

Lead in Construction

Information for Employers

Title 8 California Code of Regulations (T8 CCR) **section 1532.1** establishes required safety measures for construction employers with employees who may be exposed to lead. Implementing these measures and following industry best practices will reduce the risk of employee lead poisoning.

This fact sheet provides an overview—not all the requirements—of section 1532.1. The information provided is not meant to be a substitute for, nor a legal interpretation of, the regulation. Employers are cautioned to refer directly to section 1532.1 for detailed information regarding the regulation's scope, specifications, exceptions, and other requirements that may be applicable to their operations.

Why should employers be concerned?

- Lead is highly toxic. It can cause damage to the brain, nervous system, kidneys, reproductive system, and other health problems.
- Lead poisoning occurs through ingestion and inhalation, even at a very low level of exposure.
- There is a high risk of construction workers carrying lead home on their bodies, clothing, and shoes. This can poison family members, particularly children.

Failing to protect employees from lead exposure can have serious consequences, such as:

- Employee health problems.
- Medical and wage costs when a lead-poisoned employee must be removed from work.
- Costly job shutdowns.
- Reputation costs as clients value contractors who protect their employees and the job site environment.
- Substantial Cal/OSHA fines.



What do employers need to do?

Identify the presence of lead

Lead can be present in a wide range of materials, including paints and other coatings, lead mortars, and base metals. Certain tasks, such as grinding, sanding, welding, and torch cutting, can produce high airborne exposure levels.

- Consider the age of the building or structure and the materials and coatings that may contain lead.
- Ask the property owner for relevant information.
- Check the safety data sheets (SDSs) of the materials in use.
- If in doubt, take samples and have them tested for lead content.

Send samples of materials to a laboratory for lead analysis. Only use laboratories accredited by the **U.S. EPA National Lead Laboratory Accreditation Program**.

- **Action Level (AL):** 2 micrograms per cubic meter of air ($2 \mu\text{g}/\text{m}^3$) calculated as an 8-hour time-weighted average (TWA).
- **Permissible Exposure Level (PEL):** $10 \mu\text{g}/\text{m}^3$ calculated as an 8-hour TWA.
- The 8-hour TWA is the employee's full-shift exposure to airborne lead expressed as an 8-hour average exposure.

Regularly assess employee exposure levels

Section 1532.1(d) requires employers to determine if any employee may be exposed to lead at or above the AL. This typically involves personal full-shift air sampling of employees whose lead exposures represent each job classification, in each work area, for each shift. This information determines the protective measures needed, including the type of respirator that must be worn.

Employee exposure assessments may need to be repeated periodically, depending on the results. Affected employees or their representatives must be allowed to observe any exposure monitoring conducted.

Reduce employee lead exposure levels

The employer must implement engineering and work practice controls, including administrative controls, to reduce airborne lead exposure to below the PEL. If that is not feasible, exposures must be reduced as low as possible and respiratory protection must be used. Some key exposure control measures include, but are not limited to:

- **Engineering controls** [1532.1(e)(3)]. Choose tools, materials, and ventilation to reduce airborne lead exposures.
- **Work practice controls** [1532.1(e)(4)]. Control how work is conducted (work, scheduling, etc.) to further reduce airborne exposures.
- **Respiratory protection** [1532.1(f)(1)(B)]. Implement a respiratory protection program when engineering, work practice, and administrative controls are insufficient or not feasible.
 - HEPA (High-Efficiency Particulate Air), N100, R100, or P100 filters are required when air-purifying respirators are used.
- Employer must provide a powered air-purifying respirator (PAPR) when an employee chooses to use this type of respirator and the respirator will provide adequate protection.
- **Protective work clothing and equipment** [1532.1(g)]. Provide, maintain, and ensure use as required.
- **Housekeeping** [1532.1(h)]. Regardless of employee airborne exposure levels, all surfaces must be maintained as free as possible of lead accumulations, especially in eating areas.
 - Clean surfaces, including floors, by using vacuums equipped with HEPA filters where possible. Shoveling, dry or wet sweeping, and brushing are only allowed when vacuuming or other equally effective methods are ineffective.
 - Prohibit the use of compressed air unless in conjunction with an adequate ventilation system.
- **Hygiene facilities, practices, and regulated areas** [1532.1(i)].
 - All lead exposures:
 - No consumption of food, beverages, tobacco products, or application of cosmetics in areas where employees are exposed to lead.
 - Hand washing facilities with special cleansing compounds.
 - Above the PEL:
 - Change areas.
 - Showers.
 - Eating facilities.
 - Posted regulated areas.
- **Hazard Communication, training, signs** [1532.1(l) and (m)].
 - Post warning signs in regulated areas and where lead exposures are at or above the AL.
 - Ensure all workers exposed to lead are informed of the health hazards of lead through effective implementation of **section 5194 Hazard Communication requirements**.

