



## Rhode Island Department of Health

### Environmental Lead Poisoning Protection, Lead Inspections Guidance Document

The Rhode Island Department of Health Center for Healthy Homes and Environment, Environmental Lead Program adopts this guidance document, in accordance with R.I. Gen. Laws § 42-35-2.12, to provide further instruction for Lead Inspections, 216-RICR-50-15-5.

## Definitions

1. “Approved” means approved by the Department, state, or local authority having legal and administrative authority for such.
2. “Component or building component” means specific design or structural elements or fixtures of a building or residential dwelling that are distinguished from each other by form, function, and location. These include, but are not limited to, interior components such as: ceilings, crown molding, walls, chair rails, doors, door trim, floors, fireplaces, radiators and other heating units, shelves, shelf supports, stair treads, stair risers, stair stringers, newel posts, railing caps, balustrades, windows and trim (including sashes, window heads, jambs, sills or stools and wells or troughs), built in cabinets, columns, beams, bathroom vanities, counter tops, and air conditioners; and exterior components such as: painted roofing, chimneys, flashing, gutters and downspouts, ceilings, soffits, fascias, rake boards, corner boards, bulkheads, doors and door trim, fences, floors, joists, lattice work, railings, and railing caps, siding, handrails, stair risers and treads, stair stringers, columns, balustrades, window sills or stools and wells or troughs, casings, sashes, and air conditioners.
3. “Department” means the Rhode Island Department of Health.
4. “Dust wipe sample” means a sample collected by wiping a representative surface of a measured area, as determined by ASTM E1728, Standard Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques, or an equivalent method approved in writing by the Department.
5. “ELPAT” means the environmental lead proficiency analytical testing program process of accrediting laboratories and/or individuals who analyze environmental samples for lead in paint, dust, soil, water, and/or air filters to help ensure that their processes and protocols will produce accurate, repeatable, reliable results. It is a program created through a cooperative federal interagency group, including the American Industrial Hygiene Association (AIHA), National Institute for Occupational Safety and Health (NIOSH), Environmental Protection Agency (EPA), and US Centers for Disease Control and Prevention (CDC).

6. "Field blank" means a new, unused dust wipe that has been exposed to the on-site sampling conditions and analyzed to determine whether the sampling media is below the minimum reporting level of the analyzing laboratory.
7. "Flushed water sample" means a sample of tap water collected after the tap has been allowed to run at its maximum flow rate until cold, or at least one (1) minute, before the sample collection.
8. "Inspection" means the inspection, other than a comprehensive environmental lead inspection, of any structure or premises undertaken to determine compliance with the requirements of this chapter or with orders issued pursuant to this chapter.
9. "Lead Assessor" means a person, either authorized to act as an enforcing officer under the housing code or a designated employee of a federal, state or municipal agency with jurisdiction over housing, occupational health, child welfare and/or environmental standards who successfully completed a Lead Assessor training course and obtained a license, pursuant to this Part, to conduct lead inspections. Formerly known as Environmental Lead Assessor.
10. "Lead inspection" means any type of physical investigation of a child care center, single-family house, dwelling unit, or premises to identify the presence of environmental lead, lead hazards, or compliance with the cleaning requirements and lead standards in § 5.8 of Lead Inspection regulation (216-RICR-50-15-8) for paint, dust, soil, and/or water.
11. "Lead inspector" or "LI" means an individual, who successfully completed a certified Lead Inspector training course, passed the Lead Inspector state examination, completed a supervised field apprenticeship, and obtained a license, pursuant to this Part, to conduct lead inspections. Formerly known as Environmental Lead Inspector.
12. "Lead inspector-in-training" or "LIT" means an individual who successfully completed a certified Lead Inspector training course, passed the Lead Inspector state examination, and obtained a license, pursuant to 216-RICR-50-15-11, to conduct a supervised apprenticeship to meet the requirements for a Lead Inspector license.
13. "Lead renovator" means an individual who successfully completed a certified Lead Renovator training course and obtained a valid training certificate, pursuant to this Part, to perform renovation, repair, and painting (RRP) and lead hazard control (LHC) work. Formerly known as Lead-Safe Remodeler/Renovator.
14. "Lead test kit" means a commercially available kit recognized by EPA as being capable of allowing a user to determine the presence of lead in paint.
15. "Paint" means any substance applied to a surface as a surface coating, including, but not limited to, household paints, varnishes and stains.

