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# Lead Dust from Demolitions

Ryan Barker  
Lead-Based Paint Program



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Environmental Public Health

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# Lead-Based Paint in Housing

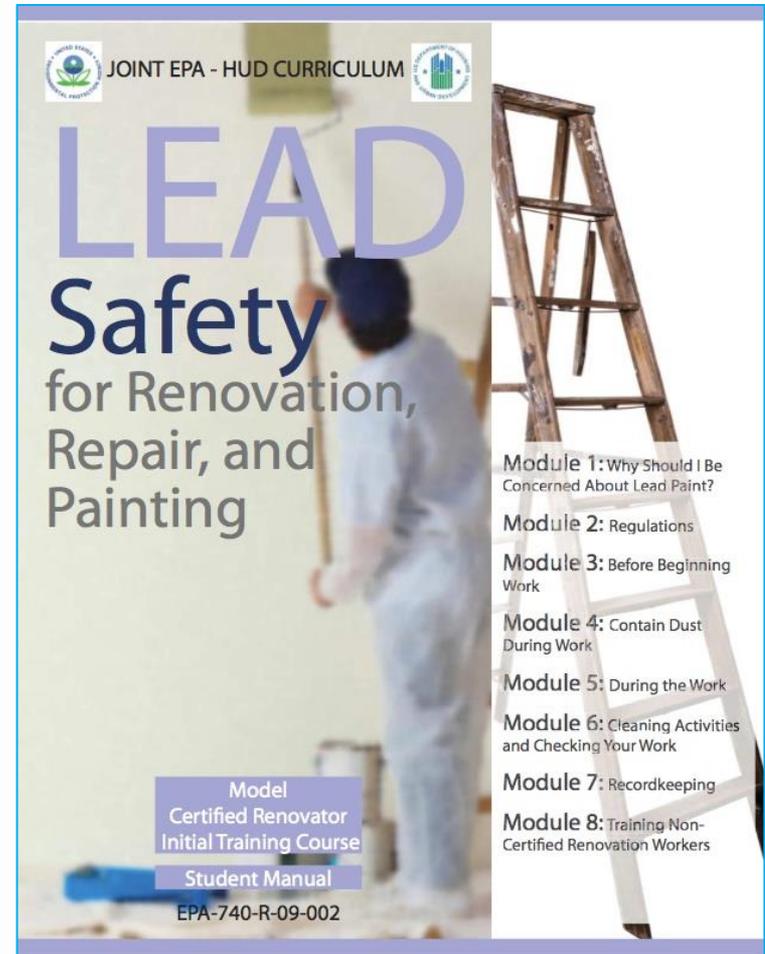


## How Widespread is Lead-Based Paint in Housing?

Year House Was Built	Percent of Houses with Lead Based Paint
Before 1940	87 percent
1940-1959	69 percent
1960-1978	24 percent



# Federal Regulations: Renovation, Repair, and Painting (RRP) Rule



# Federal Regulations: RRP Does Not include Demolitions

The screenshot shows the EPA website interface. At the top left is the EPA logo with the text "United States Environmental Protection Agency". To the right are language options: "Español", "中文: 繁體版", "中文: 简体版", "Tiếng Việt", and "한국어". Below this is a navigation bar with "Learn the Issues", "Science & Technology", "Laws & Regulations", and "About EPA". A search bar "Search EPA.gov" is on the left, and "Home", "Frequent Questions", "My Stuff", "Contact Us", and "Share" are on the right. The main content area has a breadcrumb trail: "Pollution Prevention and Toxics > Lead > Renovation, Repair, and Painting Rule". The question is: "Does the RRP Rule apply to demolishing and disposing of the following types of structures?". The answer is: "The RRP Rule covers renovations, which are defined as modifications of existing structures or portions of structures. The rule does not apply to demolitions of an entire free-standing building or structure." At the bottom left of the page, there is a link for "EPA HUD Real Estate Notification & Disclosure".

