

# Construction News Sense



## Lead Hazards in Construction

Lead is a very toxic element, causing a variety of health effects, even at low doses. Brain damage, kidney damage, and gastrointestinal distress are seen from acute (short-term) exposure to high levels of lead in humans. Chronic (long-term) exposure in humans results in effects on the blood, central nervous system, male and female reproductive systems, blood pressure, and kidneys. Children are particularly sensitive to the chronic effects of lead, with slowed cognitive development, reduced growth, and other effects. Some of the symptoms of chronic overexposure to lead include the following:

- Loss of appetite
- Nausea
- Excessive tiredness
- Headache
- Tremors
- Hyperactivity
- Muscle and joint pain
- Anxiety
- Insomnia

Lead is most commonly absorbed into the body by inhalation. When workers breathe in lead as a dust or fume, the lungs and upper-respiratory tract absorb the lead into the body. Lead can also be absorbed through the digestive system, if it enters the mouth and is ingested.

### Construction Workers and Lead Exposure

Construction workers potentially at risk for lead exposure include those involved in iron work, painting, demolition, heating and air conditioning, plumbing, and carpentry. Workers with the highest risk of lead exposure are those involved in abrasive blasting and welding, cutting, and burning on structural steel. Other high-risk operations include power-tool cleaning, rivet busting, manual dry scraping and sanding, manual demolition of structures, and heat-gun applications.

### OSHA's Lead Standard for the Construction Industry

OSHA's Lead in Construction Standard, 29 CFR 1926.62, applies to all construction work in which an employee might be exposed to lead. All work related to construction, alteration, or repair, including painting and decorating, is included. The standard establishes a maximum Permissible Exposure Limit (PEL) to lead at 50 micrograms of lead

per cubic meter of air ( $50 \mu\text{g}/\text{m}^3$ ) averaged over an eight-hour period. The standard also establishes an Action Level (AL) at  $30 \mu\text{g}/\text{m}^3$ , averaged over an eight-hour period. The AL is the level at which the employer must begin the specific compliance activities listed in the standard.

Employers are responsible for developing and implementing a worker protection program. Elements of this program include the following:

- Hazard evaluation and exposure assessment
- Medical surveillance and provisions for medical removal
- Respiratory protection
- Protective clothing and equipment
- Hygiene facilities and practices
- Employee information and training
- Recordkeeping

### How Lead Hazards are Managed at Sandia National Laboratories

Sandia Facilities has adopted a management-in-place strategy for addressing lead hazards found in the work environment. The principle objective of this strategy is to minimize the risk of exposure of employees, contractors, and visitors to lead in a safe and cost-effective manner. To accomplish this objective, the Facilities Asbestos Implementation Team (FAIT) was tasked with developing and implementing a lead-management program. The lead-management program models that of commercial property owners and managers, and provides a safe, less-costly alternative to wholesale removal operations. Services include the assessment of lead hazards, lead removal, and lead waste disposal. The FAIT's services can be requested through the Jobsite Hazard Evaluation process, MAXIMO, Facilities Express, or directly by calling 845-9430 and asking for lead support.

### Prohibited and Allowable Construction Tasks

The OSHA standard lists several tasks that are prone to produce high exposures to lead. Sandia National Laboratories prohibits its contractors from performing these tasks until the lead hazards are removed. These tasks include the following:

- Manual demolition (that is, using sledge hammers to demolish lead-painted gypsum or plaster)
- Manual (or power tool) dry sanding, scraping, or grinding

- Heat-gun use
- Spray painting with lead paint
- Welding, torch cutting, and burning
- Abrasive blasting
- Any activity where a contractor suspects lead airborne exposures might exceed the PEL

The above construction operations are presumed to create exposures above the PEL. Until personnel exposure air monitoring indicates otherwise, an employer is required to provide respiratory protection appropriate to the task's presumed exposure level, protective clothing and equipment, change areas, hand-washing facilities, training, and initial medical surveillance.

Some construction operations involving lead are not prohibited at Sandia. These operations include the following:

- Drilling or cutting into lead painted surfaces
- Wet sanding or scraping lead painted surfaces
- Removing lead-based paint with a SNL-approved stripper

- Removing intact building components coated with lead-based paint (such as wall systems, windows, doors and door frames)
- Installing fasteners and brackets to surfaces coated with lead-based paint

Contractors performing the above tasks are responsible for assessing the hazards of those tasks to ensure that their employees are not exposed to lead above the PEL.

It is Sandia's intent to identify all lead hazards for a project prior to the start of construction; however, the possibility exists that not all lead hazards will be identified and removed. Anytime a question arises about whether a painted surface contains lead, the contractor's competent person or workers are empowered to stop work and contact the project's SNL construction inspector or the FAIT for a determination.

*Brian Britain, Facilities Asbestos Implementation Team (FAIT, 4844)*



Halloween is a cherished tradition but the excitement of the night can cause children to forget to be careful. There is no real "trick" to making Halloween a real treat for the entire family.

The major dangers are not from witches or spirits but rather from falls and pedestrian/car crashes. Many communities

officially designate a "Beggars' Night" and assign specific hours for trick-or-treat activities. Both children and adults need to think about safety on this annual day of make-believe.

**Motorists:** The National Safety Council urges motorists to be especially alert on Halloween.

- Watch for children darting out from between parked cars.
- Watch for children walking on roadways, medians and curbs.
- Enter and exit driveways and alleys carefully.
- At twilight and later in the evening, watch for children in dark clothing.

**Parents:** Before children start out on their "trick or treat" rounds, parents should:

- Make sure that an adult or an older responsible youth will be supervising the outing for children under age 12.
- Plan and discuss the route trick-or-treaters intend to follow. Know the names of older children's companions.
- Instruct your children to travel only in familiar areas and along an established route.
- Teach your children to stop only at houses or apartment buildings that are well lit and never to enter a stranger's home.
- Establish a return time.
- Tell your youngsters not to eat any treat until they return home.

- Review all appropriate trick-or-treat safety precautions, including pedestrian/traffic safety rules.
- Pin a slip of paper with the child's name; address and phone number inside a pocket in case the youngster gets separated from the group.

**Costume Design:** Only fire-retardant materials should be used for costumes.

- Costumes should be loose so warm clothes can be worn underneath.
- Costumes should not be so long that they are a tripping hazard. (Falls are the leading cause of unintentional injuries on Halloween.)
- If children are allowed out after dark, outfits should be made with light colored materials. Strips of retro reflective tape should be used to make children visible.

**Face Design:** Masks can obstruct a child's vision. Use facial make-up instead.

- When buying special Halloween makeup, check for packages containing ingredients that are labeled "Made with U.S. Approved Color Additives," "Laboratory Tested," "Meets Federal Standards for Cosmetics," or "Non-Toxic." Follow manufacturer's instruction for application.
- If masks are worn, they should have nose and mouth openings and large eyeholes.

**Accessories:** Knives, swords and other accessories should be made from cardboard or flexible materials. Do not allow children to carry sharp objects.

- Bags or sacks carried by youngsters should be light-colored or trimmed with retro-reflective tape if children are allowed out after dark.
- Carrying flashlights will help children see better and be seen more clearly.

**On the way:** Children should understand and follow these rules.

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