16. “Renovation, repair, and painting project” or “RRP project” means a project which is being done by a Lead Renovation Firm for purposes other than removing lead-based paint or correcting lead hazards (although it may result in this). The purpose of an RRP project is to ensure that renovations performed at a regulated facility or for compensation at target housing are done safely and prevent lead exposure to owners, occupants, and neighbors of the property where the work is performed. Any additional work which disturbs lead-based paint, other than emergency renovation operations, performed in the same room or area within the same 30-day period must be considered the same RRP project for the purpose of determining whether the work is spot removal or RRP.
17. “X-ray fluorescence analyzer” or “XRF analyzer” means a portable instrument that measures lead concentration using the principle of x-ray fluorescence.

## **Environmental Lead Testing Methods**

### **Approved Testing Methods**

- A. A Lead Inspector, Lead Assessor, or Lead Renovator is trained and licensed or certified to use one (1) or more of the following testing methods for lead in paint, dust, soil, and/or water:
  1. EPA-recognized lead test kit for applicability of the RRP Rule used by a Lead Inspector, Lead Assessor, or Lead Renovator;
  2. X-Ray Fluorescence (XRF) Analyzer for on-site paint testing by a Lead Inspector;
  3. XRF analysis of dust wipe or soil samples by a person who is ELPAT-accredited as being proficient for lead analysis during the period the dust wipe or soil sample analysis, as applicable, is performed;
  4. Paint chip, dust wipe, soil, or drinking water sampling for analysis by a laboratory certified pursuant to § 11.9.2 of 216-RICR-50-15-11; and/or
  5. Any other method approved in writing by the Department.

### **Paint**

- A. General Requirements.
  1. Painted surfaces must be evaluated as follows:
    - a. The construction date of the subject building, dwelling, and/or accessory structure(s) must be determined:

- (1) For the purposes of this Part, all painted surfaces constructed after January 1, 1978 (post-1978) are assumed to be below the lead-safe threshold in § 3.7 of this Part, unless proven otherwise; testing is not required.
  - (2) For the purposes of this Part, all painted surfaces constructed before January 1, 1978 (pre-1978) must be assumed to exceed the lead-safe threshold in § 5.8 of 216-RICR-50-15-5 of this Part, unless proven otherwise; testing is required to determine if the lead concentration is below the lead-safe thresholds in § 5.8 of 216-RICR-50-15-5.
- b. A Lead Inspector shall test all building components which have evidence of separate, distinct painting histories.
- (1) Only a Lead Inspector may group together building components which have the same painting histories into a single representative test in one (1) building, one (1) dwelling, one (1) dwelling unit, one (1) common area, or one (1) accessory structure, as applicable.
  - (2) Painted fixtures which are physically attached to the premises must be included.
- c. A Lead Assessor or Lead Renovator shall test each component that will be disturbed by RRP activities, either by using a lead test kit or by collecting a paint chip sample for laboratory analysis.
- (1) Painted fixtures which are physically attached to the premises must be included.
- d. For the purposes of this Part, a surface coating is lead-based paint if a single testing method is positive for lead when multiple testing methods are used (i.e. lead test kit, XRF Analyzer, or laboratory analysis of a paint chip sample).

**B. Lead Test Kits.**

1. Lead test kits may be used to confirm the presence of lead-based paint, either to show that damaged paint is a lead hazard or to show whether the RRP Rule applies to the tested surface.
  - a. A Lead Inspector, Lead Assessor shall:
    - (1) Use a test kit, currently recognized by EPA, in accordance with the manufacturer's instructions; and

(2) Record the test kit results in a lead inspection report or the EPA Test Kit Documentation Form or equivalent, as applicable, as positive (+) or “yes” when there is a color change and negative (-) or “no” when there is no color change only if all the layers of paint on the tested surface were exposed.

b. A Lead Assessor or Lead Renovator shall:

(1) Use a test kit, currently recognized by EPA, in accordance with the manufacturer’s instructions;

(2) Obtain permission from the owner before damaging intact paint to expose all the layers of paint; and

(3) Record the test kit results on the EPA Test Kit Documentation Form, or equivalent, as positive (+) or “yes” when there is a color change and negative (-) or “no” when there is no color change only if all the layers of paint on the tested surface were exposed.

c. Test kits may not be used to determine Lead-Safe status, to determine eligibility for exemption from the Lead Disclosure Rule or the Lead-Safe Housing Rule, or to serve as the basis for a Full Lead-Safe Certificate (Form PBLC-21).

