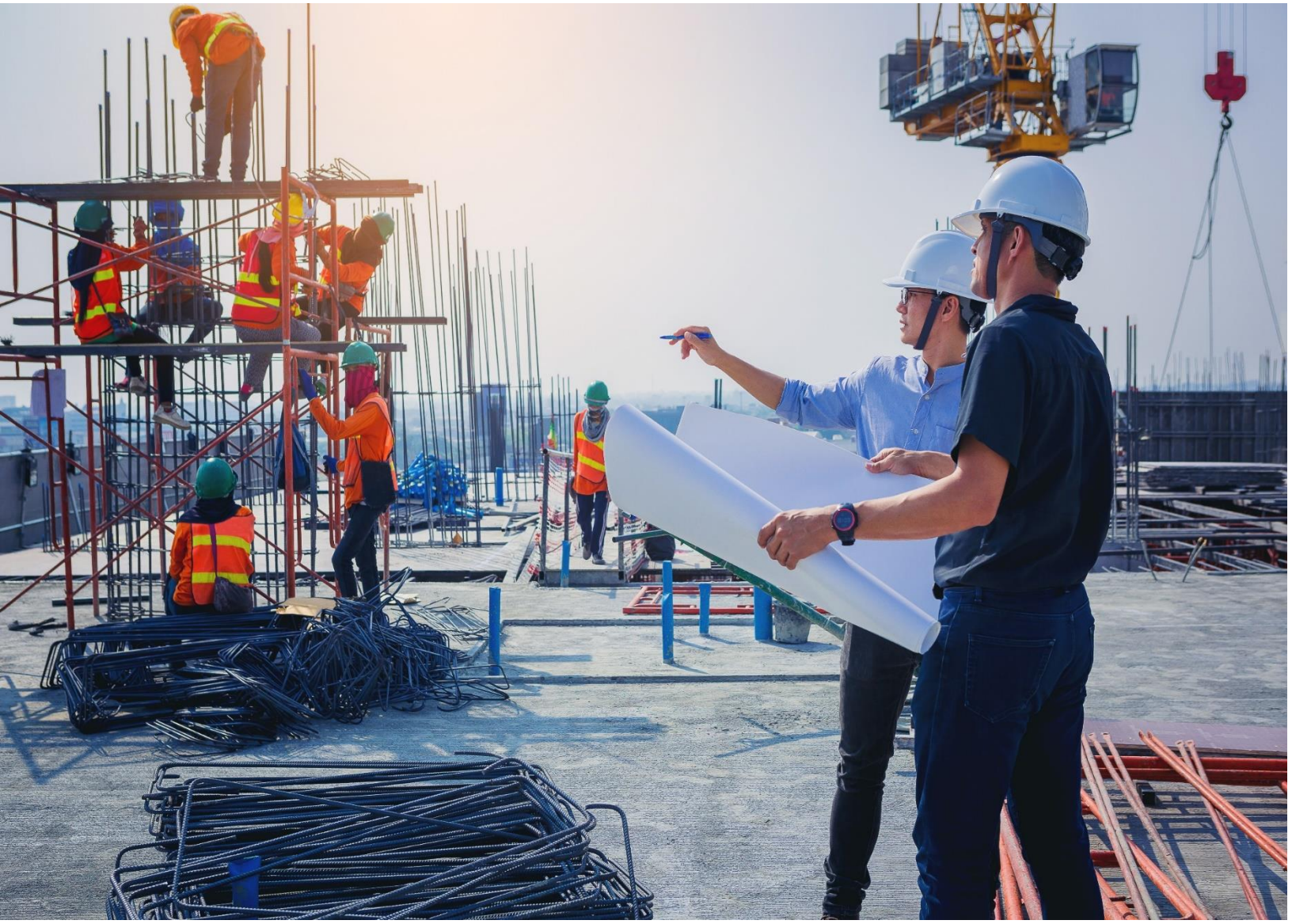
March 2025

Lead Exposure among Construction Workers



GEORGIA DEPARTMENT OF PUBLIC HEALTH

CONSTRUCTION AND LEAD

You can be exposed to lead for an extended period and not have any immediate symptoms, but the longer you are exposed, the greater the risk. Even though this is well known, lead is still heavily used in various occupations within the construction industry and can create long-term health problems if not carefully monitored.

LEAD IS HAZARDOUS

The only way to become exposed to lead is if you disturb it. Construction tasks that "trigger" lead exposure include:

- Spray painting
- Using a heat gun on paint
- Torch burning
- Remodeling (replacing dry wall, windows, siding)
- Manual sanding/scraping

If you participate in these tasks, or other tasks that disturb lead, it is assumed that your exposure is above the occupational exposure limits set by the Occupational Safety and Health Administration (OSHA).

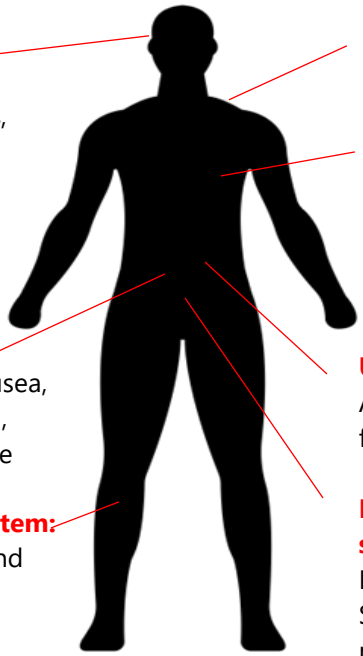
According to OSHA, the permissible blood lead level (BLL) for construction workers is below 50 µg/dl. However, the Centers for Disease Control and Prevention (CDC) states that a BLL as low as 3.5 µg/dl can result in lead poisoning. Overall, even the smallest traces of lead can be harmful to your health.