# Oregon Legislation and Demolition Best Management Practices

Oregon Senate Bill 871, 2017

<https://olis.leg.state.or.us/liz/2017R1/Measures/Overview/SB871>

(Note: Local governments can adopt lead-based paint management ordinances without state legislation.)

Oregon Health Authority, Best Practices for the Demolition of Residences with Lead-Based Paint, January 2018

<https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/HEALTHYNEIGHBORHOODS/LEADPOISONING/Documents/Best-Practices-Demolition-of-Residences.pdf>

# Mechanical Demolitions



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# Mechanical Demolitions



## Lead Safety for Renovation, Repair, and Painting

# A Little Dust Goes a Long Way

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- You can't see it.
- It's hard to sweep up.
- And, it travels.

**One gram of lead-based paint can contaminate a large area!**

October 2011



1-6

# Lead and Other Heavy Metals in Dust Fall from Single-Family Housing Demolition

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3804089/>



EPA's new dust-lead hazard standard is **10 micrograms ( $\mu\text{g}$ ) of lead in dust per square foot for floor dust and 100  $\mu\text{g}/\text{ft}^2$  for windowsill dust**

Significantly lower than the previous levels of 40  $\mu\text{g}/\text{ft}^2$  for floor dust and 250  $\mu\text{g}/\text{ft}^2$  for windowsill dust.

## Hazard Standards and Clearance Levels for Lead in Paint, Dust and Soil

<https://www.epa.gov/lead/hazard-standards-and-clearance-levels-lead-paint-dust-and-soil-tsca-sections-402-and-403>

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# Dust from Demolitions

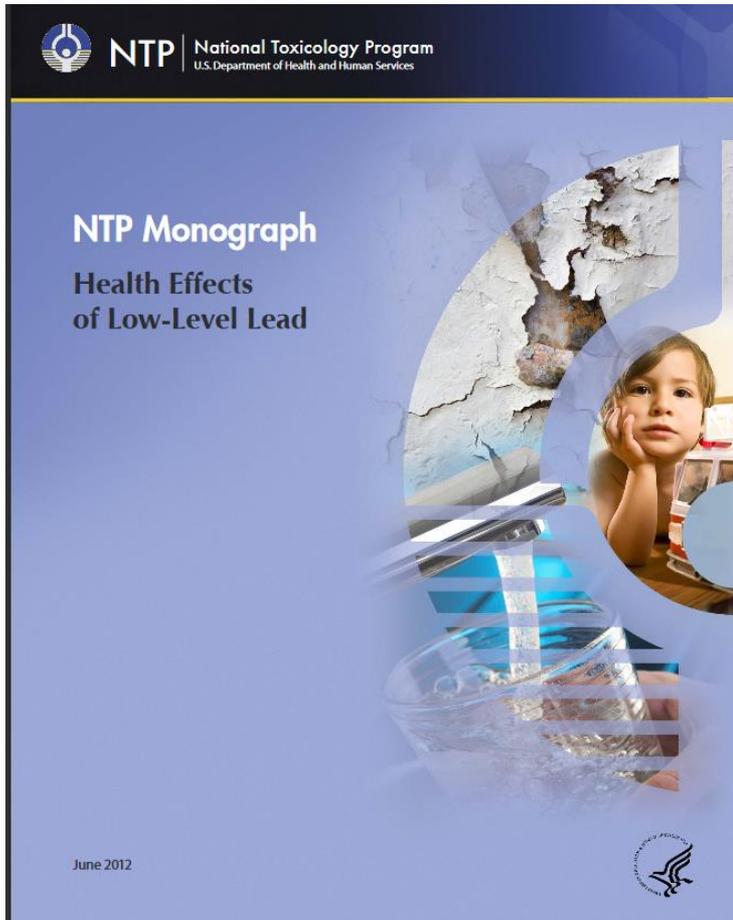


CDC/Cade Martin

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# Health Impacts of Lead Poisoning



*Overall, the NTP concludes that there is **sufficient evidence** that blood Pb levels  $< 10 \mu\text{g/dL}$  and  $< 5 \mu\text{g/dL}$  are associated with adverse health effects in children.*