C. Paint Chip Sampling.

1. A Lead Inspector, Lead Assessor, or Lead Renovator shall collect paint chip samples for laboratory analysis by:

a. Properly labeling sample containers provided or approved by the analyzing laboratory;

b. Taking appropriate precautions to prevent contamination for each sample, including but not limited to, cleaning tool(s) before collecting a sample;

c. For Lead Inspectors and Lead Assessors, collecting a minimum of one (1) sample from each testing combination that is the minimum weight or area required by the analyzing laboratory;

d. For Lead Inspectors and Lead Renovators, collecting a sample that is the minimum weight or area required by the analyzing laboratory from each building component that will be affected RRP activities;

- e. For percent by weight or parts per million results, removing paint in such a manner as to minimize the amount of substrate which adheres to the sample, while at the same time ensuring that the sample contains all layers of paint down to the substrate;
  - f. Removing paint in a manner that minimizes the possibility of creating lead-contaminated dust or debris;
  - g. Placing the sample in an appropriately labeled container;
  - h. Immediately cleaning any dust or debris, if generated;
  - i. Repairing the surface from which the paint sample was collected, if necessary;
  - j. Maintaining a chain of custody for each paint chip sample from the time of collection to the time of submission to a Department-certified laboratory; and
  - k. Reporting the results as parts per million (ppm) in the lead inspection report.
2. Alternatively, paint chip samples may be collected pursuant to the EPA RRP Program Paint Chip Sample Collection Guide and reported as milligrams per square centimeter ( $\text{mg}/\text{cm}^2$ ) on the EPA Paint Chip Sample Collection Form or the equivalent.
- a. Samples should generally be at least one square inch ( $1 \text{ in}^2$ ) or at least the minimum area required by the analyzing laboratory;
  - b. All the paint should be removed from the sampling area (a small amount of substrate in the sample is permitted)
  - c. The exact dimensions of the area sampled must be recorded on a paint chip sample collection form; and
  - d. The analyzing laboratory must be instructed in advance to report the weight of the whole sample, the mass concentration, and the loading, in milligrams per square centimeter ( $\text{mg}/\text{cm}^2$ ).

#### D. XRF Testing.

- 1. A Lead Inspector or supervised Lead Inspector-in-Training shall use an XRF Analyzer for on-site measurements of painted surfaces:
  - a. XRF Analyzers must be used in accordance with the most current EPA/US Department of Housing and Urban Development (HUD) XRF Performance Characteristic Sheet (PCS) for that instrument.

- b. The manufacturer, model number, and serial number of the XRF Analyzer used must be indicated in the lead inspection report.
- c. If more than one XRF Analyzer is used to conduct an inspection, each measurement must be annotated to indicate the specific instrument used.
- d. The selection of the measurement location should be representative of the paint over the areas that are most likely to contain all the layers of paint and the XRF probe faceplate should be able to lie flat against the surface. For each measurement, the specific testing location must be recorded in the lead inspection report along with the XRF reading on that surface.
- e. XRF readings are expressed in milligrams per square centimeter ( $\text{mg}/\text{cm}^2$ ) and classified as positive, negative, or inconclusive. XRF readings at or above the threshold specified in the PCS are considered positive, while readings below the threshold are considered negative. XRF readings that are in the inconclusive range, as determined by the PCS, are considered inconclusive for the purposes of this Part and shall be assumed positive for lead unless otherwise determined by laboratory analysis of paint chip sampling.

## **Dust**

### **A. General Requirements.**

- 1. For initial lead inspections, dust wipe samples must represent a "worst case" situation and, for floors, the samples must be collected from areas nearest entries, in high traffic areas, under windows, and in areas frequently used by children.
- 2. For clearance inspections, dust wipe samples must be collected in any areas where dust wipe samples previously failed, in work areas, adjacent to work areas, as well as pathways used to access work areas and pathways used to remove waste.
- 3. Additional sampling may be conducted pursuant to the EPA Residential Sampling for Lead: Protocols for Dust and Soil Sampling [EPA 747/R-95-001] and/or the HUD Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing.

