



Designation: E3074/E3074M – 20

Standard Practice for Clearance Examinations Following Lead Hazard Reduction Activities in Single Family Dwellings, in Individual Units of Multifamily Dwellings, and in Other Child-Occupied Facilities¹

This standard is issued under the fixed designation E3074/E3074M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers visual assessment for the presence of deteriorated paint, surface dust, painted debris, and paint chips with environmental sampling of surface dust to determine whether a lead hazard exists at the time of sample collection, following lead-hazard reduction activities, or other building maintenance and modification activities.

1.2 This practice addresses clearance examination of single-family detached dwellings (including exterior structures, such as fences), individual units in multifamily dwellings, common areas or exterior sites, and child-occupied facilities.

1.3 This practice also addresses clearance examinations that may include soil sampling, for example when soil abatement has been performed.

1.4 This practice includes a procedure for determining whether regulatory requirements for lead clearance levels for dust and, where warranted, soil have been met, and consequently, whether a clearance area passes or fails a clearance examination.

NOTE 1—This practice is based on that portion of “clearance” described for the United States in 40 CFR Part 745 for abatement, and in 24 CFR Part 35 for lead-hazard reduction activities other than abatement.

1.5 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

¹ This practice is under the jurisdiction of ASTM Committee D22 on Air Quality and is the direct responsibility of Subcommittee D22.12 on Sampling and Analysis of Lead for Exposure and Risk Assessment.

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1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

- D1356 Terminology Relating to Sampling and Analysis of Atmospheres
- D4840 Guide for Sample Chain-of-Custody Procedures
- D5124 Practice for Testing and Use of a Random Number Generator in Lumber and Wood Products Simulation
- E631 Terminology of Building Constructions
- E1480 Terminology of Facility Management (Building-Related)
- E1605 Terminology Relating to Lead in Buildings
- E1727 Practice for Field Collection of Soil Samples for Subsequent Lead Determination
- E1728/E1728M Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination
- E1792 Specification for Wipe Sampling Materials for Lead in Surface Dust
- E2239 Practice for Record Keeping and Record Preservation for Lead Hazard Activities

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

E2255/E2255M Practice for Conducting Visual Assessments for Lead Hazards in Buildings

2.2 U.S. Code of Federal Regulations³

24 CFR Part 35 Department of Housing and Urban Development (HUD), Requirements for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally Owned Residential Property and Housing Receiving Federal Assistance (especially subparts B and R)

40 CFR Part 745 Environmental Protection Agency (EPA), Lead-Based Paint Poisoning Prevention in Certain Residential Structures (especially subparts D, L and Q)

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms not appearing here, see Terminologies D1356, E631, E1480, and E1605.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *clearance, n*—combined visual and quantitative environmental evaluation used to determine if a hazardous level of lead remains after a lead hazard reduction, or other building maintenance or modification activity has been performed.

3.2.1.1 *Discussion*—Usually performed with the idea of determining if the space undergoing the evaluation is safe for reoccupancy.

3.2.2 *clearance area, n*—work area and additional spaces outside the work area where lead contamination may have occurred during lead hazard reduction and other building maintenance or modification activities.

3.2.2.1 *Discussion*—The spaces outside the work area may include rooms connected to the work area, egress routes, waste storage areas, and grounds adjoining exterior work areas.

3.2.3 *clearance examination, n*—the process of conducting a combined visual and quantitative environmental evaluation used to determine if a hazardous level of lead remains after a lead hazard reduction, or other building maintenance or modification activity has been performed.

3.2.4 *clearance level, n*—value, specified by regulation from an authority having jurisdiction or by contractual agreement, that indicates the maximum amount of lead permitted in dust on a surface following completion of a lead hazard reduction, or other building maintenance or modification activity.

3.2.5 *work area, n*—the interior or exterior space where lead hazard control, or other building maintenance or modification activities are performed.

3.2.5.1 *Discussion*—The interior work space may include (1) a portion of a room, an entire room, or room equivalent, or (2) portions of multiple rooms, multiple rooms or room equivalents, depending upon the extent or location, or both, of the lead hazard control activity. The exterior work space may include (1) a portion of a building facade, an entire building facade, associated structures, such as fences, and (2) bare soil.

³ Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.