U.S. Department of Health and Human Services, National Toxicology Program, Health Effects of Low-Level Lead, 2012  
<https://ntp.niehs.nih.gov/whatwestudy/assessments/noncancer/completed/lead/index.html>

# Health Risks of Lead

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- **Very hazardous to children.**
  - Damages the brain and central nervous system; can cause decreased intelligence, reading and learning difficulties, behavioral problems, and hyperactivity.
  - Damage can be irreversible, affecting children throughout their lives.
- **Hazardous to pregnant women.**
  - Damage to the fetus.
- **Also hazardous to workers and other adults.**
  - High blood pressure.
  - Loss of sex drive and/or capability.
  - Physical fatigue.
- **Lead exposure causes permanent damage.**



# Best Practices to Reduce Lead Dust from Demolitions



## The East Baltimore Revitalization Initiative

RESPONSIBLE REDEVELOPMENT

### On the Road to Reuse:

Residential Demolition Bid Specification Development Tool

### DEMOLITION BEST PRACTICES

A PRACTICAL GUIDE FOR DEMOLITION SITES IN THE CITY OF EUGENE

This guide has been created for those engaged in structural demolition in the City of Eugene to ensure safe site management practices that comply with all related legislation and regulations and support the public's safety as well as community livability.



### WAYNE STATE UNIVERSITY

Forms of mitigation of lead dust during demolition identified in the literature:

- Wetting during demolition
- Wetting debris
- Covering debris
- Pre-cleaning and wet methods
- HEPA vacuuming site
- Backfill or gravelling lot
- Tenting or shrouding
- Deconstruction in advance of demolition
- Fencing off site until debris is removed
- Advance notification to neighbors
- Tall fencing during demolition
- Post-demolition street and sidewalk cleaning
- Removing 2 inches of soil after demolition
- Providing residents with tack mats
- Using a Negative Air Machine

2014

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EPA  
EPA 560K13002

September 2013

Oregon  
**Health**  
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# Best Practices to Reduce Lead Dust from Demolitions

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The Detroit Building Authority and the City of Detroit will demolish the structure located at \_\_\_\_\_

in the next two weeks.  
(delivered on \_\_\_\_\_)

**THE MOST IMPORTANT THING YOU CAN DO IS LIMIT YOUR FAMILY'S CONTACT WITH DUST AND DEBRIS FROM THE DEMOLITION.**

For more information:  
**844-DET-DEMO**  
[www.buildingdetroit.org](http://www.buildingdetroit.org)



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**BEFORE, DURING + AFTER DEMOLITION**

- **Do not touch or remove any debris near the demolition site.**
- **Stay inside** when the structure is being knocked down and while debris is being removed from the site.
- **Close doors and windows during demolition.** If you must, use doors or windows that face away from the demolition site.
- **Remove shoes at the door**, and check clothes and shoes for dust before entering the home.
- **Wash hands before eating**, especially after playing or working outside.
- **Wash children's toys** frequently, especially those that may enter their mouth.
- **Clean windowsills, floors, and other surfaces** where dust collects with **warm, soapy water** and paper towels. If you use a mop, be sure to throw it away.



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# Resource Links

**City of Eugene, Demolition Best Practices**

<https://www.eugene-or.gov/DocumentCenter/View/19567/Demolition-Best-Practices?bidId=>

**U.S. Environmental Protection Agency, On the Road to Reuse: Residential Demolition Bid Specification Development Tool Report & Factsheet, 2013**

<https://www.epa.gov/large-scale-residential-demolition/road-reuse-residential-demolition-bid-specification-development>

**Wayne State University, Healthy Homes Lead and Demolition Resources, 1/16/14 Green & Healthy Homes Initiative**

<http://www.detroitgreenandhealthyhomes.org/wp-content/uploads/2014/06/Leaddemocombined011614.pdf>

**The East Baltimore Revitalization Initiative – Responsible Redevelopment**

<https://www.aecf.org/resources/responsible-demolition-a-baltimore-case-study-with-national-implications/>



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[Healthoregon.org/lead](http://Healthoregon.org/lead)