### **B. Dust Wipe Sampling.**

- 1. For each dust wipe, the Lead Inspector or Lead Assessor shall collect the sample by:

- a. Properly labeling sample containers provided or approved by the analyzing laboratory and/or PCS for the analyzing instrument;
- b. Taking appropriate precautions to prevent contamination for each dust wipe sample collected, including, but not limited to, wearing a new, clean pair of powderless disposable gloves for each sample;
- c. Placing a pre-moistened wipe, provided or approved by the analyzing laboratory, flat on the surface to be sampled and rubbing in an "S" pattern once over the entire sample area;
- d. Wiping an area of at least one square foot (1 ft<sup>2</sup>), whenever feasible, and a maximum of two square feet (2 ft<sup>2</sup>);
- e. Wiping the entire surface if the area to be sampled measures less than one square foot (1 ft<sup>2</sup>);
- f. Wiping a representative area if the surface to be sampled contains an excessive amount of dirt or debris, and a minimum of sixteen square inches (16 in<sup>2</sup>);
- g. Folding the wipe in half and rubbing over the entire sample area in an "S" pattern a second time at a 90-degree angle to the first series of wipes;
- h. Folding the wipe in half again and rubbing across the template's inner edge, if a reusable template was used;
- i. Folding the wipe again and placing in an appropriately labeled container;
- j. Measuring to one-eighth of an inch (1/8") and recording the collection area, or recording the template size, as applicable;
- k. Maintaining a chain of custody for each dust wipe sample from the time of collection to the time of XRF analysis by an ELPAT-accredited person and/or submission to a Department-certified laboratory; and
- l. Recording the results as micrograms per square foot (µg/ft<sup>2</sup>) in the lead inspection report.

C. Field Blank.

1. For each building, the Lead Inspector or Lead Assessor shall prepare one (1) field blank prior to leaving the building where dust wipe samples are collected by:



- a. Properly labeling a sample container provided or approved by the analyzing laboratory and/or PCS for the analyzing instrument;
  - b. Removing an unused wipe from its packaging, while wearing a new, clean pair of powderless disposable gloves, immediately unfolding then refolding the wipe, and placing it in the labeled container;
  - c. Maintaining a chain of custody for the field blank from the time of collection to the time of XRF analysis by an ELPAT-accredited person and/or submission to a Department-certified laboratory; and
  - d. Recording the results as micrograms ( $\mu\text{g}$ ) per wipe in the lead inspection report.
2. The purpose of the field blank is to identify errors or contamination in supplies, sample collection, or analysis. If the field blank result is not below the reporting limit of the analyzing laboratory, then all dust wipe sample results from the subject building are considered invalid, for the purposes of this Part, and must be repeated in their entirety.

D. XRF Testing.

1. A Lead Inspector, or other authorized person, shall be ELPAT-accredited as being proficient for dust wipe analysis during the period the XRF analysis is performed.
2. When an XRF measurement is indeterminate according to the manufacturer's specifications, the dust wipe sample(s) must be submitted to a Department-certified laboratory for analysis.

**Soil**

A. General Requirements.

1. A soil sample may be an individual ("grab") sample or a composite sample.
2. A composite sample must incorporate equal amounts of subsamples which are representative of the sampling area.

B. Soil Sampling.

1. For each soil sample, the Lead Inspector or Lead Assessor shall collect the sample by:
  - a. Properly labeling sample containers provided or approved by the analyzing laboratory and/or PCS for the analyzing instrument;

- b. Taking appropriate measures to prevent contamination of each sample, including, but not limited to, cleaning tool(s) and/or wearing a new, clean pair of powderless disposable gloves;
- c. Collecting soil samples from the top half-inch (0.5 in.) of soil using a clean spade, auger, centrifuge tube, or by hand while wearing a new, clean pair of powderless disposable gloves;
- d. Placing the sample in an appropriately labeled container;
- e. Maintaining a chain of custody for each soil sample from the time of collection to the time of XRF analysis by an ELPAT-accredited person and/or submission to a Department-certified laboratory; and
- f. Reporting the results as parts per million (ppm) in the lead inspection report.

C. XRF Testing.

1. A Lead Inspector or other authorized person shall be ELPAT-accredited as being proficient for soil analysis during the period the XRF analysis is performed.
2. The XRF instrument must be configured in accordance with the manufacturer's specifications and EPA Method 6200 for the analysis of soil, to make direct measurements of lead content.
3. When an XRF instrument on-site measurement or soil sample analysis is indeterminate according to manufacturer's specifications, that sample must be submitted to a Department- certified laboratory for analysis.