4. Significance and Use

4.1 A clearance examination of abatement areas and other areas associated with other lead-hazard control activities, or building maintenance or modification activities in single-family detached dwellings, individual units in multifamily dwellings, common areas or exterior sites, and child-occupied facilities is performed to determine that the clearance area is adequately safe for reoccupancy.

4.2 It is the responsibility of the user of this standard to assure that all regulatory, contractual and personnel requirements are met prior to conduct of a clearance examination. At a minimum, users of this standard shall be trained in its use and in safe practices for its conduct.

NOTE 2—Authorities having jurisdiction may have certification or specific training requirements, or both.

4.3 This practice is one of a set of standards developed for lead hazard management activities. The visual assessment procedures required in this practice are found in Practice E2255/E2255M and the record keeping requirements are found in Practice E2239.

4.4 Although this practice was primarily developed for dwellings and for other child-occupied facilities, this practice may be also applied to nonresidential buildings and related structures by agreement between the client and the individual conducting the clearance examination.

4.5 This practice may be used by owners and property managers, including owner-occupants, and others responsible for maintaining facilities. It may also be used by lead hazard management consultants, construction contractors, labor groups, real estate and financial professionals, insurance organizations, legislators, regulators, and legal professionals.

4.6 This practice does not address whether lead-hazard reduction activities or other building modification or maintenance work were performed properly.

5. General Requirements

5.1 *Applicable Regulations*—The clearance examination shall be conducted in accordance with all regulations promulgated by authorities having jurisdiction. Applicable regulations are those that are currently in force in jurisdictions where the clearance examination is conducted.

5.2 *Personnel Qualifications*—All persons conducting or participating in the clearance examination shall be qualified in accordance with regulations promulgated by authorities having jurisdiction.

NOTE 3—In the United States, 40 CFR Part 745, Subpart L, or 24 CFR Part 35, Subpart R, or both, may apply.

5.3 *Reporting Schedule*—Before arriving at the property, determine with the client the schedule for reporting the results of the clearance examination. Specify in hours or days when the clearance summary and clearance report are due to the client. Consider in the reporting schedule the following: when the last sample for the clearance examination is to be collected; when the results of testing are to be available; and whether and

how reoccupancy, additional construction, or maintenance work, or other factors affect the schedule.

5.4 *Dust Wipe Sampling Materials*—Use only dust wipes that meet Specification **E1792** to collect samples of surface dust.

5.5 *Dust Sampling Procedure*—Collect surface dust wipe samples in accordance with Practice **E1728/E1728M**. Record the unique location description, unique sample identifier, the dimensions of the area sampled, and all other sample collection information on the paint/dust/debris data form (given in Practice **E2255/E2255M**).

5.6 *Soil Sampling Procedure*—When required, collect soil samples in accordance with Practice **E1727**. Record the unique location description, unique sample identifier, and all other sample collection information on the ground data form (given in Practice **E2255/E2255M**).

5.7 *Laboratory Selection:*

5.7.1 Use only laboratories that hold the accreditations, certifications, and recognitions needed to conduct lead testing services required by regulations promulgated by authorities having jurisdiction.

NOTE 4—In the United States, laboratories are recognized for analysis of lead in soil or dust wipe samples, or both, as applicable, by the U.S. Environmental Protection Agency (EPA) through the National Lead Laboratory Accreditation Program (NLLAP).⁴

6. Activities Conducted Prior to Visual Assessment and Sample Collection

6.1 *Permissions and Releases*—In advance of carrying out the Clearance Examination, obtain the following:

6.1.1 Signed releases permitting entry to the property and conducting the clearance examination, as may be needed, prior to attempting entry to the property,

6.1.2 Permission to acquire and review available property construction records and any other records appropriate to the conduct of the clearance examination, and

6.1.3 Permission to collect samples

6.2 *Determine Clearance Area*—Determine the clearance area with the client or client's designee.

6.2.1 For multifamily housing, agree on the specific dwelling units.

6.2.2 If within a specific dwelling unit the location of the interior work area in which the lead hazard reduction or other building maintenance or modification activity was performed is unknown, the clearance examiner shall assume that the clearance area is the entire interior of the dwelling.

6.2.3 If the exterior work area upon which hazard reduction or other building maintenance or modification activity was performed is unknown, the clearance examiner shall assume that the clearance area is the entire exterior property.