(continued on next page)

- Ensure the following employees are trained according to section 1532.1(l)(2) requirements, which includes the information in **Appendix B**:
 - All employees exposed to lead at or above the AL on any day.
 - All employees exposed to lead compounds that may cause skin or eye irritation.
 - As interim protection for employees who perform trigger tasks.
- Employees and supervisors engaged in lead-related construction work as defined in **Title 17, CCR, section 35040**, and who have been shown to be exposed to lead at or above 50 µg/m³ as an 8-hour TWA must be trained by an accredited training provider and certified by the California Department of Health Services (section 1532.1(l)(3)).
- Respiratory protection appropriate for the trigger task level [1532.1(f)].
- Protective equipment and clothing [1532.1(g)].
- Areas for clothes changing [1532.1(i)(2)]; and hand washing [1532.1(i)(5)].
- Blood test for lead [1532.1(j)(1)(A)].
- Basic lead hazard, respirator, and safety training [1532.1(l)(1)(A); (l)(2)(C) regarding use of respirators; and **1510 Safety Instruction for Employees**].
- Posted regulated areas [1532.1(i)(6)].
- Showers for Level 3 trigger tasks.
- Time limits for dry abrasive blasting until the employer has done the required exposure assessment and can ensure employee exposures are below the PEL with the appropriate respiratory protection.
- Monthly blood lead testing for Level 3 trigger tasks.

Information on lead worker certification
(800-597-LEAD).

- **Medical surveillance** [1532.1(j) & (k)]. The employer must implement medical surveillance for employees exposed to lead at or above the AL, depending on the number of days in any 12-month period exposed at this level. This includes:
 - Blood lead testing and employee notification.
 - Medical examination and consultations.
 - Temporary medical removal protection, where necessary.
- **Interim protection measures for employees doing high-exposure trigger tasks.** [1532.1(d)(2)]. Until employee exposures to airborne lead have been adequately determined, employers must ensure interim employee protection measures are implemented. (See below for more on trigger tasks.) Employers must also use these protections for any other tasks the employer expects will result in employee exposures over the PEL:

Trigger Tasks

There are three levels of trigger tasks, based on their assumed level of employee exposure. The assumed exposure level determines the type of required respiratory protection as outlined in Table 1 of section 5144(d)(3).

Level 1 Trigger Tasks: [1532.1(d)(2)(A)]

Assume employee exposure is above the PEL (10 µg/m³) but not more than 10 times the PEL (100 µg/m³).

- Where lead-containing coatings or paint are present:
 - Manual demolition of structures.
 - Manual scraping.
 - Heat gun applications.

Trigger Tasks Not Listed: [1532.1(d)(2)(B)]

This includes any tasks not listed above where the employer may expect employee exposures to be more than the PEL.

Level 2 Trigger Tasks: [1532.1(d)(2)(C)]

Assume employee exposure is more than 10 times the PEL (100 µg/m³) but not more than 50 times the PEL (500 µg/m³).

- Where lead-containing coatings or paint are present:
 - Manual sanding.
 - Power tool cleaning, grinding, or sanding with dust collection systems.
- Spray painting with lead paint.

Level 3 Trigger Tasks: [1532.1(d)(2)(D)]

Assume employee exposure is more than 50 times the PEL (500 µg/m³).

- Using lead-containing mortar or lead burning.
- Where lead-containing coatings or paint are present:
 - Rivet busting.
 - Power tool cleaning, grinding, or sanding without dust collection systems.
- Cleanup activities where dry expendable abrasives are used.
- Abrasive blasting enclosure movement and removal.
- Abrasive blasting.
- Welding.
- Torch cutting.
- Torch burning.

Written, up-to-date compliance program and pre-job notifications

Before the job begins, employers must establish and implement a written compliance program that meets section 1532.1(e)(2) requirements, including a description of arrangements made among contractors on multi-contractor sites to inform affected employees of potential exposure to lead and regulated areas. In addition, a written **Pre-Job Notification** must be provided to the nearest **Cal/OSHA office** within 24 hours of the start of the work, as required by section 1532.1(p).

Resources

Cal/OSHA

- [Lead in Construction webpage](#)
- [Title 8 Section 1532.1](#)
- [Publications](#)

OSHA

- [Lead in Construction Guide](#)
- [Lead in Construction Quick Card](#)
- [Protecting Workers from Lead Hazards Fact Sheet](#)

California Department of Public Health, Occupational Lead Poisoning Prevention Program (866- 627-1587)

Painting and Decorating Contractors of America (703-383-0800)

Society for Protective Coatings (412-281-2331)

US EPA: Lead in Paint, Dust, and Soil (800-424-LEAD)

May 2025



This document is available with active links at www.dir.ca.gov/dosh/dosh_publications

For assistance regarding this subject matter, employers may contact

Cal/OSHA Consultation Services at 1-800-963-9424 or InfoCons@dir.ca.gov

www.dir.ca.gov/dosh/consultation.html

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