers directly engaging in demolition or dismantling activity shall hold an Annual Permit.

### **§1736. Disposal of Waste Material.**

(a) Whenever waste material is dropped to any point lying outside the exterior walls of the building, enclosed chutes shall be used unless the area is effectively protected by barricades, fences or equivalent means. **Signs shall be posted to warn employees** of the hazards of falling debris.

(b) When chutes are used to load trucks, they shall be fully enclosed. Gates shall be installed in each chute at or near the discharge end. A **qualified person shall be assigned** to control the operation of the gate, and the backing and loading of trucks.

(c) Enclosed chutes should be designed for free flow of material, but if clogging or stoppages occur, employees shall not remove material from the chutes with their hands. Picks or other suitable implements shall be used for this purpose.

(d) Any chute opening, into which employees dump debris by hand, shall be protected by a guardrail. Any open spaces between the chute and the edge of floor openings through which the chute passes shall be covered over.

(e) When operations are not in progress, the discharge end of the chute shall be securely closed off, or the area barricaded or fenced as provided in Section 1736(a).



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### **§ 1532.3. Occupational Exposures to Respirable Crystalline Silica**

1. Scope and application. This section applies to all occupational exposures to respirable crystalline silica in construction work, except where employee exposure will remain below 25 micrograms per cubic meter of air (25 µg/m<sup>3</sup>) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

This regulation identifies three primary methods of reducing risks associated with respirable crystalline silica

- 1) Use equipment with integrated water delivery system that continuously feeds water to the cutting surface
- 2) PPE - Respiratory protection.  
Where respiratory protection is required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this subsection and Section 5144.
- 3) Housekeeping  
The employer shall not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure are not feasible.