6.3 *Prepare Floor and Site Plan(s):*

6.3.1 Prepare a floor plan (interior) or property site plan (exterior), or both, to cover all the clearance areas, as applicable, in accordance with Practice **E2255/E2255M** for each dwelling unit, common area or exterior site to be examined. Each plan shall be used to record clearance examination activities including:

6.3.1.1 Location of the clearance area,

6.3.1.2 Locations from which samples of soil or surface dust, or both, were collected prior to a lead hazard or other building maintenance or modification activity,

NOTE 5—These samples of soil or surface dust, or both, may have been collected to document lead levels prior to the conduct of abatement, other lead hazard activities, and other building maintenance or modification activities.

6.3.1.3 Area(s) used for the storage of debris and waste,

6.3.1.4 Route(s) used by workers to walk from the work area to the exterior of the building,

6.3.1.5 Locations(s) where deteriorated paint, surface dust, paint chips, and painted or unpainted debris (if any) had been observed within the work area during visual examination(s).

6.4 *Clearance Examination Initiation:*

6.4.1 Verify with the client or client's designee, that the lead hazard reduction or other building maintenance or modification activity has been completed before initiating the visual assessment.

6.4.2 Wait at least 1 h after cleaning has been completed before initiating the visual assessment to allow airborne dust to settle.

7. Protocol for Interior Visual Assessment

7.1 Conduct visual assessments of all clearance areas in each dwelling unit, common area, or exterior site to be examined in accordance with Practice **E2255/E2255M**.

7.1.1 *Spaces Outside the Work Area*—Assess each space outside the work area but within the clearance area.

7.1.1.1 *Rooms Connected to the Work Area*—Assess each room connected to the work area for the presence of surface dust and painted debris. If no surface dust or painted debris is observed, the room connected to the work area passes visual assessment. Any observation of surface dust or painted debris constitutes failure.

7.1.1.2 *Storage Areas*—Assess each storage area, if any, where painted debris or other lead hazard reduction or other building maintenance or modification waste has been stored. If no painted debris or other lead hazard reduction or building maintenance or modification waste is observed, the storage area passes visual assessment. Any observation of painted debris or lead hazard reduction waste constitutes failure.

7.1.1.3 *Egress Routes*—Assess egress routes for the presence of surface dust and painted debris. If no surface dust or painted debris is observed in an egress route, the egress route passes visual assessment. Any observation of surface dust or painted debris constitutes failure.

7.1.2 *Work Area*—Assess the work area for the presence of deteriorated paint, surface dust, and painted debris. If no deteriorated paint, surface dust, or painted debris is observed,

⁴ For additional information, contact U.S. EPA / Lead Paint Program, Office of Pollution Prevention & Toxics, 1200 Pennsylvania Avenue N.W., Mail Code 7404T, Washington, DC 20460, <https://www.epa.gov/lead/national-lead-laboratory-accreditation-program-nllap>.

the work area passes visual assessment. Any observation of deteriorated paint, surface dust, or painted debris constitutes failure.

7.2 If any part of the clearance area does not pass visual assessment, advise the client or the client's designee, or both, that corrective action, such as recleaning of the area or removal of debris and waste, or both, are required prior to performance of another visual examination.

7.3 If the clearance area passes visual assessment, proceed to collect samples of surface dust.

8. Protocol for Interior Settled Dust Sampling

8.1 Collect wipe samples of surface dust in accordance with Practice **E1728/E1728M**.

8.2 Record on the floor plan locations from which dust wipe samples are collected.

8.3 *Floor and Windows within the Work Area*—Randomly select (see Practice **D5124**) sampling locations for collecting floor and window dust-wipe samples within the work area.

NOTE 6—A failed floor clearance analysis result means that the work area floor from which the samples were taken fails clearance. A failed window sill clearance analysis result means that all window sills in the work area fail clearance. A failed window trough clearance analysis result means that all window troughs in the work area fail clearance.

8.3.1 Work Area Floors:

8.3.1.1 Randomly select four sampling locations from the floor of each portion of a room, entire room, or room equivalent in the work area. Randomly select two sampling locations from the perimeter of the room, entire room, or room equivalent, and randomly select two sampling locations from the interior of the room, entire room, or room equivalent. See **Annex A1**. These four wipes may be composited to become a single sample for analysis if the laboratory to be used for analysis is recognized as capable of performing composite wipe sample analysis. See **Note 7**.