**Water**

A. General Requirements.

1. A Lead Inspector or Lead Assessor shall sample at least the tap which is most frequently used, if there are multiple taps in the inspection area.
2. A Lead Inspector or Lead Assessor shall sample the water directly from the tap if a faucet- mounted water filter is present.
3. A Lead Inspector or Lead Assessor, who collected any drinking water sample(s), shall maintain a chain of custody for each sample from the time of collection to the time of submission to a Department-certified laboratory.
4. Alternatively, a Lead Assessor, who collected any drinking water sample(s), shall maintain a chain of custody for each sample from the time

of collection to the time of submission to their local water supplier for analysis.

5. For sampling private drinking water systems, a Lead Inspector or Lead Assessor shall have a valid water sampler and interpreter license issued in accordance with the rules and regulations for Private Drinking Water Systems (Part 50-05-2 of this Title) or is employed by a Department recognized self-certifying agency.

B. Residential Water Sampling.

1. A Lead Inspector or Lead Assessor shall collect a water sample by:
  - a. Properly labeling sampling containers provided or approved by the analyzing laboratory or local water supplier; and
  - b. Taking appropriate precautions to prevent contamination for each water sample collected, including, but not limited to, having clean hands and/or wearing a new, clean pair of powderless disposable gloves for each sample.
2. For first draw water samples:
  - a. Using a one-liter (1 L) container (a wide mouth container is recommended);
  - b. Ensuring that no water has been used for at least six (6) hours; and
  - c. Opening the container and immediately filling it with cold water running at a steady stream.
3. For flushed water samples:
  - a. Using a sample container which is at least the minimum volume required by the analyzing laboratory or local water supplier;
  - b. Turning the cold water tap on to a steady stream (a wide-mouth container is recommended) and running the water approximately 60 seconds or until a noticeable shift in the temperature occurs;
  - c. Opening the container and immediately filling it with cold water without allowing any water to run down the drain while collecting the sample; and
  - d. Noting the exact flushing time in the lead inspection report.

C. Non-Residential Water Sampling.

1. Water sampling in schools should be conducted in accordance with the EPA 3Ts for Reducing Lead in Drinking Water in Schools or the most current EPA non-residential water sampling protocol.

### **Laboratory Analysis**

- A. A Lead Inspector must submit all environmental lead samples to a Department-certified laboratory within seven (7) days of collecting the samples;
- B. Laboratories performing analysis of environmental lead must do so in accordance with the certification and licensing requirements in § 3.15.3 of this Part; and
- C. Laboratories performing analysis of lead in paint, interior dust, and/or soil are required to calculate total lead, not extractable lead, using current EPA-approved quantitative analytical methods.

### **Additional XRF Requirements**

- A. Radioactive Materials License.
  1. A Lead Inspector or supervised Lead Inspector-in-Training shall operate an XRF under a currently valid specific or general radioactive materials license for the XRF instrument used, in accordance with the Department's Rules and Regulations for the Control of Radiation (Part 40-20-1 of this Title).
  2. A Lead Inspector or supervised Lead Inspector-in-Training, using an XRF instrument in Rhode Island with a radioactive materials license issued by another jurisdiction, shall comply with the reciprocity provisions of the Department's Rules and Regulations for the Control of Radiation.
- B. Radiation Safety Training.
  1. A Lead Inspector or supervised Lead Inspector-in-Training shall successfully complete radiation safety training approved by the Department.
- C. Operation.
  1. When operating an XRF Analyzer, a Lead Inspector or supervised Lead Inspector-in-Training shall comply with the following:
    - a. The technical specifications contained in the most current version of the PCS for that instrument;
    - b. The manufacturer's operating and maintenance instructions;

- c. The calibration of each XRF instrument used must be verified against the manufacturer's standards for that instrument at the beginning and end of each inspection and at a frequency determined by the manufacturer during the inspection;
  - (1) If the XRF instrument does not produce a reading within the PCS-specified tolerance for each standard, that instrument cannot be used until such time as the unit has been demonstrated to be operating within the PCS- specified tolerance for each standard.
- d. A separate calibration log must be maintained for each XRF instrument. The results of all calibration verification checks must be recorded in the log; and
- e. The results of all calibration verification checks for a lead inspection must also be recorded in the lead inspection report.