HEALTH DANGERS OF LEAD EXPOSURE

Lead can damage your nerves, stomach, intestines, kidneys, reproductive function, and red blood cells. When it is absorbed into the body in high enough doses, lead can be toxic.

Exposure to lead can affect everyone differently. Lead enters the body in two primary ways: breathing in from fumes or dust particles, or ingesting lead if it gets on your skin, food, drinks, etc.

HEALTH PROBLEMS THAT CAN RESULT FROM LEAD POISONING IN ADULTS



BLL (µg/dl)	Health Effects of Elevated Blood Lead Levels in Adults
<5	Reduced fetal growth
10	Hypertension
20	Increased red blood cell protoporphyrin (contributes to iron deficiency anemia)
30	Reduced fertility; Spontaneous abortion; Decreased hearing acuity
40	Peripheral neuropathy; Headache; Fatigue; Anorexia
50	Decreased neuromotor and neurosensory function
80	Frank anemia; Brain disfunction (encephalopathy)

WORKERS AT HIGHEST RISK

In 1978, the U.S. banned the use of lead-based paint in residential construction. However, lead is still used in some commercial and industrial structures. Operations with the potential to expose workers to lead include:

- Iron work
- Demolition
- Painting/removal
- Renovation/remodeling
- HVAC work
- Plumbing
- Electrical work

Workers at the highest risk of lead exposure are those involved in:

- Welding, cutting, and burning on steel structures
- Abrasive blasting and cleanup activities where dry expendable abrasives are used
- Spray painting with lead-based paint
- Manual dry scraping and sanding of paint
- Power tool cleaning with dust collection systems

EMPLOYER RESPONSIBILITIES

Employers of construction workers are responsible for developing and implementing a worker protection program. The employer's worker protection program for employees exposed to lead should include:

- Hazard determination, including exposure assessment
- Respiratory protection
- Protective clothing and equipment
- Employee information and training

The employer should consult a qualified safety and health professional to develop and implement an effective, site-specific worker protection program.

OSHA'S LEAD STANDARD

The standard establishes the maximum limits of exposure to lead for all workers covered. It includes a permissible exposure limit (PEL) and action level (AL). The PEL sets the maximum worker exposure to lead: 50 micrograms of lead per cubic meter of air (50 µg/m^3) averaged over an eight-hour period. The AL, regardless of respirator use, is an airborne concentration of 30 µg/m^3), averaged over an eight-hour period.

CONSTRUCTION WORKER RIGHTS

Your employer must assess exposure (by conducting air sampling and monitoring your work) whenever you perform "trigger" tasks and provide proper hand and face washing facilities, protective equipment, areas to change/store clothes, testing of your blood to ensure low blood lead levels, and training.

OSHA states that the employer must provide up to 18 months of medical removal protection benefits each time an employee is removed from lead exposure or is medically limited. If the position/job exists, the employer must maintain the earnings, seniority, and other employment rights and benefits as though the employee had not been removed from the job.

The employer must also maintain any employee exposure and medical records to document ongoing employee exposure, medical monitoring, and medical removal of workers. This documentation provides a baseline to assess the employee's health.

References:

National Institute for Occupational Safety and Health (NIOSH). (2024, April 11). Blood lead level guidance. https://www.cdc.gov/niosh/lead/bll-reference/index.html

Occupational Safety and Health Administration (OSHA). (n.d). Lead. https://www.osha.gov/lead

Staudinger, K.C. and Roth, V.S. (1998). Occupational lead poisoning. American Family Physician Journal, 58(4): 719-726. https://www.aafp.org/pubs/afp/issues/1998/0215/p719.html

World Health Organization (WHO) (2021). Guideline for clinical management of exposure to lead. https://www.ncbi.nlm.nih.gov/books/NBK575285/figure/ch4.fig4/

EMPLOYER RESOURCES

Onsite Consultation

The Georgia Tech Consultation Program provides a free, confidential, on-site consultation services for small companies within Georgia (fewer than 250 employees and not more than 500 employees corporate-wide) that need assistance in occupational safety and health. Employers can request a consultation to help their company:

- Comply with OSHA's rules and regulations
- Identify physical hazards (such as lead exposures)
- Evaluate technical programs (such as hazard communication or respiratory protection)
- Correct hazards and improve safety and health management systems

To receive consultation services, call 404-894-4121 or complete a request form at: oshainfo.gatech.edu/georgia-tech-safety-health-and-environmental-services/osha-consultation-program/

ADDITIONAL RESOURCES

More information about work-related lead exposure:

- United States Department of Labor, Occupational Safety and Health Administration (OSHA) osha.gov/lead
- Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (NIOSH) cdc.gov/niosh/lead/index.html
- OSHA Consultation Program osha.gov/Consultation

Occupational Health Surveillance

The Georgia DPH Occupational Health Surveillance Program collects data on work-related injuries, illnesses, and hazards among Georgia workers to identify leading occupational health and safety problems in the state. The program also conducts follow-back and intervention activities for adults with elevated blood lead levels and provides data and educational materials on adult lead exposure. For more information, visit: dph.georgia.gov/epidemiology/georgia-occupational-health-and-safety-surveillance-program


DPH
GEORGIA DEPARTMENT OF PUBLIC HEALTH