NOTE 7—In the United States: Laboratories are recognized for analysis of lead in soil or dust wipe samples, or both, as applicable, by the EPA through the NLLAP; and laboratories recognized for analysis of composited wipe samples hold a specific accreditation for analysis of composited wipe samples shown in their scope of accreditation.

8.3.1.2 For portions of rooms, entire rooms, or room equivalents larger than 50 m² [500 ft²], divide the floor into two or more equal parts of 50 m² [500 ft²] or less. Randomly select two sampling locations from the perimeter of the room, entire room, or room equivalent, and randomly select two sampling locations from the interior of the room, entire room, or room equivalent. These four wipes may be composited to become a single sample for analysis if the laboratory to be used for analysis is recognized as capable of performing composite wipe sample analysis. See **Note 7**.

8.3.2 Windows in the Work Area:

8.3.2.1 *No Window within the Work Area*—Record that there is no window in the work area.

8.3.2.2 *One Window in a Portion of a Room, Entire Room, or Room Equivalent*—Identify two sampling locations; one as the entire interior sill (if one exists) and the other as the entire trough (if one exists). If no interior sill or trough, or both, do

not exist, record so. If the trough surface is inaccessible for sampling (for example, window nailed shut), record so (no trough sample is taken).

8.3.2.3 *More Than One Window within the Work Area*—Randomly select window sill(s) or trough(s), or both, as sampling locations.

(1) Stand at the entrance used to enter the room and flip a coin. HEADS selects the first window to the right; TAILS selects the first window to the left.

(2) For the window selected, flip a coin. HEADS means that the entire interior sill (if it exists) is the sample location; TAILS means that the trough (if it exists and is accessible) is the sample location.

(3) Continue in the direction determined in **8.3.2.3(1)**, selecting sampling locations on all windows in the work area, alternating between sills and troughs.

(4) For those windows in which the troughs are selected but unavailable to sample, collect an interior sill sample.

8.4 Floors Outside of the Work Area:

8.4.1 *Rooms Connected to the Work Area*—As in **8.3.1**, randomly select four sampling locations from the floor of each portion of a room, entire room, or room equivalent outside of the work area, or in rooms connected to the work area by a doorway, or both. Randomly select two sampling locations from the perimeter of the room, entire room, or room equivalent, and randomly select two sampling locations from the interior of the room, entire room, or room equivalent. These four wipes may be composited to become a single sample for analysis if the laboratory to be used for analysis is recognized as capable of performing composite wipe sample analysis.

NOTE 8—Dust samples are collected outside the work area to assure that leaded dust has not migrated from the work area to adjacent areas.

8.4.2 *Painted Debris and Lead Hazard Reduction Waste Storage Areas*—As in **8.3.1**, randomly select four sampling locations from the floor of each interior room, entire room, or room equivalent where painted debris or lead hazard reduction waste, or both, was stored, if any. Randomly select two sampling locations from the perimeter of the room, entire room, or room equivalent, and randomly select two sampling locations from the interior of the room, entire room, or room equivalent. These four wipes may be composited to become a single sample for analysis if the laboratory to be used for analysis is recognized as capable of performing composite wipe sample analysis.

8.4.3 *Egress Routes*—Determine one or more sampling location(s) approximately halfway along each route that was used by workers to walk from the work area(s) and, if within the building, lead hazard reduction waste storage area(s), to the exterior of the building.

9. Protocol for Exterior Visual Assessment and Sampling

9.1 *Visual Assessment*—Conduct a visual assessment of the exterior clearance area in accordance with Practice **E2255/E2255M**.

9.2 For lead hazard reduction activities performed on the exterior surface of the building, include the ground areas beneath the faces of the building surface subjected to the lead

hazard reduction activity or other building maintenance or modification activity and the adjoining faces up to the distance of within one half the height of the work area or up to the property line, whichever is smaller.

9.2.1 Exterior clearance areas pass visual assessment when no deteriorated paint is observed, and the ground is free of painted debris, including paint chips and lead hazard reduction waste.

9.2.1.1 If visual assessment is not passed, advise the client or the client's designee.

9.2.1.2 If visual assessment is passed, conduct soil sampling (if required).

9.3 Soil Sampling:

9.3.1 Soil sampling is required following soil replacement or as specified in contractual agreements, or both.

9.3.2 When required, collect the soil samples according to Practice E1727. Examples of locations where soil samples may be collected include:

9.3.2.1 The dripline,

9.3.2.2 Replacement soil,

9.3.2.3 Bare soil areas located beneath the exterior surface abated, and

9.3.2.4 Bare soil beneath the two adjoining exterior building faces.

9.3.3 Record on the site plan all locations where soil samples are collected.

NOTE 9—Bare soil beneath the two adjoining exterior building surfaces on the property is sampled because paint contamination from the exterior surface upon which hazard reduction activities were performed may spread and be deposited on the adjoining horizontal surfaces.

10. Sample Processing

10.1 Assure that each sample container is labeled with a unique sample identifier.

10.2 Initiate a chain-of-custody record in accordance with Guide D4840 for collected surface dust and soil samples. The chain-of-custody form shall include:

10.2.1 Unique sample identifiers,

10.2.2 Date of collection,

10.2.3 The dimensions of the areas from which dust-wipe samples were collected, and

10.2.4 The dates of assumption and relinquishment of custody for each person who collected the samples and for each person or company/organization that obtains custody of any or all of the samples, at least the name(s) of the person(s).

10.3 Submit all samples to a laboratory recognized for lead analysis as promulgated by authorities having jurisdiction. See Note 7.

10.3.1 Request that the laboratory provide a copy of their certificate that recognizes that the laboratory meets the regulatory requirements of the authorities having jurisdiction. Verify that the laboratory's scope of accreditation includes the testing to be performed.

10.3.2 Request that the laboratory provide other information developed by the laboratory as specified in their quality system (for example, such as required in the United States by the EPA NLLAP Laboratory Quality System Requirements (LQSR)).

10.3.3 Establish an acceptable laboratory turnaround time based on the requirements for scheduling reoccupancy, additional construction or maintenance work, or both, work schedule or other criteria.

10.4 Request that the laboratory report receipt of the samples collected during the clearance examination:

10.4.1 When pre-lead hazard reduction samples were collected, verify the storage security of such samples.

10.5 *Dust-Wipe Samples*—Request that the laboratory report, at minimum:

10.5.1 Mass (micrograms, μg) of lead found in the sample,

10.5.2 The calculated mass of lead per unit area sampled (micrograms of lead per 100 square centimeters ($\mu\text{g}/100\text{ cm}^2$) [micrograms of lead per square foot ($\mu\text{g}/\text{ft}^2$)]);

10.5.3 Method reporting limit (MRL) or reporting limit (RL) in mass (μg) of lead per sample.

10.6 *Soil Samples*—Request the laboratory report, at minimum:

10.6.1 Micrograms of lead per gram of soil ($\mu\text{g}/\text{g}$), milligrams of lead per kilogram of soil (mg/kg), or parts per million (ppm) for soil; and

10.6.2 Method reporting limit (MRL) or reporting limit (RL) in micrograms of lead per gram of soil ($\mu\text{g}/\text{g}$), milligrams of lead per kilogram of soil (mg/kg), or parts per million (ppm) for soil.

11. Decision Making for Dust-Wipe Samples

11.1 Upon receipt of the analysis report from the laboratory, transfer the dust-wipe sample analysis results to the appropriate paint/dust/debris or ground clearance summary data form completed during the visual assessment. Compare the sample analysis results to applicable regulatory clearance level(s).

NOTE 10—In the United States, 40 CFR Part 745, Subpart L, or 24 CFR Part 35, Subpart R, or both, may be applicable to define acceptable clearance levels and to determine how to calculate acceptable clearance levels for composited wipe samples.

11.2 *Floor and Windows within the Work Area:*

11.2.1 *Floor Sample Analysis Result Less than Clearance Level*—If the lead content of a work area composited wipe sample is less than the regulatory clearance level, or another more stringent level as set forth by contractual agreement, the floor in the portion of room, entire room, or room equivalent work area in which the composited sample was taken passes clearance.

11.2.2 *Floor Sample Analysis Result Equal to or Greater than Clearance Level*—If the lead content of a work area composited wipe sample is equal to or greater than the regulatory clearance level, or another more stringent level as set forth by contractual agreement, the floor in the portion of room, entire room, or room equivalent work area in which the composited sample was taken fails clearance. The cleaning steps or additional portions, or both, of the lead hazard control activity needed to prepare for the clearance examination are repeated, after which the clearance examination process is to be begun anew.

11.2.3 *Interior Window Sill Sample Analyses Results Less than Clearance Level*—If the lead content of all work area